

Short-Sea Vessel Service And Harbor Maintenance Tax

Prepared for



The Short Sea Shipping
Cooperative Program - SCOOP

Prepared by



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October 2005

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I Executive Summary

Making a Case for HMT Levy Exemption for SSVS

1. Intermodal short-sea operations, which is the delivery of domestic trailers and international containers along coastal ranges in the U.S.A. and trade in the NAFTA region, opens opportunities to relieve congestion on land transportation modes and attain considerable environmental and social benefits. One of the problems with expansion of short-sea services is the requirement to pay Harbor Maintenance Tax (HMT) on domestic shipping. This report provides a comparison between the amount of HMT collected with private and external benefits attained by short-sea intermodal operations.
2. There are several options to provide intermodal short-sea services. Currently, only a limited volume of international containers is shipped by barge between U.S. ports, mostly in the Gulf of Mexico and in the Atlantic. In total, the domestic movement of containers contributes only about \$1.7-1.9 million to the \$880 million of HMT, collected in 2004, or 0.2% of total. Yet this tax creates an uneven playing field for new short-sea shipping service providers as truck and rail freight carriers do not have to pay HMT.
3. An even more attractive option is to encourage the introduction of Ro/Ro Freight Ferries, which will be able to relieve congested coastal highways from the sizable number of both, domestic trailers and international containers. Therefore, two new potential short-sea services were reviewed for HMT related costs and benefits. One case study analyzed a water route between the New York/New Jersey area and Boston. A second case study considered similar services between New York/New Jersey and Miami. The first service would supplement the existing transportation infrastructure by accommodating the equivalent of 128,000 trucks and 28 million truck-miles per year. The second would supplement the system with the equivalent of 63,000 trucks and 78 million truck-miles, accordingly. This example of the short-sea application clearly illustrates the ratios between obtained benefits, both private and external, that an adjustment to the HMT may be able to obtain.
4. A summary of analysis conducted in this report is presented in Figure I-1. If short-sea operations are established as defined in the example, the values

of collected HMT will be \$14 million or only 1.5% of total current HMT revenues of \$880 million. Elimination of the HMT potentially generated by intermodal short-sea services cannot be identified as a loss because introduction of short-sea routes and their associated financial and external savings may be not feasible without this exemption. One of the reasons for this is the fact that major benefits are external advantages. These advantages, currently, do not directly assist potential operators. Accordingly, the introduction of short-sea services may be practically impossible in the existing framework of additional costs imposed by HMT.

5. If HMT is to be withdrawn, short-sea services may generate \$27.5 million in financial savings and \$61 million in combined financial and external savings. (For the cost evaluations, the semi-trailer boxes are converted into TEU and their tonnage multiplied by the average value of goods in international containers). These savings are four times greater than lost HMT.
6. Specifically burdensome and illogical is “double” HMT as applied to domestic transshipment of international imports. The HMT in such cases is collected twice, first, upon arrival of international cargoes and second, at arrival in another port by transshipment. Existing short-sea services by barges for transshipment of international containers between U.S. ports, provided by Osprey Line in the Gulf of Mexico and by Columbia Coastal Transport in the Atlantic Coast, are subject to double taxes. This imposes a serious limitation on the lines’ ability to expand their markets.
7. Average value of goods in a 40’ container (2 TEU) is \$47,788. With double collection for international containers, the amount of HMT comes to \$120 per box, half of which is for the domestic move. For local trailers (2.5 TEU) average HMT is \$75 per load. In both situations these amounts substantially reduce or simply eliminate the financial savings generated by short-sea services. For instance, the entire financial savings (with no inclusion of social benