NYU Wagner rudin center for transportation policy & management

Assessing New York's Border Needs

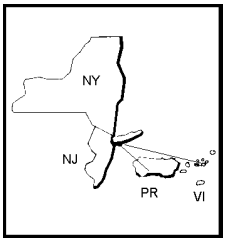
A joint effort with the University Transportation Research Center

Mark Seaman
Todd Goldman, Ph.D.
Allison L. C. de Cerreño, Ph.D.

Elliot G. Sander, Director
Allison L. C. de Cerreño, Co-Director

December 2004

Rudin Center for Transportation Policy & Management
NYU Robert F. Wagner Graduate School of Public Service
295 Lafayette Street, 2nd Floor New York, NY 10012
www.wagner.nyu.edu/rudincenter



ROBERT E. PAASWELL
DIRECTOR

REGION II

New Jersey

New York

Puerto Rico

CONSORTIUM MEMBERS

City University of New York
Columbia University
Cornell University
New York University
Polytechnic University
Rensselaer Polytechnic Institute
Rutgers University
State University of New York
Stevens Institute of Technology
University of Puerto Rico

REGION II
UNIVERSITY TRANSPORTATION RESEARCH CENTER

Assessing New York's Border Needs

Final Report

Mark Seaman
Rudin Center for Transportation Policy and Management
New York University Robert F. Wagner Graduate School of Public Service

Todd Goldman, Ph.D.
University Transportation Research Center
City College of New York

Allison L. C. de Cerreño, Ph.D.
Rudin Center for Transportation Policy and Management
New York University Robert F. Wagner Graduate School of Public Service

December 2004

In cooperation with the New York State Department of Transportation,
and the United States Department of Transportation,
Washington, DC

MARSHAK HALL ROOM 910
THE CITY COLLEGE OF NEW YORK, NEW YORK , NY 10031 212-650-8050 FAX 212-650-8374
WWW.UTRC2.ORG

TECHNICAL REPORT STANDARD TITLE PAGE

1. Report No.	2.Government Accession No.	3. Recipient's Catalog No.
49777-14-05		

4. Title and Subtitle	5. Report Date
Assessing New York's Border Needs	December 2004
	6. Performing Organization Code

7. Author(s)	8. Performing Organization Report No.
Mark Seaman, Rudin Center for Transportation Policy and Management New York University Robert F. Wagner Graduate School of Public Service Todd Goldman, Ph.D., University Transportation Research Center, City College of New York Allison L. C. de Cerreño, Ph.D., Rudin Center for Transportation Policy and Management New York University Robert F. Wagner Graduate School of Public Service	49777-14-05

9. Performing Organization Name and Address		10. Work Unit No.
Rudin Center for Transportation Policy & Management NYU Robert F. Wagner Graduate School of Public Service 4 Washington Square North, New York, NY 10003	University Transportation Research Center City College of New York Y-Building, Room 220, New York, NY 10031	11. Contract or Grant No.

12. Sponsoring Agency Name and Address		13. Type of Report and Period Covered
New York State Department of Transportation, 1220 Washington Ave Albany, NY 12232	U.S. Department of Transportation Washington, D.C.	Final Report
		14. Sponsoring Agency Code

15. Supplementary Notes

16. Abstract

New York's northern and western borders with Canada have long served as important commercial and tourist gateways for the entire United States. With recent and projected growth in cross-border travel, and heightened security concerns arising from the terrorist attacks on September 11, 2001, the transportation infrastructure in the border regions is being pushed to its limits. In response, agencies responsible for the crossings have developed a wide range of proposals, including physical expansion projects, new border crossing protocols, and technological solutions, all aimed at improving the flow of traffic, upgrading security, and accommodating projected growth.

New York has in recent years received little Federal funding for such projects. As Congress debates reauthorization of federal transportation funding laws, it is considering proposals to expand and reform border infrastructure funding programs. Within this context, this report explores New York's border needs. It discusses the relative importance of the border as a national and regional resource and the challenges posed by growth and security. It then provides an overview of the proposals at each of New York's major crossings, and concludes with an evaluation of funding prospects.

17. Key Words	18. Distribution Statement
Border regions, transportation policy	No Restriction

19. Security Classif (of this report)	20. Security Classif. (of this page)	21. No of Pages	22. Price
Unclassified	Unclassified	77	N.A.

Form DOT F 1700.7 (8-69)

Acknowledgments

On behalf of the NYU-Wagner Rudin Center for Transportation Policy and Management and the University Transportation Research Center, we would like to acknowledge the assistance of the many individuals who provided their time, suggestions, data, and references toward the completion of this report. Brian Kirch at the New York State Department of Transportation guided the project, provided extremely helpful feedback, and introduced us to many useful sources of information. The following individuals also provided valuable insights into border crossing procedures and plans: Luke Rich, Buffalo-Niagara Partnership; Bruce Campbell, Parsons; Garry Douglas, Plattsburgh-North Country Chamber of Commerce; Susan Matton, Plattsburgh-North Country Chamber of Commerce; Robert Horr, Thousand Island Bridge Authority; Kenneth Staub, Staub Trucking; Thomas Heffernan, U.S. Department of Homeland Security; and Karen Delmonico of the Watertown-North Country Chamber of Commerce.

The authors also wish to thank Elliot Sander and Robert Paaswell for steadfast support of this project, and Chris Andrichak and James Kinoshita for helping prepare the final document.

Finally, we acknowledge the New York State Department of Transportation, which provided the funding for this study.

Executive Summary

New York's northern and western borders with Canada have long served as important commercial and tourist gateways for the entire United States. With recent and projected growth in cross-border travel, and heightened security concerns arising from the terrorist attacks on September 11, 2001, the transportation infrastructure in the border regions is being pushed to its limits. In response, agencies responsible for the crossings have developed a wide range of proposals, including physical expansion projects, new border crossing protocols, and technological solutions, all aimed at improving the flow of traffic, upgrading security, and accommodating projected growth.

New York has in recent years received little Federal funding for such projects. As Congress debates reauthorization of federal transportation funding laws, it is considering proposals to expand and reform border infrastructure funding programs. Within this context, this report explores New York's border needs. It discusses the relative importance of the border as a national and regional resource and the challenges posed by growth and security. It then provides an overview of the proposals at each of New York's major crossings, and concludes with an evaluation of funding prospects.

National and Regional Importance of New York's Border

Since the first free trade agreement between Canada and the United States in 1989, commerce between the two countries has grown by more than 49 percent, faster than the overall economy. Nearly two-thirds of the goods traded across the border are transported by truck, and this traffic has grown dramatically in recent years, with 6.9 million trucks crossing from Canada into the United States in 2002, up from 5 million in 1994.

New York's portion of the border has long served both national and local needs. Canada is the United States' largest trading partner, accounting for 23% of U.S. exports and 30% of its imports, and New York's border carries more of this trade than any state except Michigan. Among all border states, New York handles 17% of all exports from the United States to its NAFTA trading partners and 18% of the imports from these countries. To a greater extent than other key border regions, New York's largest crossings primarily serve commerce in other states. Nearly 80% of truck trade through Buffalo-Niagara, the nation's third largest port-of-entry, is destined for or originates in states other than New York. This represents the largest national share of any of the ten largest ports on either border. By contrast, crossings in Texas and California largely serve commerce in their respective states and are less significant nationally.

Overall, cross-border trade is less important for New York State's economy as a whole than it is for the United States. Exports to Canada account for 1.8% of U.S. Gross Domestic Product and only 1.4% of New York's Gross State Product, highlighting the relative importance of the border as a national resource. Yet, these facts mask significant local variations: border regions and communities along the trade routes are much more economically dependent on cross-border trade. Exports to Canada make up more than 3% of the gross product for Buffalo-Niagara, Rochester, and Jamestown – all near the western border – and between 2.3% and 2.7% for Syracuse, Binghamton, Albany, and Newburgh, all of which are along major trade corridors.

Due to the unique geography of the Great Lakes, New York's border crossings play an essential role in domestic commerce, as well. Eleven percent of the trucks crossing New York's border travel through Ontario on their way to or from Michigan or points beyond. The route through Ontario cuts 100 miles off the trip for many truckers and avoids obstacles posed by weight restrictions on some interstate highways.

The majority of individual trips across the border appear to be of an infrequent nature and at many crossings are primarily for recreational travel or tourism. Fewer than 20% of crossings at the western border and 10% at most of the northern crossings are commute trips. There are some significant variations: the Seaway crossing in northern New York, for example, is notable for having a large share of local traffic, due to close economic and cultural ties across the border.

Border Area Transportation Challenges

New York's nineteen border crossings include simple road and rail crossings, bridges, and complex combinations of both. The most heavily-used crossings are at Buffalo-Niagara in western New York, and Thousand Islands, Ogdensburg, Seaway, and Champlain, along the northern border. In the Buffalo-Niagara region, four international bridges carry more than half of the New York-Canada commercial traffic and over two-thirds of the passenger vehicles. The crossings at Champlain and Thousand Islands, both directly connected to major north-south U.S. interstate highways, each account for 15-20% of the commercial traffic, while the remaining crossings carry less than five percent each.

With the surge in trade that occurred in the 1990s, pressure developed to upgrade the border infrastructure. Plans were developed to expand inspection facilities at Champlain and to add another span at Peace Bridge in Buffalo. These plans were put into a new perspective after September 11, 2001. When terrorists struck New York and Washington, DC, U.S. Customs immediately tightened border security. More intensive inspections of commercial and passenger vehicles, however, meant that trucks and autos suffered delays of as much as 15 hours in the days after the attack, and cross-border traffic plummeted. These changes have affected the way the border works and have resulted in continuing delays at the crossings, even as the alert level has dropped.

These delays, and the associated congestion, incur social and economic costs. However, there are few reliable sources on delay times and the resultant economic costs. Anecdotal evidence points to frequent backups of several miles at the major crossings, while statistical data gathered by the customs stations shows an average delay of less than 15 minutes at the Peace Bridge, New York's largest crossing. A study based on these lower estimates found economic costs at the three largest crossings of $18-25 million for freight entering Canada, and $24-43 million for freight entering the United States. The most significant costs came from secondary (more detailed) inspections of commercial traffic, and the requisite time and equipment overhead needed to deal with this uncertainty in cross-border travel. The costs of delays in personal and business travel came to a small amount of the total.

Since September 11, the United States and Canada have moved to implement new protocols aimed at improving security and speeding the flow of traffic across the border. For frequent travelers, the border agencies have introduced the NEXUS program to provide expedited crossing for pre-approved individuals. The two countries have also instituted a pre-clearance program for freight – Free and Secure Trade (FAST) – that involves pre-enrollment of drivers, shippers, and importers. While these programs aim to speed the flow of traffic and allow inspectors to focus on high-risk cargo and travelers, their success has been hampered by low participation rates and inadequate staffing, marketing, and supporting infrastructure. Both programs rely on the existence not only of dedicated stations at the inspection plazas but dedicated lanes on the approaches to the border. Without such facilities, pre-approved travelers and shipments continue to suffer the same delays as all other traffic and there is little incentive to join the programs. With FAST, additional impediments to the program's success are the stringent security requirements to which shippers must adhere in order to qualify for the program.

Beyond the national interest in ensuring a secure and efficient border, there is also a critical local interest in ensuring that public investments promote a beneficial economic relationship between the state and its border. Transborder freight flows connect producers and consumers of goods, providing economic benefits at each end of the trip. Along the way, however, this freight movement produces a number of negative impacts, including traffic congestion, air pollution, and pavement degradation. Buffalo and the state economy more generally reap significant benefits from cross-border trade. However, to the extent that the state serves as a conduit for through traffic – which the Buffalo-Niagara region does in large measure – most of the border's economic opportunities pass it by. Thus, another key challenge in the selection of border infrastructure investments is figuring out how to bring positive economic returns to the state. In some cases, this may require upgrading key corridors so that heavy truck volumes do not provide a safety or congestion hazard to local traffic. In other cases, it could include strategic investments in intermodal cargo facilities or freight infrastructure, to strengthen the role of alternative modes, and make New York State a more efficient location for manufacturing, warehousing, and other economic activities. Another challenge is to identify a more equitable way to balance the costs of needed border

investments shouldered by the border states with the non-border states that reap the benefits of cross-border trade.

Proposed Investments
The two national governments, New York State, the provinces of Ontario and Quebec, and local bridge authorities have identified over $1.7 billion in needs to facilitate more efficient and secure travel across the border. It should be noted these needs reflect programmed projects, projects in the planning phase, and unfunded needs. The reader is cautioned to bear this in mind throughout the report. The needs provide a range of benefits to different sets of users and can be classified as follows:

- *Border Crossing and Queuing Capacity ($369 million)*: Improvements to the physical throughput capacity of roads and bridges crossing the border, as well as increases in space dedicated to vehicles waiting at customs and immigration or toll booths.

- *Customs and Immigration Capacity and Efficiency ($383 million)*: Includes a broad range of capital investment and operational policy options such as FAST, NEXUS and off-site commercial vehicle processing centers.

- *Toll Collection Improvements ($6 million)*: Includes increasing the number of toll booths and consolidating facilities.

- *Intelligent Transportation Systems ($22 million)*: Technologies to help transportation infrastructure operators manage their systems more effectively, as well as information systems that help travelers make more efficient route selection decisions.

- *Tourism-Supportive Services and Infrastructure ($21 million)*: Investments designed to encourage visitors to explore a region.

- *Intermodal Freight Facilities ($124 million)*: Improved terminals and facilities for transferring freight among truck, rail, aviation and maritime modes of transport.

- *Highway Corridors and Interchanges ($793 million)*: Investments to upgrade highways beyond the border region that serve as important routes for international freight transport.

The single largest project in the state is the realignment and upgrade of U.S. 219 in western New York ($613 million), which will potentially play a critical role as a trade corridor supplementing the existing, overburdened network. The next largest project is the proposed expansion of Buffalo's Peace Bridge, estimated at $310 - $340 million. There is broad consensus on the need for new capacity but sharp division over the type of structure and alignment, and how it should be funded. Other major projects include the $96 million expansion of border facilities at Champlain, and an effort to make I-87 a "smart corridor" that would promote international trade, enhanced security, and economic development.

Funding Sources
Any proposal to develop new transportation infrastructure must inevitably address the question of resources. Many of the $1.7 billion in proposed near- and intermediate-term projects (those slated for completion by 2010) already have identifiable funding sources. About $657 million in highway improvements and intelligent transportation systems on major corridors can be built with federal dollars allocated by New York State in conjunction with metropolitan planning organizations (MPOs). The General Services Administration (GSA) generally addresses capital needs related to law enforcement and customs inspections along the border, and will likely bear the $296 million cost for upgrades to its own facilities. Many other projects can be funded with user fees; about $202 million in investment needs could potentially be addressed by raising tolls at border-area bridge authorities.

Other projects require more creative efforts to create a match between local needs and the interests of potential sources of funding. Investments in freight infrastructure and intermodal facilities may attract

investment from state or local governments interested in promoting economic development. A combination of private financing and public subsidies is being lined up to cover capital costs for passenger and freight ferries on Lake Ontario, and similar partnerships could be developed to fund inland intermodal facilities.

If these sources are successfully tapped, there is still a $493 million gap in funding: $256 million for borders projects, $180 million for corridors, and $57 million for rail projects. The largest unfunded need is $205 million for Peace Bridge expansion. Other unfunded projects include a $15 million expansion of the U.S. inspection plaza at the Lewiston-Queenston Bridge and $25 million to expand bridge capacity at Seaway. Funding has also not been lined up for the $180 million upgrade of the U.S. 15/NYS 17 intersection near Corning. Among rail projects, the largest unfunded needs are $35 million for preservation of short-rail lines in the Niagara region and $22 million for upgrades along the Canadian Main line leading to Rouses Point.

Federal Funding Proposals
Some of these needs could be met at the Federal level by expanded funding of the Borders and Corridors program. This program – actually, a pair of programs – was created by Congress in 1998 to pay for proposed border transportation infrastructure and projects along "high priority" corridors throughout the country. Congress set the initial funding level for the combined program at $140 million per year from 1999 through 2003.

Initially, the U.S. Department of Transportation (USDOT) awarded these funds on the basis of grant applications, but since 2001 Congress has specifically designated most of the recipients. In the process, funding for border projects, and New York's share of the overall funding pie, have both suffered: out of $1.1 billion appropriated between 1999 and 2003, $154 million went to borders, and less than three percent of the total ($29.5 million) went to New York.

In the past two years Congress and the Administration have proposed expanding and reforming the program. While the details differ from bill to bill, all would substantially increase the amount of funding available and be more focused on the needs of border states. The House bill additionally designates I-87 a "high-priority" corridor, potentially providing additional funding sources. The various funding proposals go a long way to reducing, but not closing, the gap in New York's border infrastructure funding. However, the real challenge facing the new legislation is whether Congress can resist the urge to earmark the funds, and instead allow funds to be allocated to the projects on the basis of merit.

Benefits of Investment
Given the likelihood that there will not be enough funding to meet all identified needs in the border region, a careful evaluation of priorities may be appropriate. These investments have many different benefits and these benefits accrue across different geographic areas. Each level of government may have its own policy objectives and priorities for investments made in border region infrastructure.

For example, to serve a national interest, the federal government might seek to:

- *Invest in border crossings with the greatest national impacts*. The ports that serve the greatest volumes of traffic also tend to serve the broadest geographic areas. Improvements to these crossings will have the greatest national benefits. The Buffalo-Niagara crossings are clearly a national resource; nearly 80% of the cargo processed originates in or is destined for states other than New York.

- *Promote integration and resiliency of the entire transborder transportation system*. It is also in the interest of the national economy to have a system that is resilient in the face of security emergencies and localized closures of border crossing facilities. Projects that provide overflow capacity, enable diversions of traffic to alternative border crossings, and facilitate alternative mode choices (such as rail) tend to support this objective.

- *Ensure national security*. Security is traditionally a federal concern. Upgraded secondary inspection facilities, as well as dedicated FAST lanes and booths that enhance the effectiveness of inspection programs, may both be seen as federal responsibilities.

- *Protect health and welfare*. In TEA-21, ISTEA, and earlier legislation, Congress has asserted a federal role in ensuring that federal transportation funds do not undermine the achievement of federal environmental and safety standards. Similarly, a national perspective on border infrastructure might support mitigating the environmental and public health impacts of commercial traffic and improving the safety of border crossing facilities.

State or local agencies are likely to be more interested in regional benefits. If they take the lead in developing funding for border-related transportation infrastructure, they may wish to emphasize projects that address their concerns and interests:

- *Promote regional transportation efficiency and reliability*. Such efforts might ensure that the local highway system and intrastate corridors have sufficient capacity to handle growing long-distance freight traffic without impeding local traffic. Also included could be efforts to provide better real-time traffic management, incident response, and traveler information.

- *Establish efficient intermodal transfer and cargo handling facilities*. Investments of this type would help make upstate New York a more efficient location from which to conduct business and make it easier for businesses to choose rail, marine, or air freight services over trucks. If tied to brownfield redevelopment efforts, these projects can serve a broader strategy of capturing for the local economy a larger share of cross-border economic activity.

- *Attract international visitors* and facilitate their travel to areas off the beaten path.

- *Protect health and welfare.* As with the federal government, there is a regional interest in mitigating negative environmental, safety, and public health impacts of freight traffic.

Failure to invest in upgrading the nation's most critical ports of entry will mean higher transportation costs for thousands of businesses all around the United States. This will affect the border-area economy, to be sure, but most impacts will be felt outside the immediate border region. Similarly, building additional border crossing capacity without upgrading corridors and intermodal facilities within the region may mean that any resulting economic growth may be located elsewhere. For the state and border region to seize the economic opportunities inherent in rising cross-border traffic, they will need to pursue a balanced set of investments that tie capacity improvements more closely with projects that meet the needs of the border region economy.

Table of Contents

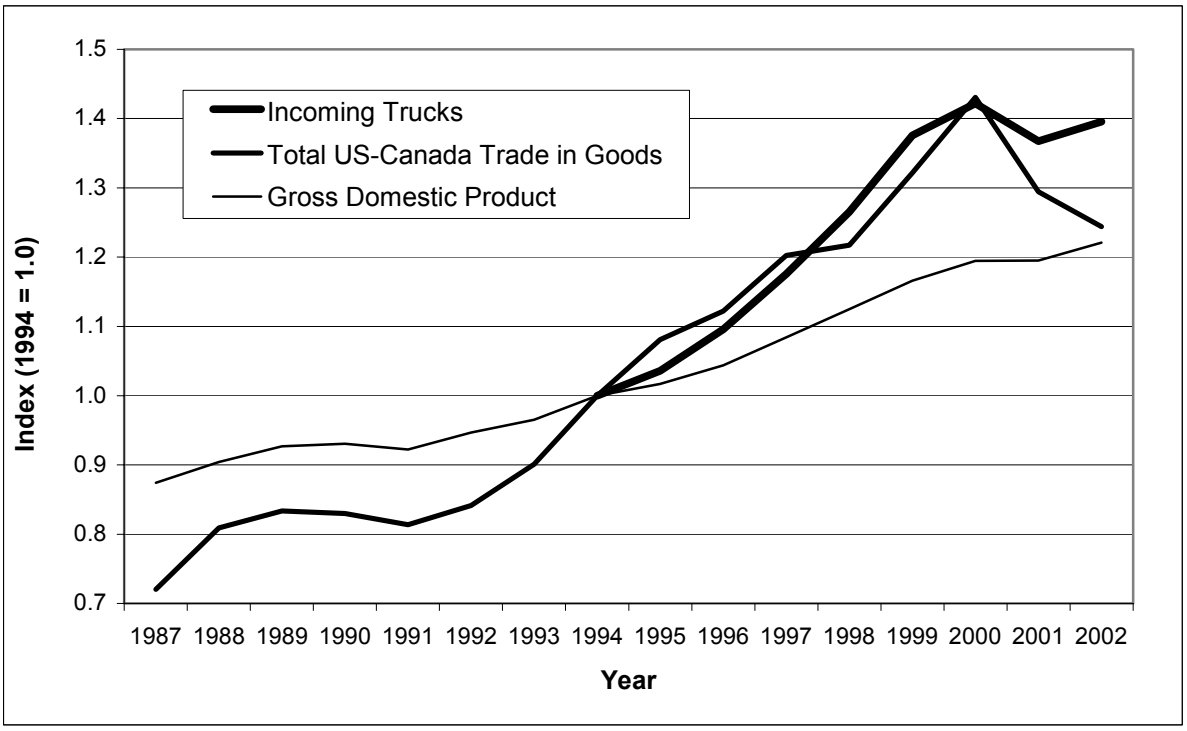
Tables

Figures

1. Introduction

Since implementation of the U.S.-Canada Free Trade Agreement in 1989 and the North American Free Trade Agreement (NAFTA) in 1994, commerce between Canada and the United States has grown dramatically. Trade between Canada and the United States has increased 49 percent since 1989, faster than the overall economy (Figure 1.1). Nearly two-thirds of the goods traded across the border are transported by truck; this traffic has also grown dramatically in recent years, with 6.9 million trucks crossing from Canada into the United States in 2002, up from 5 million in 1994.[1]

Figure 1.1. Trends in U.S. Economy, Trade with Canada, and Truck Traffic



Data for GDP and U.S.-Canada trade are inflation adjusted. Sources: BTS, *Border Crossing Data* (2003); U.S. Bureau of Economic Analysis (BEA), *U.S. International Transactions Accounts Data* (2003), Table 11 – Canada; BEA, *Current-Dollar and "Real" Gross Domestic Product* (2004).

In New York as well as in other border states, these rapidly growing traffic volumes are straining the capacity of the transborder transportation network. Yet international trade continues to expand, raising concerns that border-area infrastructure will be overwhelmed. The United States Department of Transportation (USDOT) expects that international freight tonnage to and from the United States could double by 2020. New York exports to Canada over highways are expected to more than double between 1998 and 2020, and imports from Canada to New York are forecast to increase 136% in the same period.[2]

At the same time, new policy demands are changing the nature of cross-border travel. After the terrorist attacks of September 2001, new security imperatives and customs inspection protocols slowed the

[1] U.S. Bureau of Transportation Statistics (BTS), *Border Crossing Data, U.S.-Canada 2002* (2003), http://www.bts.gov/programs/international/border_crossing_entry_data/us_canada/index.html.
[2] U.S. Department of Transportation (USDOT), Federal Highway Administration (FHWA), *Freight Analysis Framework State to State Commodity Flow Database, International Flows* (2003), http://ops.fhwa.dot.gov/freight/adfrmwrk/faf_state2state.htm.

processing rate for cross-border traffic, greatly increasing the personnel and facilities required. In the short term, this led to significant increases in congestion and delays. The Federal government responded by significantly increasing staffing at the border – many stations have more than three times the number of staff they had previously. It has also begun upgrading customs facilities; in New York, a major expansion of the facility at Champlain is underway, and similar expansions are being planned for Thousand Islands, Seaway, and Lewiston-Queenston. The Federal government also added programs to use information technology to speed the clearance of low-risk shipments and people. While the acute border capacity crisis that followed 9/11 has largely subsided, much remains to be done to ensure that the new border enforcement regime is able to handle the growth in traffic that will accompany the next economic expansion.

New York State also faces many other urgent public policy concerns that directly or indirectly place demands on the way border-area transportation improvements are handled. Upstate New York was largely bypassed by the latest economic cycle, unlike the rest of the Great Lakes region, and has faced an ongoing struggle to generate employment and economic growth. Environmental concerns are also perennially important; as more is learned about the harmful effects of particulate pollution, strategies to reduce the idling of trucks at border inspection plazas are gaining urgency. Both these economic and environmental objectives require that the region find ways to create a modern, efficient transportation system, without sacrificing quality of life.

1.1. Funding

Any approach to addressing these various policy concerns must be developed within the context of available funding. Border transportation improvements have historically been funded through the Federal-Aid highway system, by the state Departments of Transportation, the General Services Administration (which builds and maintains the inspection facilities), and the public authorities that own the bridge crossings. The Canadian federal and provincial governments have contributed to bi-national projects, and local governments have occasionally provided small amounts of supplemental funding.

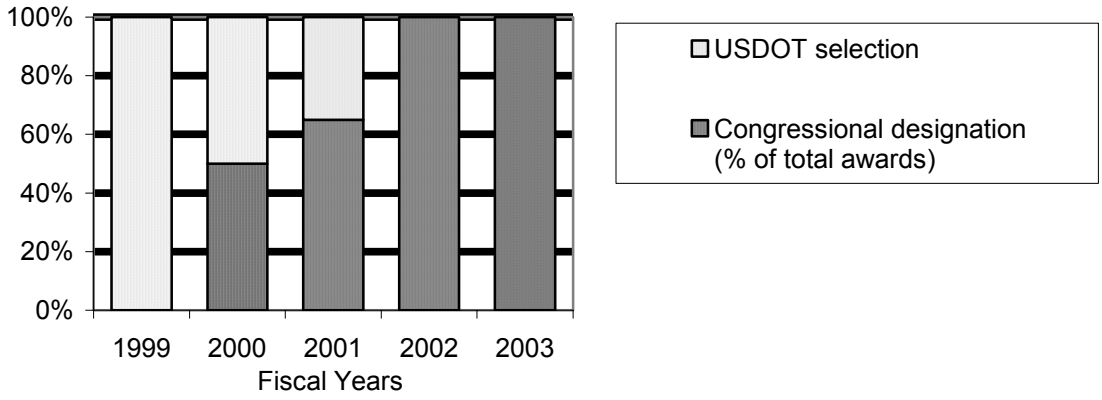
With passage of the Transportation Equity Act for the 21st Century (TEA-21) in 1998, Congress created a dedicated program for funding border transportation infrastructure – the Coordinated Border Infrastructure program. At the same time, Congress created a National Corridor Planning and Development program, to fund projects along "high priority" corridors throughout the country. Funding for the combined “Borders and Corridors” program was set at $140 million per year from 1999 through 2003.

The Borders and Corridors program proved quite popular among both grantees (states and metropolitan planning organizations) and legislators. In its first three years, grant applications outstripped actual funding about 16-fold: grantees requested $2 billion in funding each year, while Congress appropriated approximately $122 million. In FY 2000, the second year of the program, Congress began earmarking a large portion of the funds, using them, according to the FHWA, "as an additional funding source for conventional construction activities."[3] By FY 2002, Congress was earmarking the entire appropriation, leaving no funds for USDOT to allocate according to the legislated guidelines. In the fourth and fifth years of the program, Congress increased the appropriations from the originally authorized $140 million to $478 million and $255 million, respectively, and earmarked the entire amount.

As Congressional earmarking grew, the direction of the program changed. In the first year, when USDOT selected the grant recipients, awards were split evenly between corridors and borders projects, and nearly all of the corridor money went to projects enumerated in the original legislation (so-called high-priority corridors). TEA-21 had encouraged multistate projects, and in the first year, nearly 20 percent of the funds went to such projects. Yet as Congressional earmarking increased, funds were diverted from borders projects and even from the high-priority corridor projects, so that in the last year, 59 percent of the awards went to non-high-priority corridors, while only five percent went to borders projects, and multistate awards dropped to less than two percent of the total (Figure 1.2).

[3] USDOT, FHWA, *The Freight Story*, http://www.ops.fhwa.dot.gov/freight/publications/freight%20story/strategies.htm#1.

Figure 1.2. Congressional Designation of Borders and Corridors Projects



New York has been affected by these trends in two ways. First, the state has received a relatively small share of total Borders and Corridors funding. From FY 1999 through FY 2003, New York received $12.9 million for border projects, just 8% of the $154 million allocated for border projects. New York received 3% of the combined borders and corridors funding, $29.5 million out of a total $1.1 billion. West Virginia, Kentucky, and Arkansas, states without international borders, received $95 million, $82 million, and $54 million in combined funding, respectively. On the southern border, the largest recipients were Texas, $91 million; and California, $62 million. Michigan, a state with significant border traffic and major border needs, received almost the same total funding as New York, $29.6 million.

Second, in the later years of the program, at least two of New York's earmarks went to projects that had little, if anything, to do with border traffic or international trade. In 2003, $500,000 was directed to a local project in Huntington Station, on Long Island. An award of $22,000 went to "Thomas Cole House Access" in Catskill. It seems unlikely that these projects would have qualified for selection by USDOT.

On the other hand, the vast majority of New York's awards have supported critical border and corridor infrastructure. Appendix A lists all of New York's awards, including FY 2004 awards that were not included in this analysis. Projects have included the North Country Transportation Study ($2 million), border station upgrades at Ogdensburg-Prescott ($300,000), the future Interstate 99 ($5.9 million), U.S. 219 ($2.8 million), and the I-87 Corridor study ($1.9 million). Nearly $7 million went to the Cross Harbor Freight Movement Project, a project that is beyond the scope of this study, but ostensibly meets the TEA-21 guidelines.

Overall, the program has helped advance New York's borders and corridors needs, though far less than it might have without Congressional earmarking. As earmarking has increased, the program's ability to achieve its objectives has been undermined; it has become focused on corridors to the exclusion of borders, and has shifted away from multi-state projects and high-priority corridors as originally intended.

1.2. Framework of the Report

New York State faces a great challenge in finding an appropriate mix of investments in transportation capacity, security, and efficiency that can help it reach its diverse policy objectives within the constraints of the available resources. The purpose of this report is to outline the key challenges facing the border region, examine the extent to which anticipated resources will be able to address identified needs, and suggest a framework through which New York State can begin to assess how to allocate the limited resources it has toward meeting those challenges.

Section 2 of this report presents an overview of the impact of trade on New York and the national economy. It shows that New York's border crossings serve the entire country – most of the exports

crossing its border come from other states. At the same time, the economy of communities near the border is closely tied to Canada's economy and depends on efficient crossings.

In recent years, crossing the border has become more complicated and time-consuming. Truck traffic at some crossings is stretching the available capacity, and increased security has slowed traffic across the border. In the wake of September 11, Canada and the United States initiated a number of programs to better identify high-risk shipments while streamlining processing of low-risk goods and travelers. The Section 3 presents an overview of the border crossing protocols, and discusses the causes of delay.

New York State Department of Transportation and other agencies have proposed a number of projects to address problems at the border. Section 4 suggests criteria for evaluating these projects in a broader policy context. It examines proposed projects according to the transportation modes they serve; their feasibility, timing, and prospects for funding; their geographic locations; and the policy objectives they help to achieve.

Such policy objectives have been put forward at the national, state, and local levels. Specific capital investment choices, however, are constrained by the availability of funds. The fourth and concluding section examines the funding situation, discusses some of the choices that can be made, and considers their economic impact.

2. The Border's Economic Role in Perspective

Economic trade across New York State's border with Canada is important to both the local and the national economies. This section places the economic significance of New York's international border in a wider context, both by looking at its roles within the state and national economies, and its role relative to other important border areas around the United States.

2.1. Overall Trade with NAFTA Partners

Canada is the largest trading partner of the United States. In 2002, Canada supplied over 30% of all U.S. imports – far more than the next two largest partners, Mexico (19.4%) and China (18.1%). More importantly for the U.S. economy, Canada consumed over 23.2% of U.S. exports, also more than Mexico (14.1%) or Japan (7.4%). The efficiency of cross-border travel between the United States and Canada is therefore of great importance to both nations.

Table 2.1. Trade in Goods with Canada, 2002

State	Billions of 2002 U.S. Dollars			
	Total Exports	Trade by Truck		
		Exports	Imports	Total
Michigan	19.8	17.1	24.8	41.9
Ohio	15.4	13.3	7.5	20.8
California	10.1	6.4	5.6	12.1
Texas	9.9	6.7	4.2	10.9
New York	9.2	8.0	12.3	20.3
Illinois	8.2	6.9	5.7	12.6
Indiana	6.8	5.9	3.1	9.1
Pennsylvania	5.6	4.8	5.0	9.8
Tennessee	3.9	3.1	1.9	5.0
Wisconsin	3.9	3.5	2.4	5.9

Source: U.S. Census Bureau, Foreign Trade Division, *State Export Data: State Exports by Country* (2003); BTS, *U.S. International Transactions Accounts Data* (2003).

Trade with Canada is of critical importance to New York State, just as it is to the nation as a whole (Table 2.1). In 2002, New York was the fifth largest exporter of goods to Canada from among the 50 states, behind Michigan, Ohio, California, and Texas. Of the $9.2 billion in goods that New York exported to Canada, some 87.3% was sent by truck. Including total commerce by truck, New York is Canada's third largest trading partner among the states.

Table 2.2. Exports to Canada as a Share of Economic Activity

Area	Billions of 1999 U.S. Dollars		Exports as % of Gross Product
	Gross Product	Exports to Canada	
United States	9,268.6	163.913	1.8%
New York State	743.9	10.581	1.4%

Sources: U.S. Bureau of Economic Analysis, *Regional Economic Accounts: Gross State Product* (2003); U.S. Census Bureau, *Statistical Abstract of the United States 2002* (2003); U.S. Census Bureau, *State Export Data: State Exports by Country* (2003).

Although proximity has no doubt fostered New York's close economic relationship with Canada, it has not made the state's economy especially dependent on trade with Canada (Table 2.2). Exports to Canada account for about 1.8 percent of gross domestic product for the United States as a whole. New York State is actually less reliant on cross-border trade: exports to Canada represent only about 1.4 percent of its gross state product. This underscores the northern border's role as a truly national, rather than regional, economic resource.

Table 2.3. Trade in Goods with Mexico, 2002

State	Billions of 2002 U.S. Dollars			
	Total Exports	Trade by Truck		
		Exports	Imports	Total
Texas	41.6	33.6	22.8	56.4
California	16.1	13.5	19.8	33.3
Michigan	4.2	2.5	7.9	10.4
Arizona	3.0	2.7	3.4	6.1
Ohio	2.1	1.4	3.7	5.0
Illinois	2.1	1.5	3.4	4.9
Indiana	1.9	1.1	3.5	4.5
New York	1.9	1.4	2.9	4.2
Louisiana	1.6	0.2	0.1	0.3
Florida	1.5	0.7	1.4	2.1

Source: U.S. Census Bureau, Foreign Trade Division, *State Export Data: State Exports by Country* (2003); BTS, *U.S. International Transactions Accounts Data* (2003).

New York's trade with Mexico is smaller in scale and plays a smaller role nationally. Among the 50 states, New York ranks eighth in goods exports to Mexico. About $1.9 billion in goods were exported to Mexico from New York in 2002, about 72 percent of which was shipped by truck. Mexico was New York's fifth largest export market, accounting for about 5.1% of the state's international shipments.

2.2. National Importance of New York's International Border

2.2.1. Aggregate Measures Of Border Activity

Among U.S. states, New York has the third busiest international border in the nation, behind only Michigan and Texas. In all, New York ports of entry handle 16.6% of all U.S. exports to its NAFTA partners by all modes of transport, and 18.2% of its imports.[4]

By truck, New York's crossings process 23% of all imports (on a weight basis), more than any other state except Michigan (Table 2.4 and Figure 2.1). Individually, three New York ports of entry rank among the top ten nationally. The largest of these is in the Buffalo-Niagara Falls region, which includes the Peace Bridge, Whirlpool Rapids Bridge, Rainbow Bridge, and the Lewiston-Queenston Bridge. Another major port of entry is Champlain-Rouses Point, which includes a cluster of border crossings in the northeastern corner of the state, and which is served by the Interstate 87 corridor. A third major port of entry is at Alexandria Bay, which is located in the Thousand Islands region along the St. Lawrence River and connects with Interstate 81. Smaller crossings along the northern border between Champlain and Alexandria Bay are located at Massena, Ogdensburg, and Trout River; each of these carries less than 0.2% of total U.S. NAFTA trade.

While transborder rail freight is more dominant in the Great Plains states and the Midwest, it is also significant along New York's border (Figure 2.2). New York ports handle 13% of the incoming rail freight traffic nationally, and two of its individual ports rank in the top ten nationally.

More complete data on border activity for each mode of travel appears in Appendix B. Overall, the Buffalo-Niagara Falls border crossings rank among the top nationally for every transportation mode. It has experienced long-term growth in traffic for most travel modes (though there has been some recent decline due to the weak national economy).

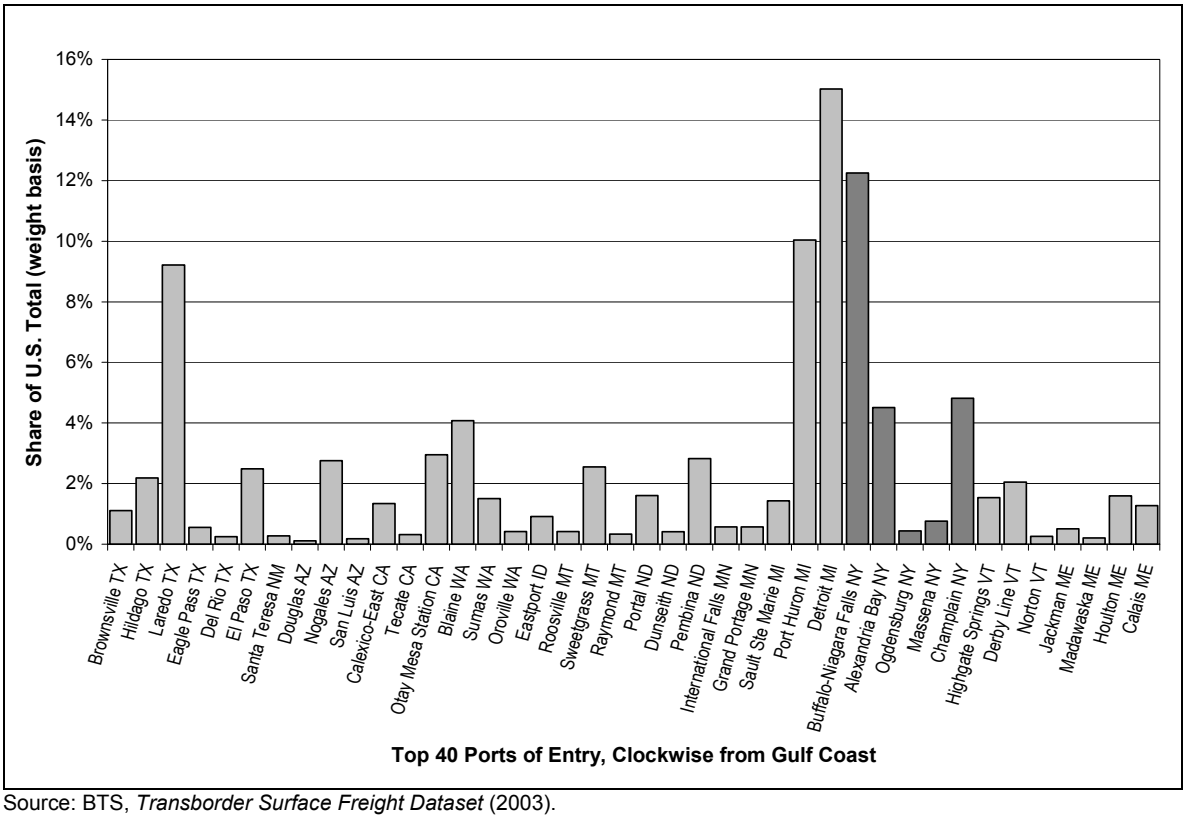
[4] Share of total trade value between U.S. and Canada and U.S. and Mexico in 2002, based on Customs data as reported in BTS, *Transborder Surface Freight Dataset*. Direct trade between Canada and Mexico, and transshipments between locations in the U.S. via Canada, are not included in this dataset.

Table 2.4. U.S. Trade with NAFTA Partners by Truck, Top 10 Ports of Entry

Port of Entry	Billions of 2002 U.S. Dollars			Share of U.S. Total Trade by Truck
	Imports	Exports	Total	
U.S. Total	208.6	189.2	397.8	-
Detroit, MI	35.5	49.6	85.1	21.4%
Laredo, TX	30.0	25.8	55.8	14.0%
Buffalo-Niagara Falls, NY	21.5	22.3	43.7	11.0%
El Paso, TX	19.8	15.3	35.1	8.8%
Port Huron, MI	17.0	15.8	32.9	8.3%
Otay Mesa Station, CA	11.8	8.5	20.4	5.1%
Champlain-Rouses Point, NY	8.4	4.9	13.3	3.3%
Hidalgo, TX	6.9	5.3	12.2	3.1%
Alexandria Bay, NY	6.7	4.0	10.7	2.7%
Blaine, WA	5.3	4.5	9.7	2.4%

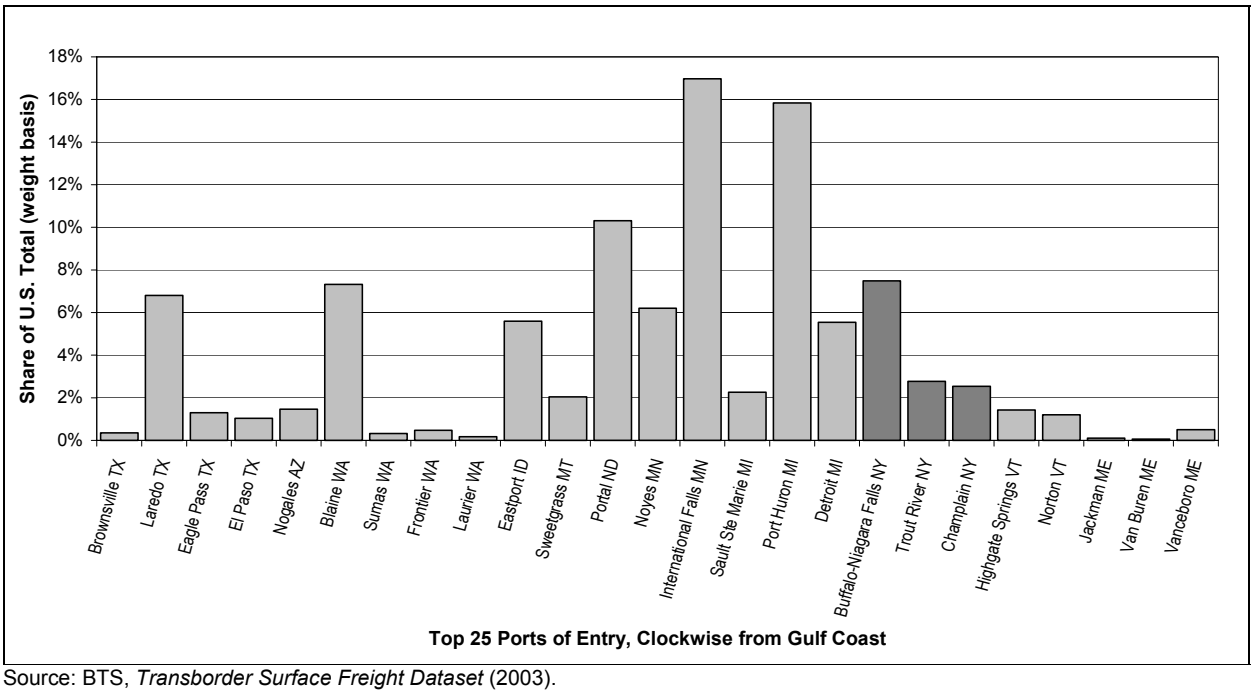
Source: BTS, *Transborder Surface Freight Dataset* 2002 (2003).

Figure 2.1. Share of Total Imports by Truck, Top 40 Ports of Entry (2002)



Source: BTS, *Transborder Surface Freight Dataset* (2003).

Figure 2.2. Share of Total Imports by Rail, Top 25 Ports of Entry (2002)



Source: BTS, *Transborder Surface Freight Dataset* (2003).

2.2.2. Self-Reliance on Border Infrastructure

High levels of cross-border travel can be an indicator of a highly integrated international economy. In principle, a trans-border region can achieve a greater level of economic efficiency and prosperity if it can reduce duplication of expenses (e.g. warehouses on both sides of the border), broaden the aggregate size of its market, and promote internal trade and competition. If economic activity at the border is primarily regional in nature, then both the costs and the benefits of the border will tend to be concentrated within the region. In these cases, border infrastructure and management might be seen as a largely regional, rather than national, concern.

However, busy border crossings are also a consequence of geography. High levels of long-distance cross-border traffic may use a particular crossing simply because it is where major highways and rail lines have been built. Border regions may have to bear significant adverse consequences (e.g. congestion, pavement damage, and air pollution), without much economic benefit. In these cases, a large share of the border's costs is borne locally, while its economic benefits accrue to the nation as a whole.

Origin-destination data can help indicate whether a border crossing primarily serves its host state, or is truly a national resource. For each of the top ten ports for trade with Canada and Mexico, Table 2.5 examines the share of the value of goods crossing the border with an origin or destination in the same state as the port. This analysis indicates that New York's three major ports of entry serve a relatively low share of trade with trip-ends within New York State (i.e. they serve a high proportion of traffic destined for other states). This suggests that New York captures a smaller share of the economic benefits of its cross-border trade, compared with other states with major border crossings. Yet like all border states, New York must still bear the economic burdens of this commerce, in the form of traffic congestion, air pollution, and pavement degradation.

Table 2.5. Cross-Border Truck Trade Associated with Home State (2002)

Port of Entry	Share of cross-border trade with origin or destination in same state as port
Otay Mesa Station, CA	92.1%
Laredo, TX	68.7%
El Paso, TX	68.7%
Hidalgo, TX	61.8%
Blaine, WA	36.5%
Port Huron, MI	34.9%
Alexandria Bay, NY	31.5%
Detroit, MI	30.4%
Champlain-Rouses Point, NY	24.9%
Buffalo-Niagara Falls, NY	20.7%

Source: BTS, *Transborder Surface Freight Dataset* (2003).

Another way of examining this issue is from the perspective of inter-regional equity. States that rely disproportionately on others' infrastructure for their international commerce may be seen as imposing an unusual fiscal burden on those other states. An analysis of origin-destination data for truck freight flows through ports of entry in five major industrial border states suggests that New York is less dependent than some of its peer states on border infrastructure elsewhere in the country (Table 2.6).

Table 2.6. States' NAFTA Truck Commerce Through Their Own International Borders (2002)

State	Share of state's NAFTA trade that uses state's own international border		
	Exports (by value)	Imports (by value)	Imports (by weight)
Michigan	83.3%	65.1%	82.7%
Texas	83.1%	82.8%	75.0%
New York	67.1%	73.9%	86.6%
Washington	62.2%	62.0%	81.6%
California	57.8%	59.8%	51.9%

Source: BTS, *Transborder Surface Freight Dataset* (2003).

Overall, 67.1% of New York's international exports by truck use New York State border crossings. Major ports-of-entry outside New York State that are heavily used by New York's outbound truck traffic are Laredo, Texas (11% of New York's exports by truck); Detroit, Michigan (7.1%); Toledo, Ohio (4.3%); and Hidalgo, Texas (3.3%).

New York's reliance on other states' border crossings for its exports can be placed in a national context when compared with other major industrial border states. Overall, Michigan and Texas have the greatest self-reliance with regard to their international commerce by truck, because of their geography and the extremely strong economic ties they have developed with neighboring border areas. Michigan sent 83.3% of its international truck exports through its own Canadian border, and Texas sent 83.1% of its exports through its own border with Mexico. California and Washington, which do not have such highly integrated cross-border economies, saw their exports spread over wider geographic areas. California's international border handled 58.1% of its exports, and Washington's border handed 62.2% of its exports. Among this class of five major border states, New York has median self-reliance on border infrastructure.

New York is somewhat more self-reliant on its border infrastructure for its imports. Some 73.9% of its imports by value and 86.6% by weight use New York State ports-of-entry. This is a somewhat higher degree of self-reliance than found in most of the other peer states (Table 2.6). For example, due to

growing economic ties to Mexico in the automotive sector, a large share of the value of Michigan's imports uses ports-of-entry in Texas.

Based on these data, it appears that New York State's transborder economic commerce does not impose a disproportionately large burden on other states. In fact, with regard to its imports, New York State is more self-reliant than its peers on its own infrastructure. New York's border crossings are indeed serving the cause of interstate, as well as international, commerce.[5] These results are consistent with the general findings (for the entire northern border) of the 1999 Canadian National Roadside Survey (NRS).[6]

2.3. Transshipments

Due to the unique geography of the Great Lakes region, the border also plays an essential role in U.S. domestic commerce. A large volume of freight moves between Michigan and New York (and to a lesser extent, between Indiana and New York) across southern Ontario. This route is 100 miles shorter than going through Ohio and Pennsylvania, and those states have weight restrictions that prevent the heaviest trucks from using the interstate route.[7] While these trucks are included in counts of traffic using individual border crossings, the freight they carry is not included in statistics of cross-border trade and freight flows.

The NRS provides some insight into the scale of this phenomenon. According to the survey results, transshipments between U.S. locations via Canada accounted for "approximately 12 percent of the tons and nine percent of the trucks crossing the U.S.-Canada border" and "half of these movements found in the data were flows between Southeast Michigan and destinations in New York." The survey analysis concluded that 16.5% of the cross-border freight tonnage and 10.8% of the trucks originating in New York are destined for Michigan or Illinois. Similarly, 15.4% of the tonnage and 10.6% of the trucks crossing the border into New York originate in one of four Midwestern states.[8]

2.4. Types of Commodities Crossing New York/Canada Border

Overall, cross-border trade is dominated by two major economic sectors: wood, textiles, and leather products; and metal products and machinery (Figure 2.3).

Along the Northern Border, the wood and textiles sector accounts for over 30% of the total freight crossing the border. Metal products and machinery is also very important, with about one-sixth of the total tonnage. Other sectors are particularly salient in just one direction – energy and food commodities in the southbound direction, and alcohol and tobacco in the northbound direction.

In the Buffalo-Niagara region, trade is more diversified. The same two sector groups dominate, but in the case of the Western Border, metal products and machinery constitute just under one-quarter of the freight flows and wood and textiles about one-sixth. Here, electronics, vehicles, and precision goods and grains, alcohol, and tobacco are consistently important sectors as well. Energy commodities are important only in the outbound direction.

---

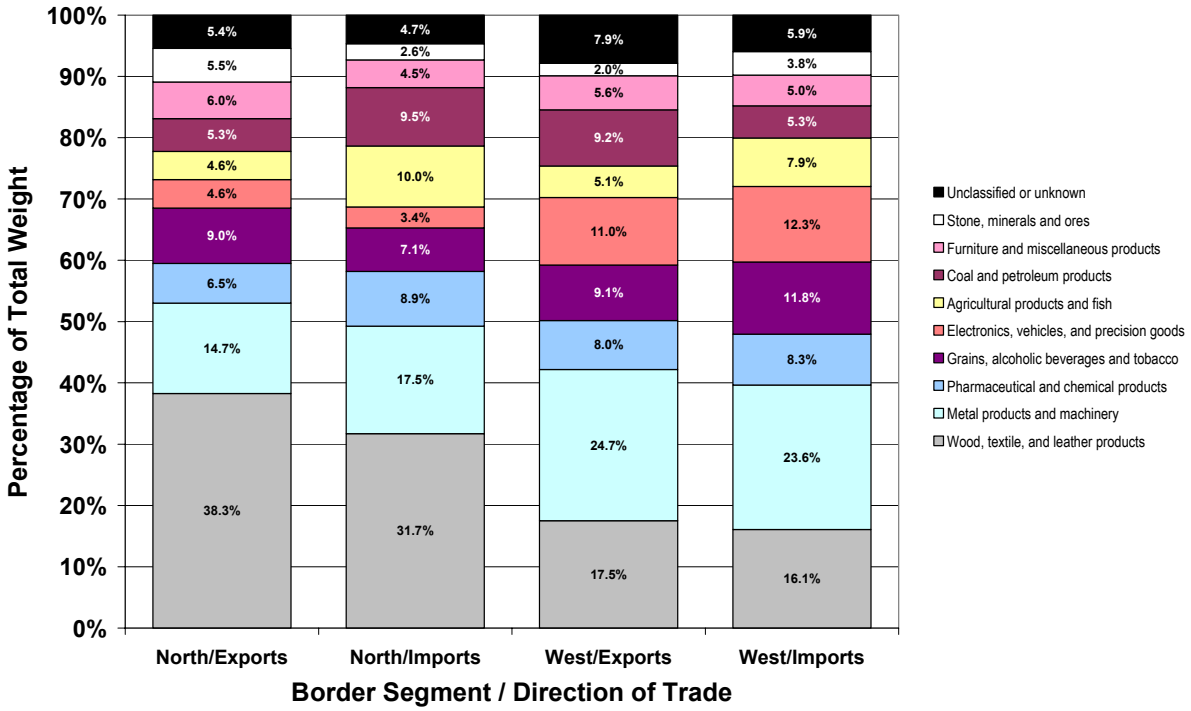
[5] These results should be interpreted with some caution. One explanation is that New York and Michigan are much smaller than Texas and California, and that their economic regions are not nearly as self-contained. Much of the commerce flowing through New York's and Michigan's borders travels to closely linked economies in neighboring states. This will return economic benefits to the border regions, but will not provide enough tax revenues to fully offset some of the social costs associated with the truck traffic. Furthermore, these data often count warehousing or other intermediate points as origins and destinations, and are considered less reliable for economic analysis than the trade data published by the U.S. Census Bureau, which directly links manufacturers and purchasers. While warehousing and other freight handling operations do return economic benefits to the states in which they occur, these benefits are not necessarily linked to the value of shipments. It is unclear how these factors affect this analysis, but it is possible that they inflate the amount of cross-border trade associated with Texas and California.

[6] Parsons Brinckerhoff Quade and Douglas, Inc., *Truck Freight Crossing the Canada-U.S. Border: An Analysis of the Cross-Border Component of the 1999 Canadian National Roadside Study* (Amherst, New York: Eastern Border Transportation Coalition, 2002), pp. 16-18.

[7] Personal Communication, Kenneth Staub, President, Staub Trucking, November 11, 2003.

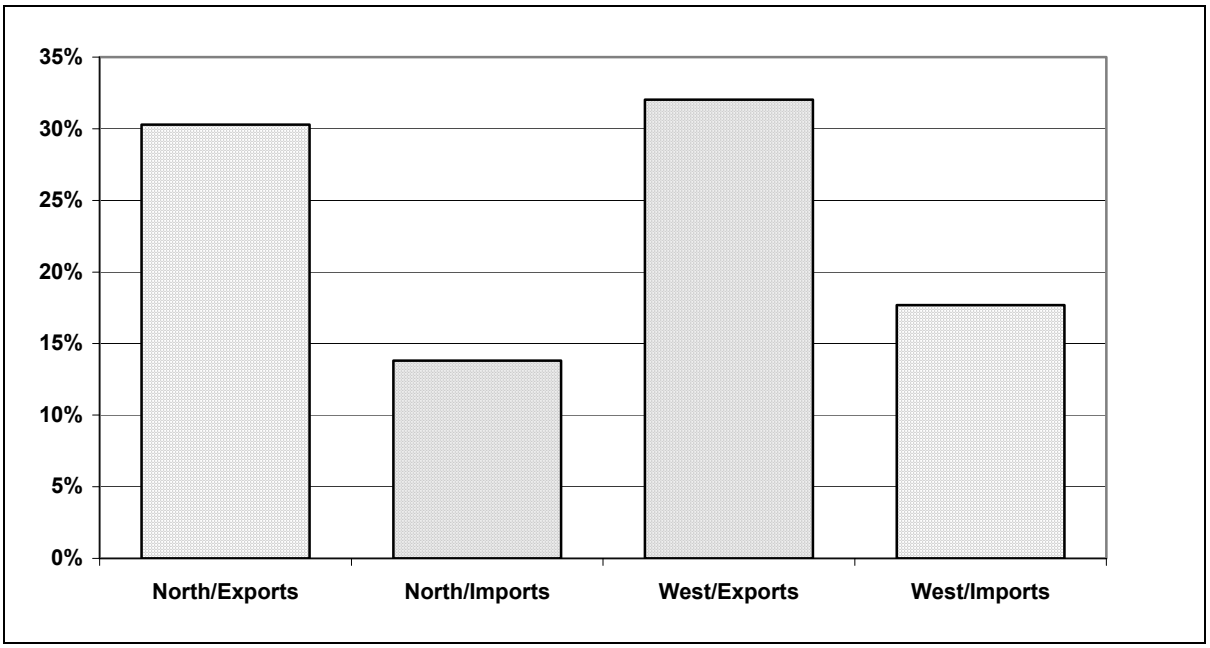
[8] Parsons Brinckerhoff Quade and Douglas, *Truck Freight Crossing the Canada-U.S. Border* (2002), pp. 26, 36.

Figure 2.3. Commodities Crossing New York State's International Border, 1999



Source: Based on Parsons Brinckerhoff Quade and Douglas, *Truck Freight Crossing the Canada-U.S. Border* (2002).

Figure 2.4. Empty Trucks Crossing the Border, 1999



Source: Based on Parsons Brinckerhoff Quade and Douglas, *Truck Freight Crossing the Canada-U.S. Border* (2002).

Another important characteristic of the truck flows across the border is the large share of vehicles that are empty (Figure 2.4). Fully 30-32% of the trucks crossing from the United States to Canada carry no cargo. In the inbound direction, the figure ranges from 14% along the Northern Border to 18% along the Western Border. There are many reasons for these high values, ranging from the overall trade imbalance between

the two nations, to economic inefficiencies resulting from producers handling their own shipments and having no easy way to arrange to transport goods on the return trip. These empty trucks have a variable impact on border area policy challenges: they add to traffic congestion and air pollution, but can pass relatively quickly through border inspections and create relatively little pavement damage in comparison with fully-laden trucks.

2.5. Other Measures Of The Border's Economic Significance

2.5.1. Share of Gross Metropolitan Product.

One macro indicator of the border's importance is the share of *local* economic activity that is due to exports to Canada. As mentioned earlier, exports to Canada account for 1.8% of U.S. gross domestic product. Using data and computer models that estimate the exports and gross product at a regional scale, it is possible to develop similar measures for individual metropolitan areas (Table 2.7). The westernmost metro areas in New York – Buffalo-Niagara, Rochester, and Jamestown – show the greatest economic reliance on the border, with Canadian exports accounting for 3.0-4.3% of gross metropolitan product. Cross-border trade is also important along the I-81 corridor (2.5-2.7% in Syracuse and Binghamton) and the I-87 corridor (2.3-2.4% in the Capital District and Newburgh). Areas not located along major trade corridors with Canada, such as Utica-Rome and Elmira, export less to Canada than the national average. New York City's economy, which has strong ties to more distant economic markets, reduces the overall average for New York State.

Table 2.7. Exports to Canada as a Share of Economic Activity, 1999

Metropolitan Statistical Area	Billions of 1999 U.S. Dollars		Exports as % of Gross Product
	Gross Product	Exports to Canada	
New York City	409.1	2.156	0.5%
Nassau-Suffolk	99.4	0.722	0.7%
Buffalo-Niagara Falls	44.5	1.438	3.2%
Rochester	41.9	1.263	3.0%
Albany-Schenectady-Troy	34.9	0.854	2.4%
Syracuse	28.0	0.709	2.5%
Utica-Rome	10.9	0.147	1.3%
Newburgh	10.3	0.242	2.3%
Binghamton	9.1	0.249	2.7%
Jamestown	4.3	0.184	4.3%
Elmira	3.3	0.035	1.0%

Sources: Global Insight, *The Role of Metro Areas in the U.S. Economy* (Washington: U.S. Conference of Mayors, 2003), Appendix Table 1; International Trade Administration, *Metropolitan Merchandise Export Totals to Selected Destinations 1993-1999* (Washington: U.S. Dept. of Commerce, 2002).

2.5.2. Transborder Commuter Flows

Another indicator of the economic importance of cross-border transportation flows is the number of individuals who commute across the border to get to work. A high number of transborder workers is a sign that the economies and labor pools on both sides of the border have become well integrated. Unfortunately, it is difficult to find reliable estimates of these cross-border commuters. The data that do exist suggest that the number is significant but not extremely large.

Data on U.S. residents working in Canada are available from the County-to-County Worker Flow Files, compiled by the U.S. Census Bureau from the 5% of households that complete the "long form" for the Census of Population and Housing. According to these data, 791 New York State residents commuted to

jobs in Canada in March 2000.[9] However, many of these workers live in the New York City or Albany regions, and can be assumed not to be traveling to Canada as a daily commute. About 439 workers reside within the border region (defined for this purpose as within 75 miles of the border), so are potentially daily commuters.

However, there are several limitations to the accuracy of these data. The total number of commuters is underreported because individuals absent from work due to illness or vacation during the week of the census (for most respondents, the last week of March, 2000) are not included. In addition, workers who are traveling or are based in atypical locations during the census week are recorded as commuting to those locations, rather than to their usual workplaces. That skews the sample toward more longer-distance trips than would be found in a sample of individuals' regular workplaces.[10]

The 2000 Niagara Frontier Traffic Survey also suggests that the actual number of New York-to-Canada commuters is higher than the census indicates. On an August weekday, about 632 vehicles licensed in New York state crossed Buffalo/Niagara-area bridges into Canada on the way to work.[11] Since many workers are on vacation in August, this survey did not cover New York's northeastern border crossings, there may be more than one worker per vehicle, and work-bound commuters may be less likely to voluntarily participate in a survey than other respondents, the actual number of Canada-bound commuters is most likely significantly higher. The results suggest that about 1,289 vehicles licensed in Ontario crossed Niagara River for New York State job locations.[12] Because of the seasonal, geographic, vehicle occupancy, and sampling reasons indicated above, the total number of frequent commuters will be higher.

2.5.3. Foreign Direct Investment

Goods and workers are not the only economic factors that flow across the border; flows of investment are important as well. While this investment can take many forms, one of particular relevance to the border region is the ownership of businesses in the United States by Canadian firms. In some situations, an efficient border makes it more likely that Canadian businesses will venture across the border and create new workplaces in the United States This has been of particular interest in the Plattsburgh region, where investment from Canadian firms and proximity to Montreal are seen as providing important opportunities for economic growth.

Canadian investors and companies own a significant number of businesses in New York State. In 1997, there were 767 Canadian-owned establishments in New York State, employing over 42,500 people (Table 2.8).[13] Of these, 69 establishments with over 7,500 employees were in the manufacturing sector (mostly in the printing, chemical manufacturing, and primary metal manufacturing industries). While these numbers are small compared with overall employment in the state, they can play a very important role on a localized basis.

---

[9] Based on analysis of U.S. Census Bureau, *Census 2000 County-to-County Worker Flow Files* (Washington, D.C.: U.S. Census Bureau, Journey-To-Work & Migration Statistics Branch, October 2003), http://www.census.gov/population/www/cen2000/commuting.html.

[10] U.S. Census Bureau, *Census 2000 Public Use Microdata Sample: Technical Documentation* PUMS/09-U.S. (RV) (Washington, D.C.: U.S. Census Bureau, November 2003) p. B-27, http://www.census.gov/prod/cen2000/doc/pums.pdf.

[11] URS Cole Sherman, *2000 Niagara Frontier Traffic Survey Final Report*, (Thorold, Ontario: The Regional Municipality of Niagara, May 2001) Figure 7.9, http://www.regional.niagara.on.ca/works/pdf/transportation/fullreport.pdf.

[12] URS Cole Sherman, *2000 Niagara Frontier Traffic Survey Final Report* (2001), Figure 7.10.

[13] Note that these figures are for New York State as a whole, not just the border region.

Table 2.8. Key Sectors of Canadian-Owned Establishments in New York State, 1997

Sector		Establishments	Employees
21	Mining	3	100-249
31-33	Manufacturing	69	7,536
42	Wholesale Trade	133	6,610
44-45	Retail Trade	110	4,666
48	Transportation and Warehousing	69	4,686
51	Information	78	5,101
52	Finance and Insurance	42	3,045
53	Real Estate, Rental, Leasing	16	250-499
54	Professional and Technical Services	13	1,002
55	Management of Enterprises	38	1,000-2,499
56	Administrative and Waste Services	21	1,230
62	Health Care and Social Assistance	8	588
72	Accommodation and Food Service	90	2,500-4,999
81	Other Services	63	535
	All Sectors	**767**	**42,513**

Source: U.S. Bureau of Economic Analysis, *Foreign Direct Investment in the United States: Establishment Data for 1997* (2003), Table A3.15.

2.5.4. Other Cross-Border Commerce and Travel

Other than employment, there are many other important reasons for cross-border travel. Because of the large returns that it can bring to a local economy, tourism is seen as especially important. Tourist traffic is highly variable, depending on the season and currency exchange rates, but data collected in August 2000 provides a snapshot of the scale of tourist travel along New York's western border with Canada during the peak summer months (Table 2.9). In the survey period, 7-14% of the personal vehicles crossing the border were visiting a local tourist attraction, and another 12-44% were pursuing other recreational activities.[14] Most of these travelers were Americans visiting Canada, rather than the other way around.

Table 2.9. Reasons for Personal Travel Across the Border in the Buffalo-Niagara Region

	Weekdays		Weekends	
	NY-Plated Vehicles Entering Ontario	Ontario-Plated Vehicles Entering NY	NY-Plated Vehicles Entering Ontario	Ontario-Plated Vehicles Entering NY
Work	5.7%	19.3%	1.0%	4.6%
School	0.7%	2.9%	0.3%	2.4%
Visit Friend or Relative	11.0%	19.1%	13.7%	27.3%
Shopping	4.9%	16.6%	2.9%	18.7%
Local Tourist Attraction	12.8%	7.3%	14.1%	8.6%
Recreation, Entertainment, Casino	43.5%	12.1%	43.3%	16.3%
Other	21.3%	22.6%	24.8%	22.1%

Source: URS Cole Sherman, *2000 Niagara Frontier Traffic Survey Final Report* (2001), Figures 7.2, 7.3, 7.9, 7.10.

Some 3-19% of the travelers were crossing the border to shop, mostly Canadians shopping in the United States Long-distance tourists may not be very sensitive to border crossing times, but regional residents who cross the border frequently for shopping or recreation are likely to be much more likely to change their behavior in response to changes in the efficiency of the border.

[14] These survey results include only vehicles registered in Ontario or New York State. They exclude the 18.4% of weekend vehicles and 17.0% of weekday vehicles registered elsewhere in the U.S. and Canada. Most of these vehicles are presumably making tourism or recreation-related trips as well.

Another important group is students who commute across the border. Many Canadian residents attend one of the 14 colleges and universities in the Buffalo-Niagara region.[15] Ease of access across the border is critical for these international commuter students, and beneficial to the region because it helps strengthen and unify the region's labor pool. Locally, these students make purchases and pay taxes on the U.S. side, benefiting the local economy.

A third small but growing group of cross-border travelers are Canadians flying out of Buffalo Niagara International Airport. Until recently, Buffalo was one of the most expensive major airports in the country. However, the arrival of several low-cost carriers has helped reduce costs of flying out of Buffalo sharply, making it one of the most affordable airports. Lower fares have helped Buffalo Niagara International Airport draw Canadian travelers who might otherwise fly from Hamilton International Airport or Toronto Pearson International Airport. Similarly, with air travel to the region expected to grow with the development of a major new casino in Ontario, Niagara Falls International Airport hopes to increase its share of tourism-related traffic. An efficient border is necessary to help these airports on the U.S. side compete effectively and expand their market areas, which would benefit the region by encouraging airlines to increase their destinations and service frequencies. Chronic border-crossing delays could steer Canadians back toward airports on their side of the border.[16]

2.6. The Costs of Delays at the Border

The relationship between border infrastructure and the economies of border regions is a complex one. With the broad diversity of cross-border commerce identified above, it is difficult to assess the true economic costs of delays and congestion at the border. Nonetheless, some studies have attempted to quantify these costs, usually by assigning values of time to the delays experienced at the border. One recent study of this kind (Taylor et al. 2003) found annual economic costs due to delay at New York's three largest border crossings of $18-25 million for freight entering Canada, and $24-43 million for freight entering the United States (Table 2.10).

Table 2.10. Costs of Delay at Three New York Border Crossings: Commercial Vehicles

	Average Delay							
	Entering United States				Entering Canada			
	Primary Inspection (Minutes)	Secondary Inspection (Pct.)	(Min.)	Total (Minutes)	Primary Inspection (Minutes)	Secondary Inspection (Pct.)	(Min.)	Total (Minutes)
Peace Bridge	4.33	15%	75	15.6	1.42	20%	60	13.4
Lewiston-Queenston	1.21	35%	75	27.5	1.36	20%	60	13.4
Champlain	14.20	40%	60	38.2	6.20	30%	60	24.2
	Annual Costs (Millions of U.S. Dollars) – "Middle Impact" Estimates							
	Entering United States				Entering Canada			
	Primary Inspection	Secondary Inspection		Total	Primary Inspection	Secondary Inspection		Total
Peace Bridge	$8.8	$15.3		$24.1	$2.6	$20.3		$22.9
Lewiston-Queenston	$1.9	$34.6		$36.5	$2.0	$15.8		$17.8
Champlain	$15.4	$27.2		$42.6	$6.9	$18.1		$25.0

Source: Midpoint estimates from Taylor, Robideaux and Jackson (2003), Appendices, pp. 112-115. Based on a time cost of $150/hour.

The costs of delay to personal and business travelers were found to be far lower, just a few million dollars per year for each crossing.

[15] Personal Communication, Luke Rich, Senior Consultant to the President, Buffalo-Niagara Partnership, November 13, 2003. In Plattsburgh, the former air base is being converted to a commercial facility. As with Niagara Falls, the airport may be marketed as an alternative for Canadian travelers; the viability of this alternative depends in part on the efficiency and reliability of the crossing at Champlain.
[16] Ibid.

Table 2.11. Costs of Delay at Three New York Border Crossings: Personal Vehicles

	Average Delay			
	Entering United States		Entering Canada	
	Minutes of Average Delay	Estimate of Costs ($M)	Minutes of Average Delay	Estimate of Costs ($M)
Peace Bridge	4.86	$3.4	2.33	$1.6
Lewiston-Queenston	1.60	$0.6	2.25	$0.8
Champlain	7.39	$1.1	7.77	$1.4

Source: Midpoint estimates from Taylor, Robideaux, and Jackson, *The U.S.-Canada Border: Cost Impacts, Causes, and Short and Long-term Management Options* (2003), Appendices, pp. 137-138. Based on a time cost of $10/hour.

Taken together, their midpoint estimates of the direct costs of delays at these three crossings approached $178 million annually.

In addition to these estimates of the direct costs of delay at the border, the study also identified and estimated numerous other costs of crossing times and uncertainty at the border, including:

- Excess planned travel time scheduled to ensure on-time deliveries cannot be recovered for other purposes.
- Fewer delivery cycles per truck per day (due to the schedule time margins) requires additional trucks and drivers.
- Fewer deliveries are scheduled for each truck delivery cycle, to avoid secondary inspections at the border, so more cycles must be scheduled.
- Inefficient terminal operations, due to arrival time uncertainties.
- Increased warehousing and handling costs due to customs inspections.
- Time spent by drivers on customs-related paperwork.
- Increased storage costs to manufacturers.

The study produced estimates of these economic impacts for the U.S.-Canada border as a whole, rather than for individual border crossings. Of these costs, the "primary delays" at the border were found to play an important role, but represent only 15 percent of the total (Table 2.12). Far more important are the time costs due to secondary inspections and customs documentation (over 40% of the total). Other important costs, such as the excess scheduled delivery times and transit times, and manufacturer inventory carrying costs (together accounting for 39% of the total), are more closely related to the variability in border crossing times than to the total delay itself.

Table 2.12. Selected Border Costs Related to Travel Time and Uncertainty

	Cost ($ Millions)	Directional Share	
		Entering U.S.	Entering Canada
Carrier-Related Costs			
Primary Inspection Time Delays	$324.2	79%	21%
Secondary Yard Processing	$755.4	64%	36%
Excess Scheduled Delivery Time	$416.4		
Increased Truck Delivery Cycles	$120.7		
Customs Documentation Prep Time	$250.7		
Manufacturer-Related Costs			
Manufacturer Inventory Carrying Costs	$458.0		
Personal Travelers			
Primary Travel Time Delays	$56.0	66%	34%
Excess Planned Transit Time	$103.0		

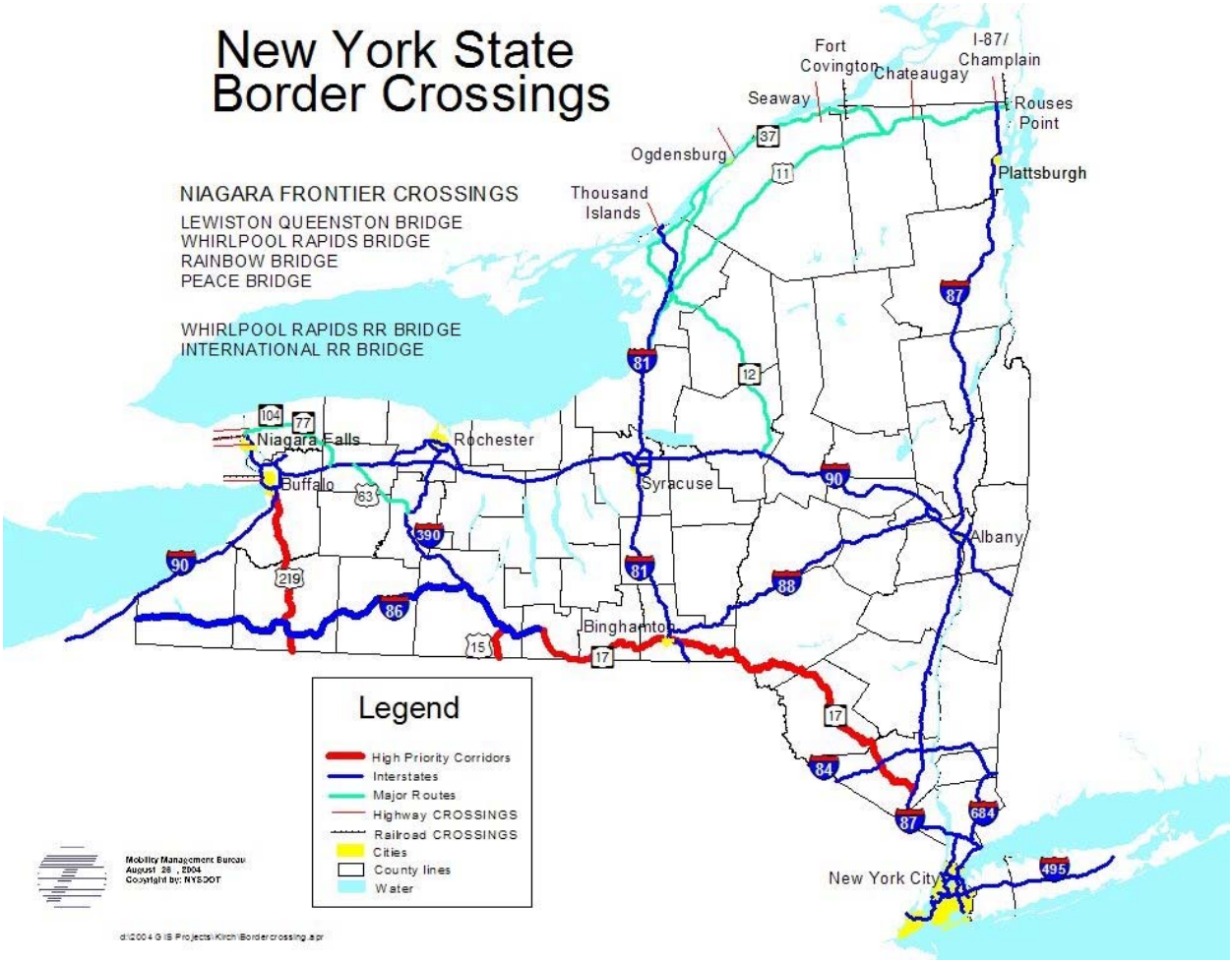
Source: Midpoint estimates of U.S./Canada totals adapted from Taylor, Robideaux and Jackson (2003), Appendices, pp. 99-172.

New York's international border crossings clearly play important roles in both the national and local economies. In some respects, the crossings are more significant for their national role than their local contribution; this is most notable at the western crossings, where nearly 80% of the freight originates in or is destined for states other than New York. Furthermore, the state's overall dependence on trade with Canada is somewhat less than that of the entire United States. On the other hand, these figures mask significant local variations, since some communities are highly dependent on this trade.

3. Crossing the Border

As the previous section showed, New York's border crossings play a vital role in international trade between the United States and Canada. In recent years, the infrastructure at these crossings has been subjected to unprecedented stresses. The free-trade agreements of 1989 and 1993 have brought a dramatic increase in commercial traffic, and the terrorist attacks of September 11, 2001 have led to greatly increased security. To clarify the impact of these developments, this section takes a close look at the border infrastructure and the crossing procedures, and then explores the effects that trade growth and new security requirements have had on the crossings.

Figure 3.1. New York-Canada Border Crossings



Source: New York State Department of Transportation.

3.1. Border Crossing Infrastructure

New York's nineteen land crossings consist of a range of physical structures, from simple road crossings, to individual bridges, to complex road and bridge combinations such as at Thousand Islands. Volumes range from a few dozen vehicles per day to several thousand. A number of crossings, including some that are open only during the summer, serve primarily seasonal tourist traffic, while others are major gateways for commerce throughout North America. The most heavily-used crossings are at Buffalo-Niagara in

western New York, and at Thousand Islands, Ogdensburg, Seaway, and Champlain, along the northern border (Figure 3.1). In the Buffalo-Niagara region, four international bridges carry more than half of the New York-Canada commercial traffic and over two-thirds of the passenger vehicles. The crossings at Champlain and Thousand Islands, both directly connected to major north-south U.S. interstate highways, each account for 15-20% of the commercial traffic, while the other crossings carry less than five percent each. The Seaway crossing, however, carries more passenger vehicles than any other crossing in Northern New York, reflecting close ties there between communities on either side of the border (Table 3.1).

Table 3.1. Inbound Vehicle Crossings, 2002

Port of Entry	*Trucks*	*Passenger Vehicles*	*Buses*
Buffalo-Niagara	1,208,095	7,569,643	50,582
Thousand Islands	305,516	675,176	2,182
Ogdensburg	34,609	228,551	404
Seaway	72,467	1,162,510	3,500
Champlain (includes Rouse Pt.)	371,059	1,039,135	10,415
All others	19,627	187,236	70
All New York Crossings	**2,011,373**	**10,862,251**	**67,153**

Source: BTS, *Border Crossing Data, U.S.-Canada* 2002 (2003).

Components of transportation infrastructure at the border include bridges and toll booths (except at road crossings such as Champlain), Federal inspection facilities, and connections with the domestic internal transportation infrastructure. Bridges are typically owned by bi-national public authorities, which use toll revenues to support maintenance and service debt. Inspection facilities in the United States are usually owned by the bridge authorities or the General Services Administration (GSA) and leased to the Federal inspection services, most of which are now part of the Bureau of Customs and Border Protection in the Department of Homeland Security. Inspections include customs, immigration, agricultural inspections, and a range of security checks.

The major crossings typically have dedicated inspection booths for commercial vehicles, passenger vehicles, and buses. At these "primary" inspection booths, federal inspectors either let vehicles pass without further interruption into the United States, or direct them for further processing. As much as 30% of commercial traffic is directed to secondary processing, where drivers may be required to complete customs paperwork for commercial shipments, and their loads may be subjected to agricultural, customs, or security inspections, including scanning by radiation monitors.[17] At larger facilities, private customs brokers are available to help shippers comply with import regulations. At the Peace Bridge, some customs preprocessing is handled prior to the crossing at a Commercial Vehicle Processing Center on the Canadian side of the border.

U.S. Customs uses two different systems to process commercial shipments. The Automated Commercial System (ACS) is a relatively new electronic system that relies on electronic filings to guide the screening process. A central computer weighs various criteria to determine whether a particular shipment should be assigned either a general release, indicating that the inspector needs to examine the paperwork, or an intensive inspection. Shipments may also be randomly targeted for intensive inspections.

Before a shipment arrives at the border, shippers or their Customs brokers electronically register the cargo with Customs and receive documentation, including a shipment number, that is presented at the border. To speed processing, shippers can also request a barcode through the Pre-Arrival Processing System (PAPS). At the border, the primary inspector keys the shipment number into a computer, or waves a barcode reader over the PAPS barcode, and gets back an inspection code, indicating whether the shipment should be given a general release or an intensive inspection. The inspector can override this code, waiving a recommended inspection or ordering a more complete inspection. If an inspection is ordered, the truck moves to secondary processing.

[17] Personal Communication, Bruce Campbell, Project Manager, Peace Bridge Expansion Project, Parsons, November 19, 2003.

The Border Release Advanced Selectivity and Screening (BRASS) is an older expedited clearance method for low-risk shippers. To enter the program, shippers have to undergo a background check – but there is no provision for periodic recertification. Each shipment, again, receives a unique barcode that is scanned at the inspection booth.

Most rail shipments use BRASS procedures. Before a train arrives at the border, the shipper transmits an automated manifest – a "consist" – to Customs. At the border, the inspector – who may be sitting at a remote station and monitoring the shipment via closed-circuit television – compares the train's car numbers with those given on the consist. Physical inspections beyond that are quite difficult: most crossings do not have adequate inspection facilities, including sidings for detaching individual cars; and the locations are remote. BRASS is slated to be eliminated in favor of ACS, which may result in more inspections.[18] Ultimately, a tighter inspection regime will require some additional infrastructure investment as well as increased staffing of rail customs facilities.

Increasingly, rail border crossings are adding “Vehicle and Cargo Inspection System” (VACIS) facilities that use gamma-ray technology to see inside loaded rail cars. The costs of these facilities and their personnel are usually underwritten by the U.S. or Canadian governments, but funding sources for additional infrastructure such as staging areas or sidings have not yet been determined. These could be left to the private sector, or other governmental sources (such as the Canadian Border Infrastructure Fund) may need to be tapped for this purpose.

During 2004, the Federal government instituted tighter regulations that require pre-clearance for all incoming commercial traffic. Trucks crossing the New York border must now participate in PAPS or another advance registration system at least an hour before arriving at customs (participants in the FAST program, described below, need only 30 minutes advance notification).

Other types of processing and inspections also take place at or near the border:

- *Immigration*. Border officials have long checked passports and visas. In 2004, stricter identity verification requirements were adopted for visitors to the United States, a biometric identification system named U.S.-VISIT. At land crossings between the United States and Canada, the program sends all travelers seeking to enter the United States with foreign passports, except for Canadian citizens, to secondary inspection for collection of digital fingerprints and photographs. These data are used to confirm the travelers’ identities and compare them against visa records and security watch lists. Eventually, these procedures will be repeated when visitors leave the country.

- *Agricultural inspections* protect against disease and invasive species, and ensure food security. The Food and Drug Administration Bioterrorism Act of 2002 required that imports of food, which used to follow BRASS procedures, go through ACS procedures like other types of imports. This will result in a greater number of food inspections at customs.

- *Commercial Vehicle Operations (CVO) inspections*. Commercial trucks face regulatory requirements for weight-distance tax administration, oversize/overweight permits, driver licensing, hazardous materials permitting, safety inspections, and other compliance reviews. An important component of the implementation of intelligent transportation systems is the deployment of Commercial Vehicle Information Systems and Networks (CVISN) systems that speed the collection and administration of these data. CVO inspections need not be conducted at the border itself, but efficiencies can be achieved if they can be integrated with the customs inspections process.

In some cases, these new procedures may reduce the throughput capacity of customs and immigration facilities, further increasing congestion at the border.

[18] Personal Communication, Thomas Heffernan, Program Officer/Customs Inspector, US Department of Homeland Security, October 30, 2003.

3.2. Traffic Growth and Security

With the lowering of trade barriers in the early 1990s, New York State's border crossings experienced rapid commercial traffic growth, and this growth is expected to continue through the next two decades. Between 1994 and 2002, truck traffic across the borders increased nearly 40 percent, and by 2020, traffic is expected to be twice the 1994 level (Table 3.2).[19] While all crossings have experienced growth, Thousand Islands has seen the most rapid increase, from 380,118 in 1994 to 611,032 in 2002, a jump of 61%.

Table 3.2. Annual Inbound Truck Volume, Major Crossings

Port of Entry	1994	2002	2020 forecast	Growth 1994-2002
Buffalo-Niagara	886,797	1,208,095	1,822,000	36%
Thousand Islands Bridge	190,059	305,516	430,500	61%
Ogdensburg	29,222	34,609	40,500	18%
Seaway	52,401	72,467	95,500	38%
Champlain	272,960	371,059	469,500	36%
Total	**1,431,439**	**1,991,746**	**2,858,000**	**39%**

Source: BTS, *Border Crossing Data, U.S.-Canada* 2002 (2003); Parsons Brinckerhoff Quade and Douglas, *Truck Freight Crossing the Canada-U.S. Border* (2002). The forecast is for total truck volume, which was halved to determine inbound volume.

As traffic grew in the 1990s, pressure developed to upgrade the border infrastructure. At Champlain, the General Services Administration began to look into expanding the inspection facilities in 2000. At the Peace Bridge, plans were developed in the late 1990s for expanding or building a companion to the existing bridge, to accommodate increased traffic.

These plans were put into a new perspective after September 11, 2001. When terrorists struck New York and Washington, U.S. Customs immediately tightened border security. With more intensive inspections of commercial and passenger vehicles, delays at the U.S.-Canada crossings reached as high as 15 hours in the days after the attack, and cross-border traffic dropped dramatically. Delays and uncertainty at the border helped push imports from Canada down 10.8% in the nine months after September 11, compared with a 3.7% drop in U.S. industrial production and a 4.2% *increase* in U.S. auto production.[20]

To improve border security and ensure the efficient flow of trade, the United States quickly added thousands of additional personnel to the border crossings. Within weeks, typical delays dropped to less than an hour, although traffic had also dropped significantly. The United States added numerous security screens, such as radiation portals and gamma-ray cargo inspection systems, and it gradually tightened processing requirements to require pre-notification of shipments before they reach the border. The United States and Canada also accelerated development of programs to identify low-risk shipments and travelers for expedited processing. These changes have dramatically affected the way the border works and resulted in frequent delays at the crossings, even as the alert level has dropped since September 11.

Among the programs instituted by the United States and Canada is an expedited clearance system for travelers, known as NEXUS. Before September 11, the governments had experimented with this program, and after September 11, they resumed development. Residents of either country may join the program by paying a $50 application fee and passing an interview and background check. Qualified applicants receive expedited inspections at the border and enjoy access to dedicated booths at the larger facilities.

NEXUS has suffered from fairly low participation rates. At most crossings, the vast majority of passenger vehicles consist of infrequent travelers going long distances; fewer than five percent are commuters who cross daily. Furthermore, the benefits of joining have until recently been fairly minimal: since none of the bridges or approaches into New York had dedicated NEXUS lanes, NEXUS drivers waited in line with everyone else until they reach the inspection plaza. The situation is evolving, notably with the conversion of the Whirlpool Rapids crossing to NEXUS-only operations.

[19] Parsons Brinckerhoff Quade and Douglas, *Truck Freight Crossing the Canada-U.S. Border* (2002), p. 119.
[20] John C. Taylor, Douglas Robideaux, and George C. Jackson, *The U.S.-Canada Border: Cost Impacts, Causes, and Short and Long-term Management Options* (2003), p. 2.

For low-risk shippers, the United States and Canada also developed an expedited clearance program, the Free and Secure Trade (FAST) system. FAST drivers and their shipments are pre-processed and carry a transponder or registration card that identifies the driver and shipment to Customs' computer system at the border. As the driver approaches the inspector's booth, the driver's registered photograph comes up on the inspector's computer screen. Assuming that an inspection is not called for – FAST shipments have a lower chance of being selected for random compliance checks – the inspector can wave the driver through after verifying the photo match. FAST drivers also have priority at secondary processing.

While FAST has a great deal of potential – up to 70% of shipments could eventually qualify – it would be hard to call it a success at this point. In order for a shipment to qualify for FAST treatment, not only the driver but the shipper and the importer must all be certified. Becoming FAST-certified as a driver is not difficult, but the hurdles for importers are fairly high, as they must guarantee the integrity and security of their facilities and transportation. Furthermore, some major crossings have dedicated FAST booths, but most do not yet have dedicated FAST lanes on the approaches or bridges, so again, certified shipments and drivers must wait in traffic with everyone else. As with NEXUS, the number of participants is growing, but has not yet reached the point that it is having an impact on overall border crossing times.

Both FAST and NEXUS promise to reduce congestion at the border and speed the flow of low-risk traffic. These programs simultaneously have the potential to increase security, as they allow inspectors to focus on high-risk traffic. Yet low participation rates and insufficient infrastructure have, until now, kept these programs from achieving these goals. There have also been concerns that the program is not being adequately marketed and that enrollment is not sufficiently convenient.[21] However, both programs are quite new and are still being rolled out at some crossings, so their full impacts have yet to be seen.

3.3. Delays and Congestion

Delays due to congestion can occur at any point in the crossing, but the most significant occur on the approaches to the primary inspection facility. Delays on the approaches impact all vehicles crossing the border, not only those that will require extensive processing. With more efficient processing and higher staff levels, backups are much shorter and less frequent than in the immediate aftermath of September 11; but they still frequently extend for miles and have an impact on communities near the crossing, in terms of air quality, noise, and safety.

Studies of border crossing times show a wide variance in delay times. The Canadian Border Services Agency posts delay times for major northern crossings on the Internet and updates them every three hours. A systematic analysis of data collected during May-August 2002 found that for commercial vehicles, delays averaged 14 minutes at Champlain, 4 minutes at the Peace Bridge, and 1 minute at Queenston-Lewiston.[22] These averages, however, mask significant variations in the crossing times. At Champlain, delays averaged less than 7 minutes at 9 a.m. but more than 21 minutes at 9 p.m., and exceeded one hour on 37 different occasions during the study period. Furthermore, these averages do not necessarily reflect the average trucker's experience, since they are not weighted by the amount of traffic crossing during each period.

An FHWA study of delays at seven major crossings on the northern and southern borders in May-June 2001 found significantly longer delays at the Peace Bridge (the only New York crossing included in the study). Delays for commercial traffic averaged 13 minutes; but there was a wide variation in times. One out of every 20 crossings experienced a delay of more than 75 minutes.[23]

---

[21] Can/Am Border Trade Alliance, Proceedings of Can/Am BTA Conference, May 2-4, 2004, Ottawa, http://www.canambta.org/ott_2004_summary.pdf.
[22] Taylor, Robideaux, and Jackson, *The U.S.-Canada Border: Cost Impacts, Causes, and Short and Long-term Management Options* (2003).
[23] USDOT FHWA, *2001 Assessment of Truck Travel Time & Delay at 7 International Ports-of-Entry Report Summaries,* http://www.ops.fhwa.dot.gov/freight/publications/Peace%20Bridge%20Site%20Report.doc

Neither study looked at delays at Thousand Islands, Ogdensburg, or Seaway, but there are numerous anecdotal reports of delays at all of the crossings. According to Robert Horr, executive director of the Thousand Islands Bridge Authority, inbound delays frequently reach one hour throughout the year and two hours during the summer.[24] At Queenston-Lewiston, U.S.-bound traffic often backs up as much as five miles, according to Luke Rich of the Buffalo-Niagara Partnership; and the General Services Administration reports backups of 3-5 miles at Champlain.[25] Over the July 4, 2004 weekend, delays of 3-4 hours were reported at most of the Buffalo crossings.[26]

The contradictions between the studies and anecdotal findings suggest the need for better documentation and further study of delay times. Overall, however, the general impression is that crossing delays occur frequently enough to affect travel choices. At Thousand Islands, frequent delays have resulted in a diversion of 1,500 to 2,000 trucks to the Ogdensburg-Prescott Bridge.[27] The diversion has significance beyond the border, since in order to reach their destinations along Interstate 81 in New York or beyond, these trucks must take Route 37 to Watertown, with an additional travel time of 15-20 minutes (compared to an uncongested crossing at Thousand Islands). Increased traffic on Route 37 could represent a major disruption for local communities and impacts safety on that two-lane road.

Spillover effects from border delays have affected communities all along New York's border. At the Queenston-Lewiston Bridge, five-mile backups bring traffic back to the Queen Elizabeth Way (QEW), the main highway on the Canadian peninsula. When that happens, local authorities close that exit on the QEW and route all of the traffic towards the Peace Bridge. This is of course a major inconvenience for local travelers and reduces access to U.S. destinations such as the Niagara Falls International Airport. In the Canadian-bound direction, trucks are often routed into holding patterns through residential neighborhoods on the U.S. side, in order to keep backups off the interstate highway approach.

At Champlain, backups have had serious safety implications. According to GSA,

> "The rapid growth in commercial truck and bus traffic has created unsafe conditions on the highway that enters the station from Canada. This congestion has led to several severe accidents on the Canadian side of the border, including the deaths of three truck drivers in separate accidents in the past two years. The current and projected volume of commercial, bus, and auto traffic utilizing this border crossing can no longer be safely processed."[28]

There have also been fatalities at a separate checkpoint along I-87 near Champlain as well as at border crossings in the Buffalo area.

Congestion at border crossings also has serious implications for air quality and human health. A recent study estimated that neighbors of the Peace Bridge in Buffalo had asthma rates four times higher than those living further away.[29]

3.4. Sources of Delays

A number of factors have contributed to delays and congestion at the border. The increased security since September 11 has had an obvious impact. More intensive inspections of vehicles, passengers, and cargo make for longer crossing even without backups. As inspections take more time, the existing facilities at

---

[24] Personal Communication, Robert Horr, Thousand Island Bridge Authority, December 4, 2003.
[25] Personal Communication, Luke Rich, November 13, 2003; General Services Administration, "Factsheet: Border Station, Champlain, New York," (2003), page 4.
[26] Can/Am Border Trade Alliance, Proceedings of Can/Am BTA Conference, Washington, Sept. 12-14, 2004, http://www.canambta.org/2004ConferenceSummary.doc.
[27] Personal Communication, Robert Horr, December 4, 2003.
[28] General Services Administration, "Factsheet: Border Station, Champlain, New York," 2003, page 4.
[29] T.J. Oyana, P. Rogerson, and J.S. Lwebuga-Mukasa, "Geographic clustering of adult asthma hospitalization and residential exposure to pollution at a United States-Canada border crossing," *American Journal of Public Health*, v. 94, pp. 1250-1257 (2004), as cited in "Residents living near heavily traveled border more likely to suffer from asthma," *Health and Medicine Week*, p. 66 (October 25, 2004).

some crossings have proven inadequate to keep up with traffic, even if all inspection stations are fully staffed.

Growth in commercial traffic, particularly since the early 1990s, has also made for increased congestion and delays. Most of the border transportation infrastructure was designed for far lower levels of traffic than it is currently handling. Champlain's inspection facility last received an upgrade in 1971; the Thousand Islands bridges were built in 1937-1938; the three-lane Peace Bridge opened in 1927. The bridges, in particular, were built in an era when the automobile was relatively new and most freight traveled by rail. Growth in commercial traffic over the last decade has stressed these facilities and resulted in delays even before new security initiatives were implemented.

Before September 11, a common complaint was that existing inspection booths were not fully staffed at peak times. Once a backup developed at an understaffed crossing, it could take hours to eliminate the congestion even if additional booths were opened. In the last 2 1/2 years, the number of personnel at the border has tripled. Yet insufficient staffing can still contribute to delays. According to Jim Phillips, President of the Can-Am Border Trade Alliance, staffing levels were increased for the 2004 Labor Day weekend and – despite higher volumes – the long waits seen over the July 4 holiday were eliminated.[30] Interviews with local bridge authorities and business leaders elicited continuing concern that staffing levels not be cut in the future.

Conceptually, security and efficient trade do not have to be at odds. If the majority of goods that are low-risk can be quickly processed, inspection staff can focus on high-risk traffic. Until expedited clearance programs such as FAST provide significant times savings at the border, however, there will be little incentive to join the programs, and inspection staff will be burdened with processing all traffic together and distinguishing high-risk cargo and travelers from low-risk.

[30] Can/Am Border Trade Alliance, Proceedings of Can/Am BTA Conference, Washington, Sept. 12-14, 2004, p. 7.

4. Transportation Investment Needs in the Border Region

In recent years, there have been numerous efforts to assess infrastructure and operational needs in the New York-Canada border region.[31] Some of these have focused on detailed compilations of projects and initiatives waiting for funding or approval; others have been less formal exercises aimed at building consensus around a regional policy agenda. Drawing upon the findings of all these studies, this chapter attempts to place proposed border area improvement projects in a broader policy context, and suggests how New York State might begin to evaluate where to invest its scarce resources. It examines proposed projects according to the transportation modes they serve; their feasibility, timing, and prospects for funding; their geographic locations; and the types of strategic policy objectives they help to achieve.

4.1. Typology of Proposed Improvements

New York State's border regions with Canada are complex systems of infrastructure and economic activity. A thorough assessment of the transportation needs at the border must take into account the many ways in which the border shapes and interacts with the region's economic life. Different types of investments at the border will serve the public policy objectives of New York State in different ways.

The border serves as a conduit for goods destined for other parts of the nation, a barrier to commerce within the immediate border region, a vital checkpoint to protect national security, and a gateway for international tourists. Each of these roles has associated with it a number of challenges and opportunities:

- *Long-distance commerce*. At New York's larger border crossings, this accounts for a majority of the total truck traffic. As a result, efforts to address capacity and efficiency issues at these crossings primarily serve this through traffic. There is some local benefit to ensuring that through traffic is handled well: it helps minimize the air quality impacts of this traffic, and brings a small return to the local economy in terms of ancillary services supporting the trucking industry. On the down side, it increases traffic congestion and pavement damage on the state's highway network, costs that are not fully borne by the truck traffic passing through the state.

- *Local-serving commerce*. If the processing of freight traffic at the border is inefficient or unreliable, it can reduce the attractiveness of locating businesses in New York State. The costs and uncertainties of transborder shipments can be reduced through capacity improvements, congestion management strategies, and intelligent transportation systems that empower drivers with real-time information. Transportation investments can also help spur economic growth through the development of intermodal transfer facilities that enable brownfield sites and other underutilized industrial zones to take better advantage of other existing infrastructure, as well as the 'spin off" effects associated with these investments.

- *Security and law enforcement needs.* Border infrastructure also serves an essential role in the enforcement of international trade agreements, immigration laws, and the protection of national security. Currently, policies, procedures, and infrastructure requirements for all of these functions are evolving rapidly, and finding ways to strengthen control over what crosses the border without harming cross-border commerce is the border's greatest challenge. The costs of these changes are growing rapidly, and it is expected that federal funding for these investments will follow suit.

- *International tourism*. In the summer months, tourism accounts for a very large share of total cross-border traffic. Transportation investments that facilitate access and navigation of the border area, and

[31] Sear-Brown Group, *Northern New York Border Crossing Study, Final Report* (1998); Greater Buffalo Niagara Regional Transportation Council and Empire State Development Corporation, *Transportation Needs for an Economically Prosperous Buffalo-Niagara Region, Phase II* (2001), http://www.gbnrtc.org/Pdf/Reports-surveys/Transpneeds.pdf.; Roundtable on Border Issues, *Joint New York-Ontario Border Issues Roundtable Report* (2002*); Bi-National Transportation Strategy for the Niagara Frontier* (Toronto: Ontario Ministry of Transportation, 2003); New York State Department of Transportation (NYSDOT), *New York Border Projects Database* (2003).

help draw tourists deeper into upstate New York, can bring significant returns to the regional economy.

- *Other cross-border travel*. As an artificial geographic divide within a functional, bi-national economy, the border also serves a wide range of other local and long distance auto, bus, rail trips. These serve a multitude of purposes, including commuting to work or school, visits to friends or family, and economic trade in the services sector.

Table 4.1 suggests how New York State could begin categorizing and organizing its lists of proposed projects according to the types of benefits they provide to different classes of users, the state, and the nation. It identifies seven broad types of projects, based on whether investments target border crossings themselves, their customs and immigration operations, toll collection, intelligent transportation systems tourism, intermodal freight operations, or highway corridors.

Table 4.1. Categories of proposed border-area investments

		User Groups		Travel Markets Served			Types of Benefits					
	Type of Project	Passenger	Commercial	Transborder, long-distance	Transborder, local destinations	Domestic, intraregional	Reduced travel time	Travel time reliability	Traveler information	Intermodal connectivity	Safety, security, law enforcement	Promotion of tourism
A	Border crossing and queuing capacity	✓	✓	✓	✓		✓	✓				
B	Customs and immigration capacity and efficiency											
	NEXUS (electronic immigration processing)	✓		✓	✓		✓	✓			✓	
	FAST (electronic customs processing)		✓	✓	✓		✓	✓			✓	
	Commercial vehicle processing centers		✓	✓	✓		✓	✓			✓	
	Emergency truck staging areas		✓	✓	✓						✓	
	Shared Border Management	✓	✓	✓	✓		✓	✓			✓	
C	Toll collection improvements	✓	✓	✓	✓		✓	✓				
D	Intelligent transportation systems											
	CVISN - ITS for commercial regulation		✓	✓	✓	✓	✓	✓			✓	
	Traffic monitoring & incident detection systems	✓	✓	✓	✓	✓	✓	✓			✓	
	Traveler advisory systems	✓	✓	✓	✓	✓	✓	✓	✓			
E	Tourism-supportive services and infrastructure											
	Regional navigational and directional signage	✓			✓	✓			✓			✓
	International passenger transit services	✓			✓		✓			✓		✓
F	Intermodal freight facilities		✓	✓	✓	✓				✓		
G	Highway corridors and interchanges	✓	✓	✓	✓	✓	✓				✓	

Each of these groups of investments provides a distinct set of benefits and policy trade-offs:

Border crossing and queuing capacity investments (**A**) include improvements to the physical throughput capacity of roads and bridges crossing the border, as well as increases in space dedicated to vehicles

waiting at customs and immigration or toll booths. If demand exceeds capacity at one point within this system, it can create backups that compound delays by reducing the efficiency of other parts of this system. Additional capacity at the border can improve travel time and reliability at times when the physical capacity of the system is itself the cause of congestion at the border. It can also reduce localized air pollution at border crossings by cutting the amount of time that trucks spend starting and stopping in congested traffic. At other times, when there is no congestion, or congestion is caused by factors other than capacity limitations, there will be no benefits from this type of improvement.

Investments in border capacity have several potential drawbacks. First, capacity improvements can be very expensive, especially in cases where they require building or replacing bridges. Because of this, they should be weighed against other, less capital-intensive system management options, such as congestion pricing. Depending on the profile of vehicles using the particular crossing, a large share of the benefits may accrue to commerce outside New York State. Building the capacity to expedite through traffic may attract additional traffic, which would impose additional costs (congestion, pavement degradation, air pollution) along major corridors for through-traffic.

A second category of investments is *customs and immigration efficiency and capacity* (**B**). This includes a broad range of capital investment and operational policy options, each of which provide different types of benefits:

- The NEXUS program can speed immigration processing for participating individuals. Together with dedicated access lanes, this can provide shorter and more reliable travel times for some travelers. Because frequent cross-border travelers, such as commuters, are most likely to participate in this program, it should have disproportionately large benefits for the border region. However, if the number of NEXUS participants is low, it may not be efficient to dedicate road or bridge capacity for their exclusive use.

- The FAST program automates the customs process for participating shippers and carriers. The combination of this technology and dedicated access lanes can help some commercial vehicles cross the border more quickly. Yet if the number of shippers participating in the FAST program remains low, dedicating road space for participants in this program may not be cost-effective. Therefore, one challenge is to market the program more effectively to encourage greater participation.

- Off-site Commercial Vehicle Processing Centers, which provide mandatory pre-processing for all commercial vehicles approaching the border, reduce the number of unprepared vehicles approaching the border and the time spent waiting for Primary Inspection. They can be expensive to set up and operate, because they require land acquisition and the deployment of border personnel to an off-site location, but they help make the border area itself operate more efficiently. The first Commercial Vehicle Processing Center along the U.S./Canada border was established on the Canadian approaches to the Peace Bridge. It has reduced the share of commercial vehicles requiring secondary inspection from 36% to 16%.[32] However, it is expected the advent of advance notification requirements will change the purpose and location of these centers.

- Emergency Truck Staging Areas provide parking space for trucks in the event of a closure or slowdown in border processing. These areas can help keep the border open for passenger traffic by providing an off-site location for trucks to wait or undergo more thorough inspections. These facilities provide no benefit on a daily basis, but may provide critical operational flexibility at the border under certain emergency conditions.

- Shared Border Management consolidates both nations' customs and immigration operations on the same side of the border. This can be a cost-effective alternative to the expansion of security plazas in situations where space is constrained, but raises difficult legal issues. In December 2004, the U.S.

[32] USDOT FHWA. *Northern Border Crossing Noteworthy Practices*. "Commercial Vehicle Processing Centre (CVPC) and the U.S. Customs Service's Pre-Arrival Processing System (PAPS)" Fact Sheet NP-7 (2004).

and Canada announced a pilot project at the Peace Bridge to shift the U.S. Bureau of Customs and Border Protection personnel to Fort Erie, Ontario where inspection operations for U.S.-bound commercial and passenger vehicles will be conducted.

- The deployment of additional customs and immigration personnel is an important option that is easily overlooked. In some cases, congestion at the border stems from insufficient personnel, rather than an inadequacy of infrastructure or inspection facilities.

To the extent that these strategies reduce the amount of time that trucks are idling or sitting in congested traffic at the border, they may have significant air quality benefits as well.

Toll collection strategies (**C**) comprises a third group of investments, including increasing the number of toll booths, installing electronic toll collection, adopting congestion pricing, and shifting to one-way collection of tolls. All of these options can save travelers time, and in some cases, can improve the reliability of travel times across the border. Congestion pricing provides disproportionate benefits within the region, because local traffic has greater discretion over the time at which it travels across the border.

Intelligent transportation systems (**D**) include technologies to help transportation infrastructure operators manage their systems more effectively, as well as information systems that help travelers make more efficient route selection decisions. On the operational side, they include systems that help identify and pinpoint the locations and causes of traffic congestion, in order to more quickly deploy emergency towing or other services. On the user side, they include signs that indicate approximate wait times at the border, or suggest alternative routes in the event of congestion. Both types of ITS projects can be integrated with larger regional ITS systems, providing valuable information and benefits to intra-regional travelers who may not be crossing the border, but who may be traveling on key border access corridors. A potential drawback of many traveler advisory systems is that the information they impart about alternative routes may not be as helpful to motorists not familiar with the region, so only local traffic is able to benefit from following the instructions. This problem can be overcome with a well-designed system that provides clear instructions and plenty of additional way-finding signage to help non-local drivers feel confident that they'll be able to follow the alternative route.

Another group of ITS investments are Commercial Vehicle Information Systems and Networks (CVISN) projects that help officials monitor compliance with vehicle safety inspection, fuel taxation, operating credentials, and other regulations. These provide transportation benefits by making enforcement of existing safety and other laws more efficient.

Tourism-supportive projects (**E**) are a loose grouping of investments designed to encourage visitors to explore a region. Specially-designed informational and directional signs (such as those used in the Scenic Byways Program), can help direct visitors to routes and locations that they might otherwise over-look on the way to better-known destinations.

In the particular case of promoting tourism across the international border, public transit services (e.g. intercity rail or ferries) that make it easier or more convenient for Canadians to reach destinations in upstate New York can help increase the frequency of and length of visits. Because they are designed to benefit a relatively small number of people, these may not appear to be the most worthy transit projects to receive public subsidies. Yet if these projects are successful at drawing more visitors to the state, the subsidy may well be justified by the resulting economic benefits.

Another category of investments primarily justified by its regional economic benefit is *intermodal freight facilities* (**F**). These investments include improved terminals and facilities for transferring freight among truck, rail, aviation and maritime modes of transport. The main benefits would come from creating jobs in the transportation and warehousing sectors in upstate New York, from shifting some truck traffic to other travel modes, and from making upstate New York a more attractive place to locate certain types of businesses. As discussed in Section 2, most trucks using New York's international bridges and border crossings simply pass through the state, on the way between other states and Canada. This traffic

imposes only costs on New York, without providing any local benefit. To the extent that New York can leverage its infrastructure and strategic geographic position to create effective intermodal transfer facilities, it can potentially reap a significant economic return. The drawback to these investments is that they are speculative and risky, and would provide only marginal benefit to most shippers, who already have a multitude of transportation options.

Finally, some *highway corridors* (**G**) located away from the border serve as important routes for international freight transport. High truck volumes can become an important part of the justification for interchange redesigns, access control, and grade and curvature improvements needed to improve safety and speeds on rural highways. These projects will tend to provide the greatest benefits (safety and improved travel times) to transborder through traffic and domestic interregional traffic, both of which rely on highways that connect the border region with the rest of the country. The drawback of this form of investment is its great expense, and the potential that it will induce additional freight traffic to use the improved corridor. Depending on the type of project, there can also be a significant positive or negative impacts on communities: either by removing heavy truck traffic from highway segments that double as local roadways, or by widening those highways to make them inhospitable to slower, more local traffic.

Table 4.2. Potential Funding for Proposed Border-Area Investments

	Type of Project	Cost Recovery / Funding Options
A	Border crossing and queuing capacity	Tolls, subsidies, fuel taxes
B	Customs and immigration capacity and efficiency	User fees, Federal subsidies
C	Toll collection improvements	Tolls
D	Intelligent transportation systems	Fuel taxes, User fees, subsidies
E	Tourism-supportive services and infrastructure	User fees, State/local subsidies fuel taxes
F	Intermodal freight facilities	User fees, State/local subsidies Fuel taxes
G	Highway corridors and interchanges	Fuel taxes, subsidies

Different types of projects' prospects for financing is another important consideration (Table 4.2). Many categories of projects can be funded with user fees of one form or another. Bridge or plaza capacity expansions at border crossings (**A**) and toll collection improvements (**C**) can be undertaken by public authorities and funded from their dedicated toll revenues. Customs and immigration pre-clearance systems (**B**), some intelligent transportation systems (**D**), international public transit services (**E**) and intermodal freight facilities can be funded in part by other forms of user fees. Highway improvement projects (**G**), and intelligent transportation systems on major corridors (**D**) can be funded by NYSDOT (in conjunction with MPOs in metropolitan areas) through its process for planning and programming state and federal gasoline tax revenues.

Other customs and immigration-related projects (**B**) should be able attract federal funding. Through the General Services Administration, the federal government generally takes responsibility for capital needs related to law enforcement along the border, including plaza space and other facilities for customs interviews and inspections. The federal Department of Homeland Security would need to finance any increases in personnel assigned to customs and immigration processing at the border. Decisions about where specifically to invest capital and human resources for these types of projects are made on the basis of these agencies' internal needs assessments.

A third group of projects will require subsidies from state or local sources. Transborder public transportation projects (**E**) require local and federal funding for capital investments, and an ongoing local subsidy to finance operating costs not recovered with passenger fares. Certain investments in freight infrastructure and intermodal facilities (**F**) may be overlooked by private operators or public authorities because of their marginal prospects for cost recovery, yet may attract investment from state or local governments interested in promoting economic development (e.g. NYSDOT's Industrial Access Program).

4.2. Needs and Opportunities in the Western Border Region

As one of the busiest border regions in the nation, the Buffalo-Niagara has a great number of border infrastructure investment needs. One of the most pressing issues facing the region is how and where to expand capacity across the Niagara River. While there is broad consensus in the region that a new bridge crossing is necessary, there has been sharp division over where the project should be located and the form it should take. Recent efforts have focused on the area around the existing bridge. An early decision would help ensure that a project is progressed in a timely fashion. The region could also benefit from separating truck and passenger vehicle flows by developing priority corridors for commercial traffic, and finding ways to link transportation investments with regional economic development.

4.2.1. Peace Bridge

The southernmost vehicular crossing between New York State and Canada is the Peace Bridge, which connects Buffalo, New York with Fort Erie, Canada. The bridge opened in 1927, and is over a mile long. It has only three lanes, including a center lane than can be assigned to serve the peak direction of traffic flow. Yet it is one of the most significant border crossings for both passengers and freight along the entire U.S./Canada border. In 2002, it handled 6.7 million passenger vehicles and 1.3 million trucks. Commercial traffic has doubled since 1984, and increased by 18% since 1995. The bridge is owned and operated by the Buffalo-Fort Erie Public Bridge Authority ("Peace Bridge Authority" or PBA).

Development of additional capacity across the Niagara River near the Peace Bridge is the most controversial issue along New York's western border with Canada. Planning for a companion to or replacement for the Peace Bridge has been underway for well over a decade, but has been delayed several times by legal challenges. Several smaller investments are also under consideration.

- **A** *Additional capacity across the Niagara River*. There is broad regional consensus that a new bridge is needed, but there has been sharp division over where the project should be located, its size, and the design it should take. The PBA has long sought to build a second span adjacent to the existing Peace Bridge. PBA argues that this is an optimal location for new cross-border capacity, because it has good connections to the highway network on both sides of the river. PBA also favors the site because it already owns sufficient land on the Canadian side for an expanded plaza. In 1998, PBA was poised to begin construction on this bridge twinning proposal, but the adequacy of its environmental review process was blocked in U.S. courts. In 2000, PBA launched a bi-national integrated environmental review process to study various capacity expansion options. The study has completed its scoping phase but has yet to decide the design and number of lanes of the new structure.

  Local organizations in Buffalo have criticized PBA's proposals because portions of a residential neighborhood would need to be taken to expand the U.S. plaza; an expanded crossing would draw more commercial traffic to a densely populated residential area already impacted by particulates from truck exhaust; and space constraints suggest that the economic development potential due to the new span will be low. Recently, some opponents have indicated a willingness to support the project if toll and inspection facilities in both directions are moved to the Canadian size of the bridge. The Peace Bridge Authority will be able to contribute $110-130 million to the $310-340 million cost of a new bridge; state and federal sources will have to provide the remainder.[33]

  The Ambassador Niagara Signature Bridge Group, a private company that built and operates the Ambassador Bridge between Detroit and Windsor, is also seeking to develop additional capacity across the river. The Ambassador Group is proposing a privately financed span located slightly to the north, near the International Railroad Bridge, that would serve both commercial and passenger traffic. In advocating its proposal, it points to nearby brownfield sites that are available for freight handling or industrial development as a reason why its proposal would have greater economic development benefits than the Peace Bridge location. Critics argue that this proposal is not feasible because of environmental obstacles and inadequate supporting highway infrastructure, and that the private

[33] Peace Bridge Expansion Project, *Bi-National Integrated Environmental Process. Scoping Document/Alternative Screening Report*, (October 2003), Section 1, p. 9, http://www.peacebridgex.com/sdasr_toc.htm.

group's real motivation is to maximize the profitability of the Ambassador Bridge in Detroit by undermining efforts to expand the Peace Bridge. The Ambassador Group has attempted to address public skepticism about its motives by purchasing much of the land that would be needed to build the new crossing.

B *U.S. and Canadian plaza improvements*. A variety of investments have been proposed to expand and redesign the U.S. plaza, and develop new facilities for faster processing. By 2007, PBA plans to demolish some nearby buildings, and redevelop others, to help increase the operational capacity of the bridge, for a total cost of $5 million. Canada has announced $21 million project to modernize and expand the plazas and inspection facilities on its side of the bridge.[34] Beautification projects are underway on both sides.

A more ambitious proposal, "Shared Border Management" would relocate U.S. customs inspections and immigration interviews to the Canadian plaza, where there is ample space. This would require careful negotiations and new legislation to determine exactly what powers U.S. law enforcement officials would be permitted to exercise on Canadian soil (including their ability to carry firearms) and issues related to their job location for income tax purposes. Arrangements that address these concerns are already in place at five Canadian airports, but until recently, the Department of Homeland Security was reluctant to consider broadening this arrangement to land border crossings. New York Senator Charles Schumer has worked to resolve some of the legal issues and persuade DHS to embrace the airport model or some other reciprocal arrangement. DHS Secretary Tom Ridge and Canadian Public Safety Minister Anne McLellan announced in December 2004 the implementation of a shared border pilot project at Peace Bridge.

D *Intelligent transportation systems*. The Peace Bridge Authority and NYSDOT have ongoing efforts to implement a Freeway Traffic Management System that includes variable message signs, closed circuit television, highway advisory radio, vehicle detection stations, and a fiber optic communication system. Canada is making a $2.5M investment in a regional traffic monitoring system for approaches to its side of the bridge.

4.2.2. Rainbow Bridge

The Rainbow Bridge, opened in 1941, is one of two crossings connecting the cities of Niagara Falls, New York and Niagara Falls, Ontario. It is open only to passenger vehicles, and is particularly important for serving tourist traffic. It has two lanes in each direction, and handled 4.2 million passenger vehicles in 2002 (a 30% increase since 1995). The bridge is owned and operated by the Niagara Falls Bridge Commission.

Both the United States and Canadian plazas have recently been expanded, so the list of needs at this crossing is relatively short:

A *U.S. plaza access improvements*. By 2015, the NFBC proposes to redesign the bridge exits on the U.S. side to improve circulation and traffic safety, for a cost of about $2.5 million.

C *Additional tollbooths*. Also by 2015, the NFBC plans to redeploy unused customs inspection booths as additional tollbooths, for a cost of about $2.5 million.

G *Canadian access corridor improvements*. The Ontario Transportation Ministry plans to widen Queen Elizabeth Way leading to the approaches to the Rainbow Bridge, so that it can better able peak traffic during the tourist season.

[34] Peace Bridge Authority, "Part of Canadian Border Infrastructure Funding Granted to the Peace Bridge Border Crossing," Press Release (May 23, 2003) [http://www.peacebridge.com/news.php?action=viewStory&id=25].

4.2.3. Whirlpool Rapids Bridges

North of the Rainbow Bridge is a pair of crossings known as the Whirlpool Rapids Bridge. The "lower level bridge" was built in 1848, serves only passenger vehicles, and has just one travel lane in each direction. It was closed for several years due to security concerns and construction. In 2000, the last full year it was open, 762,000 vehicles used the bridge, 45% fewer than used the bridge in 1995. The bridge reopened in 2004 as a NEXUS-only facility, so its main function will be to ensure quick, reliable access for travelers who cross the border frequently, rather than to maximize the amount of traffic it handles. The bridge is owned and operated by the Niagara Falls Bridge Commission.

E To facilitate navigation by visitors to the region, NFBC is proposing using signage and distinct pavement treatments to increase the visibility of access routes to the bridge. The City of Niagara Falls is calling for the creation of a new passenger rail station across the Niagara River.

The second, "upper level bridge" is a railroad bridge owned by Canadian National Railway, which serves both passenger and freight traffic. The main need identified for the bridge is an expansion of security and enforcement facilities, including cameras and a secure hold room.

E *Relocate passenger rail station.* Congress has provided initial funding to integrate customs operations into a new Amtrak station at Niagara Falls' 140-year old Customs House. Project sponsors hope to spur growth in cross-border tourist and commuter travel while improving security at the crossing.

4.2.4. Lewiston-Queenston Bridge

The northernmost crossing on New York's western border with Canada is the Lewiston-Queenston Bridge, built in 1961. In 2002, 3.3 million passenger vehicles and 1.5 million commercial vehicles crossed the border at this location. Like the Peace Bridge, the Lewiston-Queenston Bridge has seen moderate growth in passenger traffic, but much faster growth in commercial traffic (34% since 1995 and 114% since 1984). With the current effort to add a reversible fifth travel lane, the Lewiston-Queenston Bridge will have a maximum of three travel lanes in the peak direction.

A *Additional commercial traffic capacity*. Efforts are underway to create additional inbound capacity on the Lewiston-Queenston bridge by reorganizing space available on the existing structure. The Canadian and Ontario governments, along with the Niagara Falls Bridge Commission, have funded the creation of a new express lane on the bridge for participants in the FAST program. When the $32.5 million project is completed in 2006, the middle lane on the bridge will be reversible, so the operators will be able to provide up to three traffic lanes in the peak direction.

To complement the addition of an express lane on the bridge itself, Canada and Ontario are also funding construction of a 1.2-mile dedicated FAST express lane on the Canadian approach to the bridge, for a cost of $4.3 million.

B *Processing efficiency and queuing capacity*. By 2007, the NFBC hopes to open a commercial vehicle processing center on the Canadian side of the river, like the one that serves the Peace Bridge. Major upgrades to the U.S. plaza are also planned, some of which would require relocation of a freeway interchange to free up space for expansion of the plaza.

D *Intelligent transportation systems*. Traffic monitoring, incident detection, and traveler information systems are planned for both sides of the river. In the near term, NYSDOT and the New York State Thruway Authority are planning an "early warning system" that will monitor real-time travel demand and delays, detect and warn of changing conditions, and help ensure adequate staffing of border facilities and timely response to traffic incidents. By 2007, they are planning to install a more comprehensive traveler information system.

4.2.5. Other regional proposals

C *Congestion pricing*. A near-term alternative to the development of new bridge capacity across the Niagara River is the use of congestion pricing for commercial vehicles crossing the Peace Bridge and Lewiston-Queenston Bridge. Charging higher rates at peak hours will help divert local commercial traffic to less-congested time periods, cutting delays at the border and emissions from idling trucks. Higher costs to businesses that must use the crossings during peak hours would be offset by shorter travel times due to an overall reduction in commercial traffic at those times. This option is not actively under consideration by public agencies in the region.

D *Intelligent Transportation Systems*. NYSDOT, in conjunction with the New York State Thruway Authority (NYSTA) and Niagara International Transportation Technology Coalition (NITTEC), is planning a wide range of ITS improvements for the region. By 2006, it plans to install Transmit systems, which allow electronic toll collection transponders to be used for traffic monitoring purposes; cameras that can help it pinpoint and respond to traffic problems; and variable message signs that can provide motorists with real-time traffic information. By 2009, NYSDOT plans to implement CVISN architecture throughout the region, which will enable it to integrate safety inspection, weight monitoring, toll and fuel tax collection, and other information systems for commercial vehicle regulatory enforcement.

The region is also developing a capacity for real-time coordination and management using ITS. The Niagara International Transportation Technology Coalition (NITTEC) develops traffic management plans for border traffic, and coordinates information dissemination on both sides of the border for traffic operations, incident management, and weather and road condition information systems for travelers.

In addition, NYSDOT is working with the Thruway Authority, the Ministry of Transportation Ontario, and the bridge authorities to extend the emerging Buffalo-area Freeway Traffic Management System infrastructure into Canada to help monitor and manage traffic crossing the border.

All of these programs are evolving as the agencies involved determine the most effective ways to use the technologies available, and as the technologies themselves change. In this context, the amount of funding needed to implement these programs is not yet known. But it is clear that a stream of capital funding will need to be set aside for these programs if their potential benefits are to be achieved.

E *Fast passenger ferries*. In 2004, a private firm, Canadian-American Transport Systems (CATS), introduced fast passenger ferry service between Rochester and Toronto, saving travelers 60-90 minutes compared with the drive around Lake Ontario. If successful, this project could have helped make Rochester an important alternative gateway for Canadian tourists visiting Western New York. However, the project suffered a number of early setbacks. An accident and replacement of the ferry's engine delayed the start of service by seven weeks and burdened CATS with significant debts. The service's viability was also affected by the U.S. and Canadian governments' imposition of pilotage and customs fees, and security requirements prevented CATS from implementing its plan of carrying commercial trucks. The 774-passenger ferry's twice-daily service operated at 80% of capacity in August but was suspended indefinitely in September after carrying 140,000 passengers. Since that time, CATS managed to win permission to carry some trucks and negotiated reductions in the governmental fees, but was not able to restructure its finances to resume service. In early 2005, the city of Rochester purchased the ferry at a foreclosure auction and plans to operate it as a new public agency. Regardless the management arrangements, there is a high degree of confidence that the enterprise can be self-supporting (with the inclusion of commercial trucks) and will resume service by the summer of 2005.

City, state, and federal governments have already spent $30 million on supporting infrastructure in Rochester, and the Toronto Port Authority is spending $10.5 million on a new Toronto ferry terminal due to be completed in the spring of 2005. Public sector investment could help provide the infrastructure needed to expand the network of destinations served by the new ferries. Additional public investments will be needed if the service is taken over by a new public authority.

F *Intermodal freight facilities*. Another set of proposals seeks to create or expand intermodal freight facilities in the region as a strategy for promoting economic development. These proposals anticipate that providing a choice of transportation modes, facilities for efficient intermodal transfers, inexpensive developable land, and proximity to the port of entry, will help create jobs by capturing a larger share of the economic activity that passes through the region.

The range of proposed projects is quite broad. The passenger ferries mentioned above could establish new services focused on transporting trucks between Toronto and Niagara County or Rochester, reducing their travel times and removing them from the region's bridges and highways. Other proposals focus on the promise of air cargo: major investments in runway and cargo handling capacity at regional airports, and the construction of intermodal freight facilities at airports can help make the region an attractive place to locate for certain businesses to locate. Finally, other projects would seek to construct intermodal rail/truck transfer facilities, and preserve rail corridors that are at risk of being sold or abandoned, in order to ensure ongoing rail access to potential industrial development sites. The preservation of rail corridors is seen as essential to ensure continued competition and reduce rail shipping costs.

G *Major intraregional and interregional highway corridor upgrades*. Also on the long-term agenda for the region is a sizable list of major expressway and freeway projects. Most critical among these is the planned realignment and upgrade of U.S. 219, a major access route to the region for transborder freight traffic. According to a study for the Eastern Border Transportation Coalition, "the most important 'missing link' in [the system of corridors serving U.S.-Canada trade] is a relatively direct high capacity route in the Highway 219 corridor leading southeast from the Niagara region towards Philadelphia, Baltimore, and on to Florida."[35] An alternative route, extending more directly south, through West Virginia and the central Carolinas on its way down to Florida, is being promoted as the "Continental One" corridor. Either way, upgrading Hwy. 219 through New York and Pennsylvania will be necessary for this corridor to become a major alternative to the existing interstates.

Other proposals include capacity improvements on I-90 and I-190, and upgrades to smaller New York State highways (NYS-31, NYS-531, and NYS-63) to improve safety, provide more direct routes for truck traffic, and promote economic development along industrial corridors. Aside from partial funding for U.S. 219, these are all long-term projects that do not yet have committed sources of funding. Further away from the border area, two major long-term projects are upgrading U.S. 15 and NYS-17 to interstate standards (gaining them the designations I-99 and I-86, respectively). A key step in this process will be upgrading the interchange between these two highways to interstate standards, a three phase project. Phases I and II are under construction. Phase III, a $70 million project, is scheduled to be under construction in 2005.

4.3. Needs and Opportunities in the Northern Border Region

New York's northern border is traversed by a number of crossings serving a wide range of needs. The crossings at Champlain and Thousand Islands are major commercial ports of entry, while the Seaway and Ogdensburg bridges, as well as a number of smaller crossings, serve more local traffic.

4.3.1. Thousand Islands

The Thousand Islands Bridge, which crosses the St. Lawrence River near Alexandria Bay, New York and Gananoque, Ontario, is New York's fourth-busiest crossing and the seventh-busiest across the entire U.S.-Canada border, with 4.5% of the bi-national commercial traffic. The 8.5-mile-long crossing consists of a south channel bridge connecting Interstate 81 on the U.S. mainland to Wellesley Island, short parallel spans (the "rift bridges") across the international boundary between Wellesley Island and Hill Island, and a north channel bridge connecting Hill Island with Canadian Highway 137.

[35] Parsons Brinckerhoff Quade and Douglas, Inc., *Truck Freight Crossing the Canada-U.S. Border* (2002), p. 19.

The bridges opened in 1938, while the Customs facility was built in 1977-1978 and, unlike facilities at most bridge crossings, is owned outright by GSA. The bi-national Thousand Islands Bridge Authority (TIBA) maintains the crossing and owns the south channel and rift bridges.

Commercial traffic has exploded in the last two decades, climbing from 204,000 in 1985 to 543,000 in 2000; annual growth in the 1990s was 6.0%. By 2021, various forecasts predict commercial vehicle crossing volumes of 861,000 to 875,000 annually.[36]

The primary capacity constraints on or near the north channel bridge on the Canadian side of the border, where steep grades, a tight curve, and a two-lane roadway connecting to the rift bridge slow commercial traffic. However, a significant proportion of travelers cross only the south channel bridge and head toward recreational sites on Wellesley Island without continuing across the international border. A capacity analysis conducted in 1998 showed that under a low-growth scenario, this border crossing would not have any capacity constraints in 2006; under a high-growth scenario, demand would exceed capacity at the southbound toll plaza, Canadian customs and immigration, and both the U.S. and Canadian bridges.[37] A more recent study projects that traffic on the south channel bridge will reach capacity by 2015.[38]

In the near term, GSA, NYSDOT, and the bridge authority have several projects underway or in the planning stages to speed the flow of congested traffic at the crossing.

A *Widen northbound approach to Canadian customs enforcement.* The Thousand Islands Bridge Authority is planning to add a fifth lane to the northbound rift bridge at a cost of approximately $600,000. These additions could help increase vehicle queuing capacity outside customs and immigration, and would improve safety by providing wider lanes and shoulders.

A *Widen southbound approach to U.S. customs enforcement*. To alleviate truck backups that stretch from U.S. Customs back into Canada, New York State DOT has proposed adding a truck lane between the rift bridge and the U.S. inspection facilities, at a cost of $2 million. This new lane could improve the effectiveness of the FAST program and cut delays across the border.

B *U.S. inspection facility expansion.* To accommodate new security requirements and growth in staffing levels from 25 before September 11 to approximately 90 at present, GSA has proposed an $85 million expansion of the existing inspection facilities that would include new passenger and commercial facilities. Project costs include land acquisition and the construction of security fencing and a new warehouse. GSA has proposed to begin construction in 2007, with completion slated for 2010.[39] An expansion of Canada's commercial inspection facilities is expected to cost $8 million and be completed by 2010.

C *Widen toll plaza.* The Thousand Islands Bridge Authority plans to widen the toll plaza and increase the number of booths by 2010, at a cost of about $1 million.

In the longer term, the Thousand Islands crossings face capacity constraints. The south channel bridge at Thousand Islands is forecast to reach capacity by 2015, while the Canadian span across the north channel will reach capacity in 2031. Replacing or twinning the bridges would cost approximately $70 million each, though NYSDOT estimates the total cost of upgrading the southern crossing, including modifications to the approaches, at $150 million. The bridge authority does not have the revenues to finance new infrastructure on this scale.

[36] Parsons Brinckerhoff Quade and Douglas, *Truck Freight Crossing the Canada-U.S. Border* (2002); McCormick-Rankin Corp., *Northern New York Border Crossing Study, Interim Report 4: Future Conditions Report* (Mississauga, Ontario: 1998), Executive Summary, p. 3.
[37] McCormick-Rankin, *Northern New York Border Crossing Study* (1998), Executive Summary, p. 5.
[38] McCormick-Rankin and Stantec, *U.S./Canada International Bridge Study*, *Second Public Meeting Presentation* (October 2004), slides 46-50.
[39] Personal Communication, Robert Horr, December 4, 2003 and December 10, 2004.

4.3.2. Ogdensburg-Prescott Bridge

After Thousand Islands, the next crossing downstream is at Ogdensburg. The bridge connects directly with the main north-south highway leading to Ottawa, 50 miles north, but is not connected to the interstate highway system in the United States. Commercial traffic on the Ogdensburg bridge is about one-tenth that of Thousand Islands, with 69,000 truck crossings in 2002, up from 43,000 in 1985. With a capacity of 1,140 vehicles per hour and 1997 peak demand of only 151, the bridge has significant unused capacity.[40] The facility is not expected to experience any capacity constraints by 2021.[41]

A *Replace existing bridge deck*. The greatest needs at the Ogdensburg crossing relate to maintenance of the structure. The largest expense will be replacement of the bridge deck in the next two decades, at an estimated cost to the bridge authority of $75 million. In the near term, the bridge authority is planning to install weigh-in-motion scales to monitor overweight trucks and reduce the damage they inflict on the structure, at a cost of $350,000.

D *Traveler information systems and trail blazing signs*. To relieve congestion at the Thousand Islands Bridge, investments are planned on both sides of the border to direct traffic to Ogdensburg at times of peak demand. To complement the traveler information systems described in Section 4.4.1, NYSDOT proposes trail blazing signs to help commercial traffic find the way to the Ogdensburg crossing. On the highway corridors leading to the Canadian side of the border, electronic signs are being planned, for installation by 2010.

4.3.3. Seaway International Crossing

Seaway International Crossing is a system of bridges connecting the main street of Cornwall, Ontario, to New York State Route 37 near Massena. A two-lane bridge crosses from the U.S. mainland across the main channel of the St. Lawrence River to Cornwall Island, Canada. A second bridge crosses the smaller channel between the Island and the Canadian mainland.

Seaway differs from the other major northern crossings in that most of the traffic is local. Nearly one-third of travelers surveyed in 1997 cross the bridge daily, compared to less than 10% at the other crossings. Truck traffic is regional in nature, with 80% of the export tonnage originating in New York and Vermont, and 85 percent of the incoming tonnage headed for New York. Most of the export cargo is wood, textile, and leather products, probably related to the local wood and paper industries.[42]

In 1998, the St. Regis Reservation opened a casino on the New York side of the border, six miles from the crossing. At the time, the casino was expected to eventually draw more than one million visitors annually from Canada, 75% of whom would cross at Seaway. Border crossing data show no discernible effect as of yet: personal vehicle crossings increased by only 51,000, or less than 5%, between 1997 and 2002.[43]

At various points, however, the crossing has already reached its maximum operating capacity. A 2003 analysis indicated that the toll barrier, which has two booths for the peak direction and one for the off-peak, is at capacity in the off-peak direction and will be at capacity in both directions within ten years. The Canadian and U.S. customs facilities have been overwhelmed by traffic growth and the increase in cargo processing requirements. Long term, traffic on the south channel (U.S.) bridge is expected to exceed capacity by 2025.[44]

A *Replace or expand bridges*. In the near-term (by 2007), the Seaway International Bridge Authority is considering replacing the existing north channel bridge on the Canadian side with a two- or four-lane

[40] U.S. Bureau of Transportation Statistics, *Border Crossing Data* (2003); McCormick-Rankin, *Northern New York Border Crossing Study* (1998), pp. 13 and G-29.
[41] McCormick-Rankin, *Northern New York Border Crossing Study* (1998), Executive Summary, p. 5.
[42] Parsons Brinckerhoff Quade and Douglas, *Truck Freight Crossing the Canada-U.S. Border* (2002), pp. 84-85.
[43] Sear-Brown Group, *Northern New York Border Crossing Study, Final Report* (1998), p. 39; U.S. Bureau of Transportation Statistics, *Border Crossing Data* (2003), Table 8.
[44] Stantec, *Seaway International Bridge Project Status* (PowerPoint presentation), October 2, 2003; and *Seaway International Bridge Steering Committee Meeting* (PowerPoint presentation), May 10, 2004.

bridge that has less steep grades, for a cost of $25 million. That would increase the capacity for large trucks, which are slowed considerably by the steepness of the existing structure. In the longer run (by 2020), the authority is also considering twinning the south channel bridge, or replacing it with a more moderately-graded span at an estimated cost of $75 million.

B *U.S. inspection facility expansion.* The General Services Administration plans a $59 million expansion and replacement of the existing inspection station. The project will increase the number of cargo bays from 2 to 10 and expand the administration and passenger facilities.[45]

C *Expanded or relocated toll facilities.* The capacity of the existing toll plaza could be expanded by moving it to a new location, or expanding the number of booths. This would cost an estimated $5 million.

4.3.4. Champlain/Rouses Point

The crossing between Champlain, New York and Lacolle, Québec, is the sixth-busiest truck crossing along the Canadian-U.S. border, accounting for 5.7% of cross-border truck traffic. The international crossing is the terminus of Interstate 87, and is 30 miles north of Plattsburgh, 175 miles north of Albany, and 45 miles south of Montréal. Both Interstate 87 and Highway 15 on the Canadian side are four-lane divided limited access highways. Champlain-Lacolle is the only major land crossing between New York and Canada that does not involve a river crossing.[46]

The border facility was constructed in 1967 and is owned and operated by the General Services Administration. Truck volume in both directions grew from 478,000 in 1985 to 769,232 in 2000; the annual growth rate during the 1990s was 5.1%.[47] The current plaza and inspection facilities are considered insufficient to meet existing demands. Inadequate truck staging capacity on the southbound plaza results in traffic congestion and extensive backups extending north of the port.[48] The backups extending onto Autoroute 15 in Québec have led to significant delays and three deaths in the past several years. Additional congestion may occur if as a result of the new U.S. procedures for screening marine cargo, shippers send U.S.-bound cargo into Montréal and then via truck across the border – most likely at Champlain.[49] It should also be noted the Canadian Border Services Agency plaza has also begun to experience capacity constraints leading to backups on Interstate 87.

Construction of significant infrastructure upgrades for this port began in 2003, and further improvements are under study. Canada has promised C$75M for infrastructure improvements between the border and Montreal. New York has added bilingual signage on the Interstate 87 approach and in partnership with US and Canadian federal inspection and transportation agencies and the Quebec Ministry of Transport, provided short-term infrastructure improvements to facilitate the deployment of the FAST program and improve the efficiency of both U.S. and Canadian border operations.

NYSDOT currently employs a queue detection trailer and CCTV to identify vehicle backups and automatically activate a portable message signs to warn approaching motorists of possible delays. NYSDOT is also investigating the use of TRANSMIT technology (remote sensing of EZ-pass tags) to collect speed and crossing time data at Champlain. NYSDOT is working on plans to incorporate an ITS/CVO (Commercial Vehicle Operations) truck safety inspection station and other ITS strategies in the expanded I-87/Champlain Border Crossing Plaza, and integrating the facility with similar efforts in Quebec. This planning project was funded under the federal Borders and Corridors program, but the costs of the facility are as yet undetermined.

Identified needs in this area include:

[45] U.S. General Services Administration, *FY 2005 Congressional Justification*, p. 261,
[46] Sear-Brown Group, *Northern New York Border Crossing Study, Interim Report 3: Existing Conditions* (1997), p. 52.
[47] McCormick-Rankin, *Northern New York Border Crossing Study* (1998), p. 15 (underlying Excel worksheet); Parsons Brinckerhoff Quade and Douglas, *Truck Freight Crossing the Canada-U.S. Border* (2002), p. 118.
[48] NYSDOT, *New York Border Projects Database* (2003).
[49] I-87 Multimodal Corridor Study, "Summary: Northern Economic Zone Meeting, Plattsburgh-North Country Chamber of Commerce" (Albany: New York State Department of Transportation, April 23, 2003), p. 2.

- *Expand border inspection facilities.* To accommodate recent and projected growth and provide increased security, GSA has embarked on a major upgrade of the Champlain facility. GSA is proposing a new administration building; a greatly expanded commercial vehicle inspection facility including a staging area for up to 195 tractor trailers; parking for 300 additional employees; new export control facilities; security fencing; a firing range; and numerous other improvements. Construction of the $91 million project is expected to begin in 2005 with a completion date of 2008. New York State has additionally committed $5 million to constructing transportation elements of the plan.

- *Rouses Point inspection facilities.* A second important border crossing in the Champlain port-of-entry is the crossing at Rouses Point. GSA has proposed a $6 million rehabilitation of the Rouses Point inspection facility, to be completed by 2006.

- *Passenger Rail Improvements*. NYSDOT has proposed construction of a new connector track at Rouses Point, in order to facilitate passenger rail services by separating them from freight operations. The $3.5 million project would be complete by 2009.

- *Rail Freight Capacity Improvements*. NYSDOT in partnership with CP has proposed a series of infrastructure improvements for implementation over the next decade that would rehabilitate existing tracks to keep them economically viable, increase vertical clearances, and provide additional locations where passenger and freight traffic would operate independently. The package would cost an estimated $18.5 million.

4.3.5. Other regional proposals

- *Port-of-Entry Rehabilitation/Expansion*. Eight smaller ports of entry may also require upgrades to facilitate new security procedures. According to GSA estimates, the total cost of these improvements is about $49.5 million.

- *Route 37.* An alternative to the eventual widening of the Thousand Island crossings to direct some traffic to the Ogdensburg crossing, where there is excess capacity. NYSDOT has already proposed directing some of the traffic in that direction, via State Route 37, with signs between Interstate 81 north of Watertown and the Ogdensburg crossing. However, any significant diversion to Ogdensburg would affect traffic and environmental conditions along Route 37 and might require expansion of that two-lane road.

- *East-West Expressway*. A proposed four-lane expressway linking Interstate 81 near Watertown to Interstate 87 near Plattsburgh, including spurs serving Ogdensburg and Massena, would reduce transit times to New England from northeastern Ontario, and is expected to provide economic benefits to Northern New York. Construction of the expressway option and spurs could cost upwards of $1 billion.[50]

4.4. Summary and Conclusions

Taken together, the various needs assessments examined in this analysis propose a total of $1.71 billion in border infrastructure investments in the United States (or by bi-national agencies) by 2010 (Table 4.3).[51] About 22% of the total, or $400 million, is for increases to the physical capacity of border crossings – primarily the Peace Bridge Expansion Project or an alternative equivalent project. Another nearly $400 million is for improvements to the operational efficiency of border inspection facilities. A third major category is the improvement of major highway corridors that serve border-related freight traffic; by 2010, identified investment needs reach $793 million, although some of the proposed projects may be redundant, and not all are likely to be built.

[50] Development Authority of the North Country, *North Country Transportation Study* (2002).
[51] Investment needs after 2010 are not included in this table, but are listed in Appendix B.

Other types of projects, such as intelligent transportation systems, tourism-supportive improvements, and intermodal freight projects, require smaller investments, yet remain an important part of the portfolio of border area investment needs.

Table 4.3. Identified U.S. Border Investment Needs by 2010 (Millions of U.S. Dollars)

	A Physical Capacity	**B** Customs & Immigration	**C** Toll Collection	**D** ITS	**E** Tourism	**F** Intermodal Freight	**G** Highway Corridors	**Total**
Peace Bridge	$310-340	$5.0						$330.0
Rainbow Bridge								
Whirlpool Rapids Bridge		$5.5			$11-24			$23.0
Lewiston-Queenston Bridge	$16.3	$65-90		$13-14				$107.3
Elsewhere in Western NY				$8.2		$90-120*	$793.0	$906.2
Thousand Islands Bridge	$2.6	$84.6	$1.0					$88.2
Ogdensburg-Prescott Bridge				$0.3				$0.3
Seaway International Crossing	$25.0	$58.9	$5.0					$88.9
Champlain-Rouses Point		$102.3			$3.5	$18.5		$124.3
Elsewhere in Northern NY		$49.4						$49.4
Total**	$368.9	$383.2	$6.0	$22.0	$21.0	$123.5	$793.0	$1,717.6

**Excludes proposed airport expansion projects. **Where a range of estimates is provided, the midpoint has been used to calculate the totals.*

5. Policy Choices

As the previous section showed, various assessments have identified close to $2 billion in border and corridor investment needs in New York State through 2010. Yet from 1998-2003, dedicated federal transportation funding to New York for borders and corridors infrastructure totaled just under $30 million. The Borders and Corridors program is not the only source of funds for such projects, and the scale of investment being called for suggests the importance of not only identifying additional funding sources, but setting investment priorities. This section examines the range of potential border infrastructure funding strategies, and looks at the investment choices in light of the typology introduced in the previous section.

5.1. Funding Sources

Achievement of these objectives is, of course, constrained by financial realities. Given the nature of international crossings, one might expect the U.S. government to play a large role in funding border projects. As explained earlier, however, New York has not been able to rely on the federal Borders and Corridors program as a major source of funding for borders infrastructure.

The Borders and Corridors program is hardly the only source of funding for border infrastructure projects, however (Table 4.2). The very nature of border crossings implies control and funding by multiple jurisdictions. Along the New York-Canada border, control is shared between the United States and Canadian federal governments, New York State, the provinces of Ontario and Québec, local governments, and the bridge authorities.

At the St. Lawrence and Niagara River crossings, the bridge infrastructure is owned and maintained by bi-national public authorities. These authorities maintain the crossings, including the inspection facilities, and pay for the upkeep with toll revenues. Toll revenues can also be used to finance construction of new infrastructure, such as bridge or plaza capacity expansions (**A**) and toll collection improvements (**C**).

Many of the customs and immigration-related projects (**B**) should be able attract federal funding. The General Services Administration (GSA) owns the inspection facilities at road and rail crossings and at a few bridge crossings – notably Thousand Islands and Seaway – and receives annual appropriations from Congress to build and maintain border stations.[52] The federal Department of Homeland Security would need to finance any increases in personnel assigned to customs and immigration processing at the border. Decisions about where specifically to invest capital and human resources for these types of projects are made on the basis of these agencies' internal needs assessments.

Customs and immigration pre-clearance systems (**B**), some intelligent transportation systems (**D**), international public transit services (**E**) and intermodal freight facilities can also be funded in part by various forms of user fees. Highway improvement projects (**G**), and intelligent transportation systems on major corridors (**D**) can be funded by NYSDOT (in conjunction with MPOs in metropolitan areas) through its process for planning and programming state and federal gasoline tax revenues.

A number of projects will require subsidies from state or local sources. Transborder public transportation projects (**E**) require local and federal funding for capital investments and an ongoing local subsidy to finance operating costs not recovered with passenger fares. Certain investments in freight infrastructure and intermodal facilities (**F**) may be overlooked by private operators or public authorities because of their marginal prospects for cost recovery, yet may attract investment from state or local governments interested in promoting economic development (e.g. NYSDOT's Industrial Access Program).

Canada can also be expected to contribute funding to a range of cross-border projects. In 2001, the Canadian government created a Border Infrastructure Fund, with $462 million (U.S. $) to be distributed

[52] In fiscal year 2004, Congress appropriated $182 million for border stations, including $35 million for the Champlain facility.

over five years. In 2003, the federal government agreed to spend $72 million on border improvements in the Niagara region, while Ontario committed an additional $55 million. In 2001, Québec committed $58 million for improvements at Lacolle-Champlain.[53]

5.2. Project Costs

The estimated cost to complete all of New York's near- and intermediate-term proposed projects – those with completion dates of 2010 or earlier – is $1.72 billion.[54] Border projects total $781 million and corridor projects $809 million (Table 5.1). Proposed rail projects would cost $57 million, while ferry investments add up to $40 million and intermodal facilities $30 million. The largest projects in terms of cost are the upgrade of Route 219 between Springdale and Salamanca in Western New York ($613 million) and expansion of the Peace Bridge ($325 million).

Table 5.1. Estimated costs of New York border and corridor infrastructure projects through 2010

Category	*Funding sources ($millions)*					
	FHWA	**GSA**	**Bridge Authorities**	**Private/ Public**	**Unfunded**	**Total**
Border	27.3	295.7	202.0	-	256.4	781.4
Corridor	629.3	-	-	-	180.0	809.3
Ferries	-	-	-	40.0	-	40.0
Rail	-	-	-	-	57.0	57.0
Intermodal	-	-	-	30.0	-	30.0
Total	**656.6**	**295.7**	**202.0**	**70.0**	**493.4**	**1,717.6**

If the sources identified above are successfully tapped, there is still a $493 million gap in funding. The largest unfunded border need is $205 million for Peace Bridge expansion. Other unfunded projects include a $15 million expansion of the U.S. inspection plaza at the Lewiston-Queenston Bridge, $35 million for preservation of short-rail lines in the Niagara region, and $22 million in upgrades of the Canadian Main rail line between Rouses Point and Albany. Funding has also not been lined up for the $180 million upgrade of the U.S. 15/NYS 17 intersection.

5.3. Making up the Shortfall

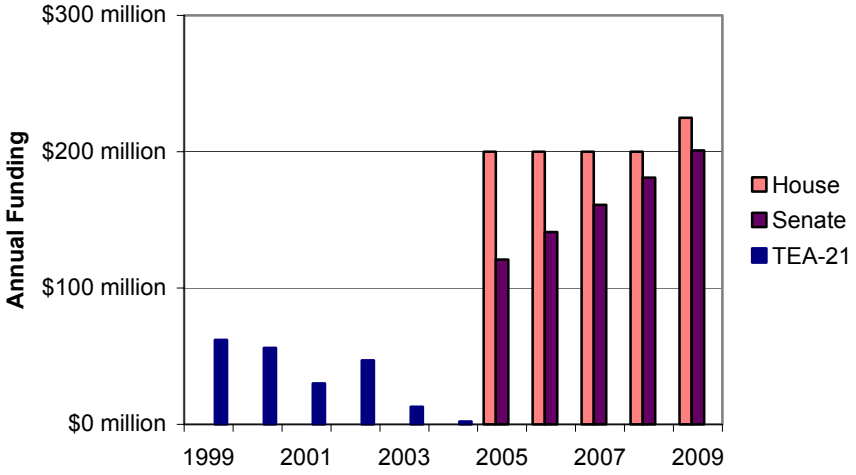
Under TEA-21, the Borders and Corridors was too small a program to make a significant dent in this funding gap. In the last two years, however, Congress and the Administration have put forward proposals to revamp the program. There has been widespread recognition that, as one Administration official put it, "the program did not live up to its potential."[55] Both Congress and the Administration propose separating the funding for borders and corridors. They also promise significantly higher levels of spending, with the Senate proposing a 300% increase in border funding and the House a 400% increase (see Figure 5.1).

[53] Transport Canada, "$325 Million for Border Improvements" (GC 007/03, May 21, 2003), http://www.tc.gc.ca/mediaroom/releases/nat/2003/03-gc007.htm. Canadian dollar conversion to U.S. currency at the January 16, 2004 rate of 1 Canadian dollar = 0.77 U.S. dollars.

[54] The year 2010 was chosen because a much higher level of uncertainty surrounds projects with targeted completion dates after that. Note that if TEA-21 is reauthorized during fiscal year 2004, it would likely authorize federal transportation programs through fiscal year 2009, and thus not cover the final year of projects completed in 2010. On the other hand, funding for some of the long-term projects not included here will likely be needed before 2010.

[55] Emil Frankel, "Border Transportation Issues" (Testimony before the Senate Committee on Environment and Public Works, April 11, 2003), http://epw.senate.gov/108th/Frankel_081103.htm.

Figure 5.1. Historical and Proposed Levels of Borders Funding



Sources: USDOT, FHWA, *The National Corridor Planning and Development and Coordinated Border Infrastructure Program: History, Evaluation and Results* 2003-2004; U.S. House of Representatives, *HR 3,* Section 1101, U.S. 109th Congress, 1st session; U.S. Senate, *S. 732*, Section 1101, U.S. 109th Congress, 1st session.

These proposals go a long way to filling the gap in New York's border infrastructure funding. Border program funds would be distributed primarily on the basis of each state's share of border traffic. The House bill, for example, would guarantee New York 14 percent of the border funding, or $144 million over five years, a huge increase over the $12.9 million the state received from FY 1999-2003.[56] However, while there appears to be consensus on increasing funding for borders, there is no guarantee that any particular proposal will be approved or that New York will, in fact, receive a particular share.

For the new corridors program, legislation passed by the House would more than triple the level of funding, while the Senate bill would cut funding slightly. The House bill also grants “high-priority” status to I-87 and to the proposed east-west corridor linking Watertown with Plattsburgh. Again, given the uncertainty of the legislative situation, it is impossible to say whether a final bill will completely cover New York’s estimated corridor needs.

5.4. Policy Trade-offs

The context for investment at the border has largely been shaped by the competing objectives of facilitating efficient commerce, and strengthening border security, both of which came to a head after the terrorist attacks in September, 2001. In December of that year, the Canadian Minister of Foreign Affairs, John Manley, and the U.S. Director of the Office of Homeland Security, Tom Ridge, signed the Smart Border Declaration, a plan identifying 30 specific areas in which the two countries would cooperate to achieve a "secure and smart border." The preamble stated that

> Public security and economic security are mutually reinforcing. By working together to develop a zone of confidence against terrorist activity, we create a unique opportunity to build a smart border for the 21st-century; a border that securely facilitates the free flow of people and commerce; a border that reflects the largest trading relationship of the world.[57]

[56] The House bill apportions borders funding among the border states with the following formula:
- 20% is distributed based on the number of incoming commercial trucks across the land border;
- 30% is distributed based on the number of incoming personal motor vehicles and buses;
- 25% is distributed based on the total weight of incoming cargo carried by commercial trucks;
- 25% is distributed based on the total number of land border ports of entry.

[57] Canadian Department of Foreign Affairs and International Trade, *The Canada-U.S. Smart Border Declaration 2001*, http://www.dfait-maeci.gc.ca/anti-terrorism/can-us-border-en.asp.

While border security and efficiency are not mutually exclusive goals, there is an inherent tension between the two. If the border itself remains the nation's main line of defense against security threats, then increased security will ultimately require an intensification of inspection efforts there. Proposals to make the border "smarter" involve pre-clearance and other strategies that seek to extend the "zone of control" more deeply into the economy. These programs can make a secure border operate more efficiently, but only by inducing firms to undertake potentially burdensome advance security procedures. The net benefit to the economy may be substantially less than reductions in border delays may suggest.

Although the U.S. federal government sets immigration, customs, and border security policy, in many ways it has ceded responsibility for upgrading the border transportation infrastructure to support security needs to the states and local authorities.[58] As states take the lead in planning and financing infrastructure improvements, they must integrate these efforts with broader policy objectives, embracing a more nuanced understanding of the economic role of the border and the impacts that changes to border infrastructure and security procedures may have on the economy.

Overall, transportation capacity and efficiency improvements have the potential to deliver important economic benefits to the economy as a whole. Yet these generalized benefits may mask significant changes in the welfare of individual companies and places. As a result, conclusions about how investments at the border will affect the upstate New York economy should be drawn with caution. For example, in the freight sector, transportation improvements provide many distinct kinds of benefits:[59]

- *Productivity increases*. Reduced travel times or distances, lower the transportation costs required to produce a given level of economic output. This can increase the profitability of products being sold, or reduce the costs to consumers.

- *Logistical adjustments*. Reduced transportation costs enable producers to consume more and higher quality transportation services, while reducing their costs of maintaining inventory. Businesses can reduce their warehousing and related costs by shifting to "just in time" production models, which rely on heavily on the freight transportation system.

- *Consolidation of facilities*. Reduced transportation costs enable businesses to concentrate their operations into fewer locations. These may require longer average travel distances to reach customers, but can reduce costs through economies of scale outside the transportation sector.

- *Agglomeration economies*. Transportation improvements that relieve congestion or expand the range of location options within a metropolitan area enable more businesses within a single sector to concentrate in the same region. This can return economic benefits by enabling these businesses to share a skilled labor pool and specialized support businesses.

- *Transportation and value added*. Transportation improvements can actually enhance the value of goods that businesses produce, by enabling perishable products to reach markets with a greater share of their value intact, and enabling businesses to offer higher-value services to their customers.

Since many of these benefits accrue to individual firms and their customers, they are not spread uniformly over the landscape; in some cases, they can create winners and losers on a local scale. Improving the efficiency of infrastructure in the border region may bring significant economic benefits to businesses in both the United States and Canada, but not all of these benefits will be experienced in the region immediately adjacent to the border. Reduced transportation costs is a double-edged sword: in some cases it will enable firms to expand and increase their employment in New York State, but in other cases in will enable them to concentrate their operations on one side of the border or the other, perhaps leading

[58] Gary Hart, Warren B. Rudman, and Stephen E. Flynn, *America – Still Unprepared, Still in Danger* (New York: Council on Foreign Relations, 2002).
[59] T.R. Lakshmanan and William P. Anderson, *Transportation Infrastructure, Freight Services Sector and Economic Growth: A Synopsis* (Washington, D.C.: USDOT FHWA, 2002), http://ops.fhwa.dot.gov/freight/econben/Summary%20report%20Lakshmanan.doc.

to a reduction of jobs in New York State. Either way, reduced transportation costs will enable businesses to consume more transportation services, placing greater demands on the state's border crossings and trade corridors.

New York State and the Provinces of Ontario and Québec have recognized these challenges, and are undertaking innovative efforts to address them. In June 2001, the inaugural Ontario-New York Economic Summit held in Niagara Falls, NY brought together business, community, academic and government leaders to foster open exchange of ideas on common issues and challenges and to discuss 4opportunities for promoting greater cross-border trade and economic growth. Governor George Pataki and Premier Michael Harris signed a Memorandum of Understanding and Cooperation which established the Niagara Bi-National Region Economic Roundtable, a Bi-National Tourism Steering Committee and the Niagara Bi-National Education Partnership Fund designed to attract private investment for tourism and education. In addition, New York State and Ontario transportation officials formed a Bi-National Working Group to coordinate planning and projects related to trade corridors and border crossings. A particular focus of the group is to examine expanded use of intelligent transportation systems and technology to improve the movement of goods and people across the border.

In November 2001, New York Governor George Pataki and Québec Premier Bernard Landry agreed to a specific security and infrastructure agenda focused on the I-87/A-15 corridor, the major corridor connecting New York and Québec. They agreed on the "need to ensure optimum security throughout North America while maintaining the smooth flow of goods and people." The early fruits of this agreement included deployment of technologies to improve the flow of passenger and commercial traffic at the international border crossing and the establishment of a cooperative working relationship between the Québec Ministry of Transport, NYSDOT, GSA and the Canadian and U. S. federal transportation and border inspection agencies.

The commitments were further echoed at the first-ever Québec–New York Economic Summit held in Plattsburgh, N.Y. in May 2002 by Governor Pataki and Québec Premier Serge Ménard. Governor Pataki announced more than $35 million in new transportation investments to improve trade, commerce, and tourism travel between Québec and New York, including $27 million in strategic investments in the Canadian Pacific Main Line from Schenectady to Rouses Point, NY to be harmonized with the CP lines serving Québec. In addition, the Governor committed $5 million to advance construction of a new international border crossing at Champlain-Lacolle and directed the NYSDOT to undertake the I-87 Multimodal Study to identify key corridor issues and opportunities to improve transportation services in the Québec-New York Corridor.

In March 2004 at the second Québec–New York Economic Summit held in Montreal, Québec, NYSDOT and the Québec Ministry of Transport reported on specific transportation initiatives both were pursuing to improve the I-87/Autorute 15 corridor. A formal commitment to continue to work together to improve passenger and freight rail service was made. The highlight of the transportation announcements were the initial recommendations of the 87 Multimodal Study. Chief among these was the "Smart Corridor" initiative which embraces the use of new and existing technologies to improve and better manage the mobility and reliability of the Québec-New York Corridor.

Strategic planning for the Smart Corridor now embraces efforts to improve passenger and freight rail and to unify commercial vehicle permitting. At the same time, the two governments are working to strengthen economic ties through cooperative research and development on nanotechnology and security technologies, as well as through efforts to expand the availability of venture capital.[60] Such multidisciplinary, corridor-level planning – linking transportation investment, economic development, and international commerce – represents a promising model for other planning initiatives around the state.

[60] New York State, Office of the Governor, "Governor and Québec Premier Hold Second Economic Summit" (Press Release, May 13, 2004), http://www.state.ny.us/governor/press/year04/may13_04.htm.

5.5. Conclusion

As shown by the economic analysis in Section 2, New York's border crossings are at least as significant for their role in national commerce as they are for the state economy. Trade with Canada is critical to New York State's economy, particular in border regions and along the trade routes; but national commerce accounts for the lion's share of freight traffic across the border – nearly 80% of the truck crossings at Buffalo-Niagara. Border crossings in other states may serve primarily local interests but the nation as a whole has a stake in Buffalo-Niagara.

This finding has important policy considerations. With the large majority of trans-border commerce coming from or destined for other states, some elements of border traffic pose more of a burden than a benefit to New York: they bring congestion, air pollution, and pavement damage without returning much in the way of economic activity. Policies that focus on expanding border capacity to the exclusion of other efforts to capture a larger share of economic activity for New York State are likely to heighten these negative impacts. By making it easier to traverse New York State, capacity projects pursued in isolation may also induce businesses to locate farther from the border, further hurting the state's economy.

On the other hand, state transportation policy could embrace promotion of trans-border commerce as a key strategic objective. Balancing border capacity projects with other investments that are more directly tied to the local economy can provide a broad range of policy benefits. State funding may be particularly appropriate for projects likely to provide tangible benefits to the state economy, such as developing an efficient intermodal freight transportation infrastructure, intelligent transportation systems, tourist-friendly signage and services, and easing congestion on roads that serve intrastate as well as interstate traffic. Failure to invest in these types of initiatives alongside expansions of border capacity will likely mean that New York State will be saddled with additional traffic while failing to capture most of the new economic opportunities that growing trade with Canada promises to provide.

In summary, different levels of government may have difference policy objectives and priorities for investments made in border region infrastructure. For example, to serve a national interest, the federal government might seek to:

- *Invest in border crossings with the greatest national impacts*. The ports that serve the greatest volumes of traffic also tend to serve the broadest geographic areas. Improvements to these crossings will have the greatest national benefits.

- *Promote integration and resiliency of the entire transborder transportation system*. It is also in the interest of the national economy to have a system that is resilient in the face of security emergencies and localized closures of border crossing facilities. Projects that provide overflow capacity, enable diversions of traffic to alternative border crossings, and facilitate alternative mode choices (such as rail) tend to support this objective.

- *Ensure national security*. Security is traditionally a federal concern. Upgraded secondary inspection facilities, as well as dedicated FAST lanes that enhance the effectiveness of inspection programs, may both be seen as federal responsibilities.

- *Protect health and welfare*. In TEA-21, ISTEA, and earlier legislation, Congress has asserted a federal role in ensuring that federal transportation funds do not undermine the achievement of federal environmental and safety standards. Similarly, a national perspective on border infrastructure might support mitigating the environmental and public health impacts of commercial traffic, as well as improving the safety of border crossing facilities.

State or local agencies are likely to be more interested in regional benefits. If they take the lead in developing funding for border-related transportation infrastructure, they may wish to emphasize projects that address their concerns and interests:

- *Promote regional transportation efficiency and reliability*. These may include efforts to ensure that the local highway system and intrastate corridors have sufficient capacity to handle growing long-distance freight traffic without impeding local traffic. It may also include efforts to provide better real-time traffic management, incident response, and traveler information.

- *Establish efficient intermodal transfer and cargo handling facilities*. Investments of this type would help make upstate New York a more efficient location from which to conduct business, and make it easier for businesses to choose rail, marine, or air freight services over trucks. If tied to brownfield redevelopment, these projects can serve a broader strategy of capturing for the local economy a larger share of cross-border economic activity.

- *Attract international visitors* and facilitate their travel to areas off the beaten path.

- *Protect health and welfare.* As with the federal government, there is a regional interest in mitigating the environmental, safety, and public health impacts of freight traffic.

Failure to invest in upgrading the nation's most critical ports of entry will mean higher transportation costs for thousands of businesses all around the United States. This will affect the border-area economy, to be sure, but most impacts will be felt outside the immediate border region. Similarly, building additional border crossing capacity without upgrading corridors and intermodal facilities within the region may mean that any resulting economic growth may be located elsewhere. For the state and border region to seize the economic opportunities inherent in rising cross-border traffic, they will need to pursue a balanced set of investments that tie capacity improvements more closely with projects that meet the needs of the border region economy.

References

Bi-National Transportation Strategy for the Niagara Frontier (Toronto: Ontario Ministry of Transportation, 2003).

Canada Passport Office. “Controls at the Canada-US Border.” January 16, 2004. [http://www.ppt.gc.ca/newsroom/news20040109_e.asp.]

Canadian Department of Foreign Affairs and International Trade. *The Canada-U.S. Smart Border Declaration 2001*. [http://www.dfait-maeci.gc.ca/anti-terrorism/can-us-border-en.asp].

Can/Am Border Trade Alliance. Proceedings of Can/Am BTA Conference, May 2-4, 2004, Ottawa. [http://www.canambta.org/ott_2004_summary.pdf.]

Can/Am Border Trade Alliance. Proceedings of Can/Am BTA Conference, Sept. 12-14, 2004, Washington. [http://www.canambta.org/2004ConferenceSummary.doc.]

Development Authority of the North Country. *North Country Transportation Study* (2002).

Frankel, Emil. "Border Transportation Issues" (Testimony before the Senate Committee on Environment and Public Works, April 11, 2003). [http://epw.senate.gov/108th/Frankel_081103.htm].

General Services Administration, "Factsheet: Border Station, Champlain, New York," (2003).

"Get on the FAST track Kaplan advises shippers and carriers." *Canadian Transportation & Logistics.* (September 4, 2003).

Global Insight. *The Role of Metro Areas in the U.S. Economy* (Washington: U.S. Conference of Mayors, 2003).

Greater Buffalo Niagara Regional Transportation Council and Empire State Development Corporation. *Transportation Needs for an Economically Prosperous Buffalo-Niagara Region, Phase II* (2001). [http://www.gbnrtc.org/Pdf/Reports-surveys/Transpneeds.pdf].

Hart, Gary, Warren B. Rudman, and Stephen E. Flynn. *America – Still Unprepared, Still in Danger* (New York: Council on Foreign Relations, 2002).

I-87 Multimodal Corridor Study. "Summary: Northern Economic Zone Meeting, Plattsburgh-North Country Chamber of Commerce" (Albany: New York State Department of Transportation, April 23, 2003),

International Trade Administration. *Metropolitan Merchandise Export Totals to Selected Destinations 1993-1999*. Data files. (Washington: U.S. Dept. of Commerce, 2002) [http://www.ita.doc.gov/td/industry/otea/metro/destinations/destinations.html]

Lakshmanan, T.R. and William P. Anderson. *Transportation Infrastructure, Freight Services Sector and Economic Growth: A Synopsis* (Washington, D.C.: U.S. Department of Transportation, Federal Highway Administration, 2002). [http://ops.fhwa.dot.gov/freight/econben/Summary%20report%20Lakshmanan.doc]

McCormick-Rankin Corp. *Northern New York Border Crossing Study, Interim Report 4: Future Conditions Report* (Mississauga, Ontario: McCormick-Rankin Corp., 1998).

McCormick-Rankin Corp. and Sear-Brown Group. *Thousand Islands Crossing U.S./Canada International Study.* (Mississauga, Ontario: McCormick-Rankin Corp., 2003).

McCormick-Rankin Corp. and Stantec Consulting (formerly Sear-Brown Group). *U.S./Canada International Bridge Study*, *Second Public Meeting Presentation.* October 2004. [http://www.tibridge.com/study/PDF/PublicMeetingOct.pdf.]

New York State Department of Taxation and Finance. *New York Adjusted Gross Income and Tax Liability: Analysis of 1999 State Personal Income Tax Returns by Place of Residence* (Albany, New York: New York State Department of Taxation and Finance, Office of Tax Policy Analysis, 2003). [http://www.tax.state.ny.us/pdf/stats/Stat_Pit/COR99.pdf]

New York State Department of Transportation. *New York Border Projects Database* (2003).

_____. "NYSDOT Begins Improvements at Champlain Border Crossing" (Press Release, September 16, 2003). [http://dotweb2.dot.state.ny.us/news/2003/champ_x.html].

New York State. Office of the Governor. "Governor and Québec Premier Hold Second Economic Summit" (Press Release, May 13, 2004). [http://www.state.ny.us/governor/press/year04/may13_04.htm].

Niagara Falls Bridge Commission. "Whirlpool Rapids Bridge to be 'NEXUS Only'" (Press Release, October 1, 2003).

Office of Homeland Security. "Specifics of Secure and Smart Border Action Plan" (Washington, D.C.: The White House, Office of Homeland Security, January 7, 2002). [http://www.whitehouse.gov/news/releases/2002/01/print/20020107.html].

Oyana, T.J., P. Rogerson, and J.S. Lwebuga-Mukasa. "Geographic clustering of adult asthma hospitalization and residential exposure to pollution at a United States-Canada border crossing." *American Journal of Public Health*, v. 94, pp. 1250-1257 (2004). As cited in "Residents living near heavily traveled border more likely to suffer from asthma," *Health and Medicine Week*, p. 66 (October 25, 2004).

Parsons Brinckerhoff Quade and Douglas, Inc. *Truck Freight Crossing the Canada-U.S. Border: An Analysis of the Cross-Border Component of the 1999 Canadian National Roadside Study* (Amherst, New York: Eastern Border Transportation Coalition, 2002).

Peace Bridge Authority, "Part of Canadian Border Infrastructure Funding Granted to the Peace Bridge Border Crossing," Press Release (May 23, 2003) [http://www.peacebridge.com/news.php?action=viewStory&id=25].

Peace Bridge Expansion Project. *Bi-National Integrated Environmental Process. Scoping Document/Alternative Screening Report* (October 2003). [http://www.peacebridgex.com/sdasr_toc.htm].

Plattsburgh-North Country Chamber Commerce. *The Economic Impact of Canada on Clinton County, New York* (St. Albans, Vermont: Yellow Wood Associates, 1996).

Roundtable on Border Issues. *Joint New York-Ontario Border Issues Roundtable Report* (2002).

Sear-Brown Group. *Northern New York Border Crossing Study, Interim Report 3: Existing Conditions* (1997).

_____. *Northern New York Border Crossing Study, Final Report* (1998).

_____. *Northern New York Border Crossing Study, Findings Fact Sheets* (1998).

Senate Environment and Public Works Committee. *The Safe, Accountable, Flexible, and Efficient Transportation Equity Act of 2003* (108th Congress, 1st Session, S. 1072).

Stantec Consulting. *Seaway International Bridge Project Status* (PowerPoint presentation). October 2, 2003.

Stantec Consulting. *Seaway International Bridge Steering Committee Meeting* (PowerPoint presentation). May 10, 2004.

Taylor, John C., Douglas Robideaux and George C. Jackson. *The U.S.-Canada Border: Cost Impacts, Causes, and Short and Long-term Management Options* (Albany: New York State Department of Transportation, 2003).

Texas Transportation Institute and Battelle Memorial Institute. *Evaluation of Travel Time Methods to Support Mobility Performance Monitoring. FY 2001 Synthesis Report* (Washington, D.C.: U.S. Department of Transportation, Office of Freight Management and Operations, 2002).

Transactional Records Access Clearinghouse. “History of the U.S. Customs Service” (Syracuse, New York: Syracuse University, 2000). [http://trac.syr.edu/traccus/findings/aboutCU.S./cusHistory.html].

Transport Canada. "$325 Million for Border Improvements" (GC 007/03, May 21, 2003). [http://www.tc.gc.ca/mediaroom/releases/nat/2003/03-gc007.htm].

URS Cole Sherman. *2000 Niagara Frontier Traffic Survey Final Report* (Thorold, Ontario: The Regional Municipality of Niagara, 2001). [http://www.regional.niagara.on.ca/works/pdf/transportation/fullreport.pdf].

U.S. Bureau of Economic Analysis. *Foreign direct investment in the United States: Establishment Data for 1987* (1992). Data files. [http://www.bea.doc.gov/bea/ai/iidguide.htm].

_____. *U.S. International Transactions Accounts Data* (December 16, 2003). Data file. [http://www.bea.doc.gov/bea/international/bp_web/list.cfm?anon=228&registered=0].

_____. *Foreign Direct Investment in the United States: Establishment Data for 1997* (2003). Data files. [http://www.bea.doc.gov/bea/ai/iidguide.htm].

_____. *Regional Economic Accounts: Gross State Product* (May 22, 2003). Data files. [http://www.bea.doc.gov/bea/regional/gsp/].

_____. *Current-Dollar and “Real” Gross Domestic Product* (January 30, 2004). Data file. [http://www.bea.doc.gov/bea/dn/gdplev.xls].

U.S. Bureau of Transportation Statistics. *Transborder Surface Freight Dataset* 2002. (2003). Data file. [http://www.bts.gov/transborder/]

_____. *Border Crossing Data, U.S.-Canada* 2002 (2003). [http://www.bts.gov/programs/international/border_crossing_entry_data/us_canada/index.html].

U.S. Canada Bridge & Tunnel Operators Association. *Traffic Report* (2003).

U.S. Census Bureau. *Census 2000 County-to-County Worker Flow Files* (Washington, D.C.: U.S. Census Bureau, Journey-To-Work & Migration Statistics Branch, October 2003). [http://www.census.gov/population/www/cen2000/commuting.html].

_____. *Census 2000 Public Use Microdata Sample: Technical Documentation* (Washington, D.C.: U.S. Census Bureau, November 2003). PUMS/09-U.S. (RV). Page B-27. [http://www.census.gov/prod/cen2000/doc/pums.pdf].

_____. *Statistical Abstract of the United States 2002* (Web edition, 2003). [http://www.census.gov/prod/www/statistical-abstract-02.html].

_____, Foreign Trade Division. *State Export Data: State Exports by Country* (March 21, 2003). Data files. [http://www.census.gov/foreign-trade/statistics/state/country/index.html].

U.S. Department of Transportation. Federal Highway Administration. *Freight Analysis Framework State to State Commodity Flow Database, International Flows* (2003). [http://ops.fhwa.dot.gov/freight/adfrmwrk/faf_state2state.htm].

_____. *The Freight Story* (2003). [http://www.ops.fhwa.dot.gov/freight/publications/freight%20story/strategies.htm#1].

_____. *The National Corridor Planning and Development and Coordinated Border Infrastructure Program: History, Evaluation and Results* (2003 and 2004 update). [http://www.fhwa.dot.gov/hep10/corbor/ncorbor.htm].

_____. *Northern Border Crossing Noteworthy Practices* (2004). [http://www.fhwa.dot.gov/uscanada/studies/notewrthy_prac/index.htm]

U.S. General Services Administration. *FY 2005 Congressional Justification*. [http://www.gsa.gov/gsa/cm_attachments/GSA_DOCUMENT/2005CongJust_R2E-s65_0Z5RDZ-i34K-pR.pdf]

_____. *FY 2006 Congressional Justification.* [http://www.gsa.gov/gsa/cm_attachments/GSA_DOCUMENT/2006CongJust_R2E-s65_0Z5RDZ-i34K-pR.pdf]

U.S. House of Representatives. *Conference Report on HR 2673, Consolidated Appropriations Act 2004*, H. Rept. 108-401 (January 23, 2004), http://thomas.loc.gov/cgi-bin/query/Z?r108:H25NO3-0028:0:

_____. Transportation and Infrastructure Committee. *Transportation Equity Act: A Legacy for Users* (109th Congress, 1st Session, HR 3, February 9, 2005).

_____. Transportation and Infrastructure Committee. *Transportation Equity Act: A Legacy for Users* (108th Congress, 1st Session, HR 3550, November 20, 2003).

U.S. Senate, Committee on Environment and Public Works. *Safe, Accountable, Flexible, and Efficient Transportation Equity Act of 2005*. (109th Congress, 1st Session, S 732, March 6, 2005).

Appendix A. New York Border and Corridor Awards

Year	Project	Award
1999	Design of inspection facilities in the vicinity of the Port of Rochester border crossing	$400,000
1999	Design, right-of-way acquisition, construction and reconstruction from 2 to 4 lanes of U.S. 219 from State Route 39 in the vicinity of Springville to State Route 17/I-86 in the vicinity of Salamanca	$500,000
1999	Development of a commercial vehicle processing center in the vicinity of the Buffalo/Fort Erie Bridge	$960,000
1999	Widen approaches on northbound I-81, including preliminary engineering, design and construction in the vicinity of the Thousand Islands border crossing	$200,000
1999	ITS operational test including design, construction and operation at the Buffalo/Fort Erie Bridge	$1,800,000
1999	Technology and physical improvements to institute ITS for expediting rail cargo at border crossings in Buffalo; Detroit; Port Huron, Michigan; and Rainer, Minnesota (with other states)	$1,000,000
2000	Reconstruction and related work along I-87 at Canadian border	$400,000
2000	Final design, ROW acquisition and reconstruction along U.S.219 from vicinity of Springville to vicinity of Salamanca	$2,260,000
2000	Installation of complex automated license plate readers and supporting data management system for Canadian border crossings in Niagara County and related work	$400,000
2000	Improvements to Whirlpool-Rapids Bridge complex near Niagara Falls	$800,000
2000	Relocate Amtrak station to a site near Whirlpool-Rapids Bridge and related work	$200,000
2000	Study to develop corridor management plan in the vicinity of JFK International Airport	$200,000
2000	Development work for a ITS/CVO inspection station on I-87 at Canadian border	$500,000
2000	Planning, design and construction of an international gateway district and economic development corridor in the vicinity of City of Buffalo	$1,000,000
2000	Multimodal electronic, physical and related work improvements to railroad entrance along Canadian border at Portal, ND and Port Huron, MI (with MI, ND primary; ME, MN, VT secondary)	$1,500,000
2000	Study of border crossings and high priority corridors in NY (with NJ)	$200,000
2000	Border crossing and corridor system studies for 4 border crossings, five corridors and for the Port of NY/NJ Lewiston-Queenston Bridge (with NJ)	$1,000,000
2001	Installation of canopy, inspection booths, signal and WIM at Ogdensburg-Prescott Intl Crossing	$300,000
2001	Design and ROW acquisition for new freeway (future I-99) from PA border north for 12 miles.	$3,000,000
2002	I-87 Corridor study	$1,942,000
2002	Stewart Airport connector study	$339,850
2002	U.S. Route 15 expansion from Pennsylvania to Presho	$2,913,000
2002	New York Harbor rail freight tunnel	$4,855,000
2003	New York Avenue Between 11th Street and Nassau Road, Huntington Station	$500,000
2003	North Country Trans. Study Plattsburgh/Watertown	$2,000,000
2003	Thomas Cole House Access, Catskill	$22,000
2003	Cross Harbor Freight Movement Project Environmental Impact Statement (with NJ)	$2,000,000
2004	Northern Tier Expressway	$100,000
2004	Route 590 Reconstruction project, Irondequoit, New York	$2,500,000

Note that several projects are multistate projects, in which the indicated award was divided among several states. Sources: USDOT, FHWA, *The National Corridor Planning and Development and Coordinated Border Infrastructure Program: History, Evaluation and Results*, 2003, Appendix A, http://www.fhwa.dot.gov/hep10/corbor/ncorbor.htm; U.S. House of Representatives, *Conference Report on HR 2673, Consolidated Appropriations Act 2004*, H. Rept. 108-401 (January 23, 2004).

Appendix B. Reference Data on Crossings and Projects

B.1. Western Border Region

The Niagara River, which links Lake Erie and Lake Ontario, is one of North America's busiest international border regions. It is spanned by four highway bridges and three railroad bridges, each of which plays a critical role in the movement of people and goods through the region.

States using Buffalo/Niagara Port of Entry for trade with Canada, 2002 (by value)

	By Truck		By Rail	
	Imports $21,367 M	Exports $22,260 M	Imports $7,131 M	Exports $1,655 M
New York State	23.7%	17.6%	4.3%	5.9%
CT/NJ/PA	19.3%	22.3%	14.3%	11.8%
IL/IN/MI/OH	24.6%	16.4%	38.0%	57.1%
New England	6.1%	6.6%	1.5%	1.5%
Other	26.0%	36.0%	41.7%	21.8%
Unknown	0.2%	1.2%	0.2%	1.9%

Source: BTS, *U.S. International Transactions Accounts Data* (2003).

Top 5 states for truck origins and destinations other than NYS:

Imports: Michigan, Pennsylvania, Ohio, New Jersey, Massachusetts.

Exports: Pennsylvania, Ohio, New Jersey, North Carolina, Massachusetts.

B.1.1. Peace Bridge.

Description of the Border Crossing:

	U.S.A. Side	Canadian Side
Nearest City	Buffalo, NY	Ft. Erie, ON
Access Route	I-190	QEW
Approach Lanes	3	
Primary Inspection Lanes		
Toll Lanes		
Priority Lanes	None	None
Through Lanes	3	

Source: NYSDOT, *New York Border Projects Database* (2003).

Annual Traffic:

	1984	1995	2002	2020 (Proj.)
Passenger Cars	5,609,000	6,388,000	6,675,411	
Trucks	674,000	1,146,000	1,346,612	2,227,000
Buses and Other Vehicles	n/a	n/a	34,830	

Source: Parsons Brinckerhoff Quade and Douglas, *Truck Freight Crossing the Canada-U.S. Border* (2002), pp. 118-119; U.S. Canada Bridge & Tunnel Operators Association, *Traffic Report* (2003); Taylor, Robideaux, and Jackson, *The U.S.-Canada Border* (2003), Appendix, pp. 31-34.

Commodities Crossing Border, by Share of Trucks (1999):

Rank	U.S.A. to Canada		Canada to U.S.A.	
1	**Empty Trucks**	29.2%	Metal Products & Machinery	19.4%
2	Metal Products & Machinery	19.2%	**Empty Trucks**	17.9%
3	Electronics, Vehicles, Precision Goods	13.5%	Electronics, Vehicles, Precision Goods	13.9%
4	Wood, textile, and leather products	13.0%	Wood, textile, and leather products	12.5%
5	Pharmaceutical and chemical products	6.7%	Grains, alcoholic beverages, tobacco	9.3%
6	Coal and petroleum products	4.4%	Pharmaceutical and chemical products	7.5%
7	Furniture and miscellaneous products	4.0%	Furniture and miscellaneous products	5.6%
8	Grains, alcoholic beverages, tobacco	3.6%	Agricultural products and fish	4.9%
9	Unclassified or unknown	3.2%	Unclassified or unknown	3.4%
10	Agricultural products and fish	2.0%	Coal and petroleum products	3.4%

Source: Parsons Brinckerhoff Quade and Douglas, *Truck Freight Crossing the Canada-U.S. Border* (2002), p. 92.

Conditions for Freight Traffic (May-June 2001):

	Baseline Border Crossing Time (no delay)	Average Border Crossing Time	95th Percentile Crossing Time
U.S. to Canada	9.0 minutes	21.7 minutes	38.0 minutes
Canada to U.S.	8.3 minutes	23.3 minutes	83.4 minutes

Source: Texas Transportation Institute and Battelle Memorial Institute, *Evaluation of Travel Time Methods to Support Mobility Performance Monitoring. FY 2001 Synthesis Report* (2002).

Issues and Constraints:

- Commercial Vehicle Processing Centre opened on Canadian side in 1999. This has helped reduce secondary inspection requirements to the lowest of any port along the Canadian border.[61]
- E-ZPass implemented for toll collection in 2002
- NEXUS lane opened in 2003.
- Traffic declined by 15% between January-May 2001 and January-May 2003.
- Nonetheless, capacity on bridge and U.S. plaza is considered inadequate.
- Large number of idling trucks creates health hazard for nearby neighborhoods

[61] Personal Communication, Bruce Campbell, November 19, 2003.

Proposed Improvements:

Project Type	Project	Target Date	Lead agencies	Est. Cost
Near-term (by 2010):				
A	Major Redevelopment of the U.S. Plaza of the Peace Bridge – concept-level planning to address security, congestion, and expedited processing	2006	PBA	(Planning study only)
A	New Border Crossing: Companion to Peace Bridge	2010? (probably later)	Buffalo-Fort Erie Public Bridge Authority (PBA)	$340M
A	New Border Crossing: Truck Bridge near International Railroad Bridge or Whirlpool Rapids Bridge	Unknown	Ambassador Niagara Signature Bridge Group	Unknown
B	Demolition of buildings on Busti Ave.	2004	PBA	$625,000
B	North Side Plaza improvements to modernize and expand Canadian-bound processing facilities.	2004	PBA	C$30M
B	Conversion and reuse of remaining PBA buildings on Busti Ave.	2007	PBA	$4.375M
D	ITS Infrastructure – Regional Traffic Monitoring System	2004	Ontario Ministry of Transportation, Border Infrastructure Fund	$2.5M

Sources: NYSDOT, *New York Border Projects Database* (2003); Roundtable on Border Issues, *Joint New York-Ontario Border Issues Roundtable Report* (2002); *Bi-National Transportation Strategy for the Niagara Frontier* (2003).

B.1.2. Rainbow Bridge.

Description of the Border Crossing:

	U.S.A. Side	Canadian Side
Nearest City	Niagara Falls, NY	Niagara Falls, ON
Access Route	Local streets to Robert Moses Pkwy.	Hwy. 420
Approach Lanes	5	2
Primary Inspection Lanes	18	15
Toll Lanes	6	-
Priority Lanes	None	None
Through Lanes	4	

Source: NYSDOT, *New York Border Projects Database* (2003).

Annual Traffic:

	1984	1995	2002	2020 (Proj.) Vehicles
Passenger Cars	2,986,000	3,231,000	4,184,478	
Trucks	9,000	1,000	146	
Buses and Other Vehicles	n/a	n/a	51,724	

Source: Parsons Brinckerhoff Quade and Douglas, *Truck Freight Crossing the Canada-U.S. Border* (2002), p. 118; U.S. Canada Bridge & Tunnel Operators Association, *Traffic Report* (2003); Taylor, Robideaux, and Jackson, *The U.S.-Canada Border* (2003), Appendix, pp. 31-34.

Issues and Constraints:

- Commercial trucks prohibited.
- Traffic declined by 23% between January-May 2001 and January-May 2003.
- U.S. and Canada enforcement plazas recently expanded.

Proposed Improvements:

Project Type	Project	Target Date	Lead agencies	Est. Cost
Near-term (by 2010):				
G	QEW 4 to 6 lane widening, Mountain Road to Highway 420 (Niagara Falls)	2007	MTO / BIF	$10M
Long-term (after 2010):				
A	Traffic control improvements to improve safety and circulation at bridge exit on U.S. side – Add islands and other lane modifications.	2015	NFBC	$2.5M
C	Additional Toll Collection Booths and Plaza modification to improve travel safety – (convert unused Primary Inspection Booth to toll booths).	2015	NFBC	$2.5M

Source: NYSDOT, *New York Border Projects Database* (2003).

B.1.3. Whirlpool Rapids Bridge

Description of the Border Crossing (Lower Bridge):

	U.S.A. Side	Canadian Side
Nearest City	Niagara Falls, NY	Niagara Falls, ON
Access Route	Local streets to Robert Moses Pkwy.	Local streets to Hwy. 420
Approach Lanes	1	1
Primary Inspection Lanes	3	2
Toll Lanes	2	-
Priority Lanes	None	1
Through Lanes	1	1

Source: NYSDOT, *New York Border Projects Database* (2003).

Annual Traffic (Lower Bridge):

	1984	1995	2002	2020 (Proj.)
Passenger Cars	1,170,000	1,390,000	367,172	
Trucks	60,000	6,000	4	
Buses and Other Vehicles	n/a	n/a	46	

Source: Parsons Brinckerhoff Quade and Douglas, *Truck Freight Crossing the Canada-U.S. Border* (2002), p. 118; U.S. Canada Bridge & Tunnel Operators Association, *Traffic Report* (2003); Taylor, Robideaux, and Jackson, *The U.S.-Canada Border* (2003), Appendix, pp. 31-34.

Issues and Constraints:

Lower Bridge:

- Starting in April 2003, cash no longer accepted for bridge tolls; tokens only.
- Bridge is NEXUS-only as of March 2004.
- Traffic declined by 34% between January-May 2001 and January-May 2003.
- "New secure rooms and other basic renovations are needed at the facility to meet enforcement objectives and serve the needs of the traveling public."[62]

Upper Bridge:

- "Cameras and a secure hold room are required to bring this port up to Customs security standards."[63]

Proposed Improvements:

Project Type	Project	Target Date	Lead agencies	Est. Cost
Near-term (by 2010):				
B	Rehabilitate or reconstruct port of entry facility (Lower Bridge).	2006	GSA, NFBC	$5.5M
E	New passenger rail station In City of Niagara Falls (Upper Bridge).	2007	CN, CSX, City of Niagara Falls	$10-23M
E	Improved signage and pavement treatment to clarify access to the bridge in the U.S. (Lower Bridge)		NFBC	$1M
Long-term (after 2010):				
A	Add truck-only road to Upper Bridge, and/or convert Michigan Central Railway Bridge to truck use.	2025	NFBC or Private Group	$180M

Source: NYSDOT, *New York Border Projects Database* (2003); Roundtable on Border Issues, *Joint New York-Ontario Border Issues Roundtable Report* (2002).

[62] NYSDOT, *New York Border Projects Database* (2003).
[63] NYSDOT, *New York Border Projects Database* (2003).

B.1.4. Lewiston-Queenston Bridge

Description of the Border Crossing:

	U.S.A. Side	Canadian Side
Nearest City	Lewiston, NY	Queenston, ON
Access Route	I-190	Hwy. 405
Approach Lanes	2	2
Primary Inspection Lanes	10 (3 truck)	9 (3 truck)
Toll Lanes	-	4
Priority Lanes	1 Planned	None
Through Lanes	4 (soon to be 5)	

Source: NYSDOT, *New York Border Projects Database* (2003).

Annual Traffic:

	1984	1995	2002	2020 (Proj.)
Passenger Cars	1,955,000	3,409,000	3,330,951	
Trucks	490,000	782,000	1,047,192	1,417,000
Buses and Other Vehicles	n/a	n/a	15,628	

Source: Parsons Brinckerhoff Quade and Douglas, *Truck Freight Crossing the Canada-U.S. Border* (2002), pp. 118-119; U.S. Canada Bridge & Tunnel Operators Association, *Traffic Report* (2003); Taylor, Robideaux, and Jackson, *The U.S.-Canada Border* (2003), Appendix, pp. 31-34.

Commodities Crossing Border, by Share of Trucks (1999):

Rank	U.S.A. to Canada		Canada to U.S.A.	
1	**Empty Trucks**	36.0%	**Empty Trucks**	17.2%
2	Electronics, Vehicles, Precision Goods	10.1%	Metal Products & Machinery	16.8%
3	Metal Products & Machinery	9.7%	Unclassified or unknown	11.8%
4	Unclassified or unknown	8.5%	Electronics, Vehicles, Precision Goods	11.3%
5	Wood, textile, and leather products	8.2%	Wood, textile, and leather products	10.8%
6	Grains, alcoholic beverages, tobacco	6.5%	Pharmaceutical and chemical products	8.3%
7	Agricultural products and fish	5.8%	Agricultural products and fish	7.6%
8	Pharmaceutical and chemical products	5.5%	Furniture and miscellaneous products	6.0%
9	Furniture and miscellaneous products	5.2%	Grains, alcoholic beverages, tobacco	5.7%
10	Coal and petroleum products	3.8%	Coal and petroleum products	2.9%

Source: Parsons Brinckerhoff Quade and Douglas, *Truck Freight Crossing the Canada-U.S. Border* (2002), p. 90.

Issues and Constraints:

- NEXUS lane opened in 2003
- "The traffic volume and site configuration makes the present process of referring outbound enforcement targets to the inbound commercial building a hazardous and unsafe operation."[64]
- Traffic declined by 11% between January-May 2001 and January-May 2003.

Proposed Improvements:

Project Type	Project	Target Date	Lead agencies	Est. Cost
Near-term (by 2010):				
A	Widen Queenston-Lewiston Bridge from 4 to 5 lanes to create express lane for FAST participants.	2005	Canada, Ontario Ministry of Transportation, NFBC	$32.5M
A	Add 1.2-mile FAST express lane on the Canadian approach.	2005	Canada, Ontario Ministry of Transportation	$4.3M
B	Off-Site commercial vehicle staging area (Commercial Vehicle Processing Center)	2007	NFBC	$15M

[64] NYSDOT, *New York Projects Database* (2003).

B	Modernize and expand the existing plaza, facilities and highway approaches to improve enforcement, security and operations	2007	NFBC	$50-75M
D	ITS infrastructure (freeway traffic management system) for Queenston-Lewiston Bridge	2004	Ontario Ministry of Transportation	$1.3M
D	Traffic monitoring, incident/congestion detection, and automated message signs on I-190 and bridge approaches.	2005	NYSDOT, NFBC	$3.0-3.5M
D	Expanded traveler information system and directional signing on U.S. approach	2007	NYSDOT, NYSTA	$10M
Long-term (after 2010):				
B	Modifications to the I-190 Lewiston Interchange with Upper Mountain Road to increase enforcement plaza area and available storage area	2015	NYSDOT, NFBC	$15M

Source: NYSDOT, *New York Border Projects Database* (2003); Roundtable on Border Issues, *Joint New York-Ontario Border Issues Roundtable Report* (2002); Greater Buffalo Niagara Regional Transportation Council and Empire State Development Corporation, *Transportation Needs for an Economically Prosperous Buffalo-Niagara Region, Phase II* (2001).

B.1.5. Elsewhere in the Western Border Region

Proposed Improvements:

Project Type	Project	Target Date	Lead agencies	Est. Cost
Near-term (by 2010):				
C	Congestion pricing strategies		Bridge Authorities	
D	ITS infrastructure: CVISN Systems, new truck inspection and weighing facilities along trade corridors	2009	NYSDOT	$6.0M
D	ITS infrastructure: 10 Transmit sites, 10 CCTV cameras, 4 variable message signs	2006	NYSDOT	$2.2M
F	Fast freight ferries between Rochester and Toronto	2004	CATS, Army Corps of Engineers	$40M
F	Airport capacity improvements (runway capacity at Buffalo, cargo capacity at Niagara Falls, Rochester)	2003-2008	Airport Operating Agencies	C$4.4B +
F	Intermodal freight terminals at Niagara Falls or Rochester International Airports.		Airports, CSX, Ind. Devel. Agencies	$30M
F	Rail/truck intermodal facilities		Railroads, Counties	
F	“Short line” rail preservation and expansion program: sidings, upgrades, connections		NYSDOT	$20-50M
F	"Falls Road" Rail Corridor Preservation		NYSDOT	
G	Upgrade U.S. 15/NYS 17 (I-99/I-86) interchange to Interstate standards	2005	NYSDOT	$180
G	Upgrade U.S. 219 to Interstate Standards	2009	NYSDOT	$613M
Long-term (after 2010):				
G	Extend NYS 531 as 4-lane, 65-mile expressway between Lewiston and Rochester	2013-2018	NYSDOT	$300-650M
G	Upgrade U.S. 15 (I-99) to Interstate standards	2015	NYSDOT, PennDOT	$420M
G	Reconfigure I-90/I-290 interchange	2015	NYSDOT	$60M
G	Widen I-90 between I-190 and I-290	2020	NYSDOT	$400M
G	Replace or expand Grand Island bridges on I-190	2020	NYS Thruway Authority	$300-600M
G	Upgrade NYS 63 between I-90 and I-390 to 4-lane expressway	2025	NYSDOT	$165M
G	Upgrade NYS 31 from I-190 to 4-lane expressway		NYSDOT	

Source: NYSDOT, *New York Border Projects Database* (2003); Roundtable on Border Issues (2002); *Bi-National Transportation Strategy for the Niagara Frontier* (2003); Greater Buffalo Niagara Regional Transportation Council and Empire State Development Corporation, *Transportation Needs for an Economically Prosperous Buffalo-Niagara Region, Phase II* (2001).

B.2. Northern Border Region

B.2.1. Thousand Islands Bridge / Alexandria Bay.

Owner: Thousand Islands Bridge Authority. GSA owns inspection facilities
Last upgrade: bridges –1939; U.S. Customs – 1977-1978

Description of the Border Crossing:

	U.S.A. Side	Canadian Side
Nearest City	Alexandria Bay, NY	Lansdowne, ON
Nearest Major City	Watertown, NY (23 mi.)	Kingston, ON (27 mi.)
Access Route	I-81	Hwy. 401 to Hwy. 137
Approach Lanes	2	1
Primary Inspection Lanes	8	8
Toll Lanes	4	3
Priority Lanes	0	0
Through Lanes	1	1

Source: NYSDOT, *New York Border Projects Database* (2003).

Crossing consists of (from Canadian mainland):

- Toll barriers;
- A 2-lane, 3,300-foot bridge onto Hill Island (Canadian Federal Bridge Corporation);
- An eight mile drive to Canadian Customs;
- Two parallel bridges ("Rift Bridge," 5 lanes total) over the international border and onto Wellesley Island (Thousand Islands Bridge Authority);
- U.S. Customs;
- A 2-lane suspension bridge onto the U.S. mainland (Thousand Islands Bridge Authority);
- Toll barriers.

Annual Traffic:

	1986	1996	2002	2020/2021 (Proj.)
Passenger Cars	1,190,000	1,675,000	1,646,829	2,390,000 – 2,550,000
Trucks	250,000	395,000	541,812	861,000 – 875,000
Buses and Other Vehicles	n/a	n/a		

Source: Parsons Brinckerhoff Quade and Douglas, *Truck Freight Crossing the Canada-U.S. Border* (2002), pp. 118-119; U.S. Canada Bridge & Tunnel Operators Association (2003); McCormick-Rankin, *Northern New York Border Crossing Study* (1998), pp. 6, 11.

Commodities Crossing Border, by Share of Trucks (1999):

Rank	U.S.A. to Canada		Canada to U.S.A.	
1	Wood, textile, and leather products	27.2%	Wood, textile, and leather products	25.6%
2	**Empty Trucks**	21.3%	Metal products & machinery	21.4%
3	Metal products & machinery	14.9%	Pharmaceutical and chemical products	10.2%
4	Pharmaceutical and chemical products	8.6%	Coal and petroleum products	8.7%
5	Grains, alcoholic beverages, tobacco	6.2%	**Empty Trucks**	8.4%
6	Electronics, vehicles, precision goods	5.0%	Grains, alcoholic beverages, tobacco	7.2%
7	Coal and petroleum products	4.1%	Furniture and miscellaneous products	6.7%
8	Stone, minerals and ores	3.5%	Electronics, vehicles, precision goods	5.1%
9	Furniture and miscellaneous products	3.5%	Agricultural products and fish	2.4%
10	Unclassified or unknown	3.1%	Unclassified or unknown	2.3%

Source: Parsons Brinckerhoff Quade and Douglas, *Truck Freight Crossing the Canada-U.S. Border* (2002), p. 88.

States using Alexandria Bay Port of Entry for trade with Canada, 2002 (by value)

	By Truck	
	Imports $6,733.1 M	Exports $3,953.6 M
New York State	36.4%	23.3%
CT/NJ/PA	21.0%	16.5%
IL/IN/MI/OH	6.9%	15.3%
New England	5.6%	5.4%
Other	30.1%	39.5%
Unknown	0.0%	0.0%

Source: BTS, *U.S. International Transactions Accounts Data* (December 16, 2003).

Top 5 states for truck origins and destinations other than NYS:
Imports: Pennsylvania, New Jersey, North Carolina, Ohio, Georgia.
Exports: Ohio, Pennsylvania, North Carolina, South Carolina, Virginia.

Issues and Constraints:

- FAST operations began December 2003.
- Capacity is limited by steep grades and sharp curves on the Canadian suspension bridge, as well as the two-lane highway between the Canadian span and Canadian Customs.[65]
- Canadian plaza cannot be easily expanded due to environmental constraints.[66]
- Port of entry was adapted from an existing structure, and is not well-suited to process truck traffic.[67]

Proposed Improvements:

Project Type	Project	Target Date	Lead agencies	Est. Cost
Near-term (by 2010):				
A	Widen Int'l Rift Bridge NB to provide 5th access lane for Canadian Customs and improve safety.	2003	Canada Federal Bridge Corp.; Thousand Islands Bridge Auth.	$0.6M
A	Widen SB approach to the U.S. enforcement area.	2004	NYSDOT	$2.0M
B	Replace port-of-entry: acquire land, add security measures, build new cargo inspection facility.	2009	U.S. Dept. of Homeland Security	$84.6M
B	Expand Canada commercial inspection booths, build new commercial parking and warehouse, if space constraints can be resolved.	2010	Canada Customs	$8M
C	Widen toll plaza and add new toll collection booth.	2010	Thousand Islands Bridge Authority	$1M
D	Traffic monitoring, incident detection, and traveler advisory systems, SB into U.S.	2007	Canada	$10M
Long-term (after 2010):				
A	Provide additional bridge vehicle capacity to accommodate future growth in travel demand.	2020	Thousand Islands Bridge Auth.; Canada Federal Bridge Corp.	$300M
B	Expanded Canada Passenger Primary Inspections Area	2020	Canada	$2M

Source: NYSDOT, *New York Border Projects Database* (2003).

[65] Sear-Brown Group, *Northern New York Border Crossing Study, Findings Fact Sheets* (1998).
[66] *Ibid.*; NYSDOT, *New York Border Projects Database* (2003).
[67] NYSDOT, *New York Border Projects Database* (2003).

B.2.2. Ogdensburg

Description of the Border Crossing:

	U.S.A. Side	Canadian Side
Nearest City	Ogdensburg, NY	Prescott, ON
Access Route	NYS 37	Hwy. 401 and 416
Approach Lanes	1	2
Primary Inspection Lanes	5	5
Toll Lanes	3 (both directions, in U.S.)	
Priority Lanes	0	0
Through Lanes	1	1

Source: NYSDOT, *New York Border Projects Database* (2003).

Crossing consists of (from Canadian mainland):

- Canadian Customs;
- Ogdensburg-Prescott International Bridge;
- Toll Plaza;
- U.S. Customs.

Annual Traffic:

	1986	1996	2002	2020/2021 (Proj.)
Passenger Cars	358,000	495,000	437,658	740,000 – 845,000
Trucks	36,000	48,000	67,368	81,000 – 85,000
Buses and Other Vehicles	n/a	n/a	715	

Source: Parsons Brinckerhoff Quade and Douglas, *Truck Freight Crossing the Canada-U.S. Border* (2002), pp. 118-119; U.S. Canada Bridge & Tunnel Operators Association, *Traffic Report* (2003); McCormick-Rankin, *Northern New York Border Crossing Study* (1998), pp. 6, 11.

Commodities Crossing Border, by Share of Trucks (1999):

Rank	U.S.A. to Canada		Canada to U.S.A.	
1	**Empty Trucks**	67.4%	Agricultural products and fish	19.1%
2	Metal products & machinery	13.6%	Wood, textile, and leather products	16.5%
3	Electronics, vehicles, precision goods	6.4%	**Empty Trucks**	16.4%
4	Agricultural products and fish	3.5%	Metal products & machinery	10.2%
5	Wood, textile, and leather products	3.2%	Unclassified or unknown	9.7%
6	Stone, minerals and ores	2.8%	Grains, alcoholic beverages, tobacco	9.0%
7	Unclassified or unknown	1.3%	Coal and petroleum products	8.7%
8	Pharmaceutical and chemical products	1.0%	Pharmaceutical and chemical products	5.1%
9	Coal and petroleum products	1.0%	Electronics, vehicles, precision goods	3.6%
10	Grains, alcoholic beverages, tobacco	0.0%	Furniture and miscellaneous products	1.2%

Source: Parsons Brinckerhoff Quade and Douglas, *Truck Freight Crossing the Canada-U.S. Border* (2002), p. 86.

States using Ogdensburg Port of Entry for trade with Canada, 2002 (by value):

	By Truck	
	Imports 533.5	Exports 125.7
New York State	53.9%	45.3%
CT/NJ/PA	16.9%	9.1%
IL/IN/MI/OH	5.8%	7.9%
New England	3.1%	4.6%
Other	20.3%	33.0%
Unknown	0.0%	0.0%

Source: BTS, *U.S. International Transactions Accounts Data* (December 16, 2003).

Top 5 states for truck origins and destinations other than NYS:
Imports: Pennsylvania, New Jersey, Ohio, California, Florida.
Exports: California, Texas, Florida, Pennsylvania, New Jersey.

Issues and Constraints:

- Excess capacity for foreseeable future; may be opportunity for relieving traffic at Thousand Islands.
- Poor highway access on U.S. side.

Proposed Improvements:

Project Type	Project	Target Date	Lead agencies	Est. Cost
Near-term (by 2010):				
D	Trail blazing signs from I-81 near Watertown, NY to bridge crossing. Travel information systems.	2007	NYSDOT	$0.25M
D	Traveler Information System Highway 401 and Highway 416	2010	Canada	$5M
Long-term (after 2010):				
A	Replace bridge deck and make structural improvements	2020	Ogdensburg Bridge and Port Authority	$75M

Source: NYSDOT, *New York Border Projects Database* (2003); personal communications from Brian Kirch.

B.2.3. Massena/Seaway International Crossing

Description of the Border Crossing:

	U.S.A. Side	Canadian Side
Nearest City	Rooseveltown, NY	Cornwall, ON
Access Route	NYS 37	Hwy. 401
Approach Lanes	2	2
Primary Inspection Lanes	5	5
Toll Lanes	3 (both directions, in Canada)	
Priority Lanes	0	0
Through Lanes	1	1

Source: NYSDOT, *New York Border Projects Database* (2003).

Crossing consists of (from Canadian mainland):

- North Channel Bridge onto Cornwall Island (owned by Canadian Federal Bridge Corporation, operated by Seaway International Bridge Corporation);
- Toll barriers;
- Canadian Customs;
- South Channel Bridge onto U.S. mainland (co-owned by Canadian Federal Bridge Corporation and Seaway International Bridge Corporation, operated by SIBC);
- U.S. Customs.

Annual Traffic:

	1986	1996	2002	2020/2021 (Proj.)
Passenger Cars	1,250,000	2,130,000	2,386,918	3,210,000 – 4,000,000
Trucks	70,000	100,000	151,873	191,000 – 215,000
Buses and Other Vehicles	n/a	n/a		

Source: Parsons Brinckerhoff Quade and Douglas, *Truck Freight Crossing the Canada-U.S. Border* (2002), pp. 118-119; U.S. Canada Bridge & Tunnel Operators Association, *Traffic Report* (2003); McCormick-Rankin, *Northern New York Border Crossing Study* (1998), pp. 6, 11.

Commodities Crossing Border, by Share of Trucks (1999):

Rank	U.S.A. to Canada		Canada to U.S.A.	
1	**Empty Trucks**	62.4%	**Empty Trucks**	42.6%
2	Wood, textile, and leather products	21.0%	Metal products & machinery	17.5%
3	Metal products & machinery	5.3%	Wood, textile, and leather products	16.4%
4	Electronics, vehicles, precision goods	3.3%	Coal and petroleum products	10.8%
5	Stone, minerals and ores	3.1%	Agricultural products and fish	4.6%
6	Furniture and miscellaneous products	2.9%	Stone, minerals and ores	2.9%
7	Unclassified or unknown	1.0%	Furniture and miscellaneous products	2.2%
8	Grains, alcoholic beverages, tobacco	0.6%	Electronics, vehicles, precision goods	1.2%
9	Pharmaceutical and chemical products	0.4%	Pharmaceutical and chemical products	0.8%
10	Agricultural products and fish	0.0%	Unclassified or unknown	0.5%

Source: Parsons Brinckerhoff Quade and Douglas, *Truck Freight Crossing the Canada-U.S. Border* (2002), p. 85.

States using Massena Port of Entry for trade with Canada, 2002 (by value):

	By Truck	
	Imports 414.2	Exports 121.9
New York State	73.6%	35.8%
CT/NJ/PA	6.2%	7.1%
IL/IN/MI/OH	1.8%	4.3%
New England	14.7%	34.2%
Other	3.7%	18.6%
Unknown	0.0%	0.0%

Source: BTS, *U.S. International Transactions Accounts Data* (December 16, 2003).

Top 5 states for truck origins and destinations other than NYS:
Imports: Massachusetts, New Hampshire, Maine, New Jersey, Vermont.
Exports: New Hampshire, Vermont, Massachusetts, Florida, Texas.

Issues and Constraints:

- Not designed to handle current traffic volumes.
- "The passenger processing area is too small and cramped to handle the existing volume, and will be overwhelmed with any traffic increases."[68]
- "The existing cargo warehouse is completely inadequate to inspect commercial vehicles, and is being utilized by Customs Office of Investigation agents as an office."[69]
- Crossing capacity limited by steep grades and sharp curves, and concerns that expanding enforcement facilities will encroach upon tribal lands."[70]
- Poor highway access on U.S. side.

Proposed Improvements:

Project Type	Project	Target Date	Lead agencies	Est. Cost
Near-term (by 2010):				
A	Replace existing bridge on Canadian side with bridge that has lower grades	2007	Seaway International Bridge Corp., Canada	$25.0M
B	Replace port-of-entry: add cargo bays, purchase land, add passenger and administration facilities.	2007	GSA	$56.6M
B	Expand Canadian passenger and commercial enforcement facilities	2010	Canada	$15.0M
C	Expanded toll facilities in Cornwall Island, Canada or relocated tolls facilities to U.S.	2007	Seaway International Bridge Corporation	$5.0M
D	Variable message signs on Canadian approach	2007		$0.5M
Long-term (after 2010):				
A	Twin south channel bridge, or replace with new lower bridge in different location.	2020	Seaway International Bridge Corp., NYSDOT	$75.0M

Source: NYSDOT, *New York Border Projects Database* (2003).

[68] Source: NYSDOT, *New York Border Projects Database* (2003).
[69] *Ibid*.
[70] Sear-Brown Group, *Northern New York Border Crossing Study, Findings Fact Sheets* (1998).

B.2.4. Champlain/Rouses Point.

Description of the Border Crossing (for largest crossing, Champlain-Lacolle):

	U.S.A. Side	Canadian Side
Nearest City	Champlain, NY	Blackpool, QC
Nearest Major City	Plattsburgh, NY (30 mi)	Montréal, QC (45 mi.)
Access Route	I-87	Hwy. 15
Approach Lanes	2	2
Primary Inspection Lanes	9	8
Toll Lanes	0	0
Priority Lanes	0	0
Through Lanes	2	2

Source: NYSDOT, *New York Border Projects Database* (2003).

- There are no toll barriers or bridges at this crossing.

Annual Traffic:

	1985	1995	2002	2020/2021 (Proj.)
Passenger Cars	2,100,000	2,500,000		3,710,000
Trucks	500,000	600,000		939,000 – 1,285,000
Buses and Other Vehicles	n/a	n/a		

Source: Parsons Brinckerhoff Quade and Douglas, *Truck Freight Crossing the Canada-U.S. Border* (2002), pp. 118-119; McCormick-Rankin, *Northern New York Border Crossing Study* (1998), pp. 6, 11.

Commodities Crossing Border, by Share of Trucks (1999):

Rank	U.S.A. to Canada		Canada to U.S.A.	
1	**Empty Trucks**	29.5%	Wood, textile, and leather products	26.8%
2	Wood, textile, and leather products	23.7%	**Empty Trucks**	12.3%
3	Metal products & machinery	8.7%	Agricultural products and fish	11.0%
4	Grains, alcoholic beverages, tobacco	6.3%	Pharmaceutical and chemical products	9.1%
5	Unclassified or unknown	6.2%	Metal products & machinery	8.9%
6	Furniture and miscellaneous products	5.7%	Electronics, vehicles, precision goods	8.0%
7	Pharmaceutical and chemical products	5.1%	Unclassified or unknown	7.1%
8	Electronics, vehicles, precision goods	4.9%	Grains, alcoholic beverages, tobacco	6.1%
9	Agricultural products and fish	4.6%	Furniture and miscellaneous products	5.4%
10	Stone, Minerals, and Ores	2.9%	Coal and petroleum products	3.6%

Source: Parsons Brinckerhoff Quade and Douglas, *Truck Freight Crossing the Canada-U.S. Border* (2002), p. 83.

States using Champlain Port of Entry for trade with Canada, 2002 (by value):

	By Truck		By Rail	
	Imports $8,336.1 M	Exports $4,894.4 M	Imports $679.0 M	Exports $262.5 M
New York State	31.4%	13.7%	28.2%	3.6%
CT/NJ/PA	22.1%	26.8%	34.1%	17.1%
IL/IN/MI/OH	5.1%	7.2%	8.9%	27.4%
New England	9.9%	7.3%	10.2%	4.8%
Other	30.9%	39.8%	18.4%	47.1%
Unknown	0.6%	5.1%	0.1%	0.0%

Source: BTS, *U.S. International Transactions Accounts Data* (December 16, 2003).

Top 5 states for truck origins and destinations other than NYS:

Imports: New Jersey, Pennsylvania, Massachusetts, Florida, Georgia.

Exports: New Jersey, Pennsylvania, North Carolina, Florida, Massachusetts.

Issues and Constraints:

- FAST lanes opened in January, 2003.
- NEXUS lanes opened in January, 2004.
- Good highway access on both sides of border, with ample capacity with foreseeable future.
- Port of Entry not designed to handle the current traffic volumes. Last upgrade of Port of Entry was in 1971.[71]
- Safety problems, due to the need for trucks to weave between U.S. export control and Canadian primary inspection.[72] Three truck drivers have been killed in accidents in two years.

Economic impacts: Employment by border agencies, border-related employers, and Canadian-owned businesses in Clinton County: 4,500 (13.5%), nearly double that of 1994.[73] Many nurses and doctors commute from Canada (they are better paid in the U.S.).

Proposed Improvements:

Project Type	Project	Target Date	Lead agencies	Est. Cost
Near-term (by 2010):				
B	Rehabilitate Rouses Point port-of entry	2006	GSA	$6.0M
B	Build new truck processing compound and access lanes; outbound inspection lane; administration and export buildings; site security; firing range.	2008	GSA, NYSDOT	$96.3M
E	Rouses Point RR Connector Track to expedite passenger rail operations by separating them from freight operations.	2009	NYSDOT	$3.5M
F	Rehabilitate and upgrade RR infrastructure; construct new sidings; separate freight and passenger tracks	2004	NYSDOT	$15.1M
F	Increase vertical clearance at 10 locations on Canadian Main line between Rouses Point and Albany, to allow double-stack trains	2009	NYSDOT	$3.4M

Source: NYSDOT, *New York Border Projects Database* (2003).

[71] General Services Administration, "Factsheet: Border Station, Champlain, New York," (2003), p. 2.
[72] Sear-Brown Group, *Northern New York Border Crossing Study, Findings Fact Sheets* (1998).
[73] Plattsburgh-North Country Chamber Commerce, *The Economic Impact of Canada on Clinton County, New York* (St. Albans, Vermont: Yellow Wood Associates, 1996).

B.2.5. Elsewhere in the Northern Border Region:

Proposed Improvements:

Project Type	Project	Target Date	Lead agencies	Est. Cost
Near-term (by 2010):				
B	Rehabilitate port of entry (Mooers)	2006	GSA	$6.1M
B	Rehabilitate port of entry (Jamieson's Line)	2006	GSA	$6.0M
B	Rehabilitate port of entry (Fort Covington)	2006	GSA	$6.5M
B	Rehabilitate port of entry (Churubusco)	2006	GSA	$6.2M
B	Rehabilitate port of entry (Chateaugay)	2006	GSA	$6.2M
B	Rehabilitate port of entry (Cannon Corners)	2006	GSA	$6.0M
B	Rehabilitate port of entry (Overton Corners)	2006	GSA	$6.4M
B	Rehabilitate port of entry (Trout River)	2006	GSA	$6.1M
Long-term (after 2010):				
G	Upgrade NYS 11 to 4-lane expressway from Ogdensburg to Plattsburg	2025	NYSDOT	$1B
G	Upgrade NYS 37 and use it to redirect traffic from Thousand Islands to Ogdensburg.		NYSDOT	

Source: NYSDOT, *New York Border Projects Database* (2003).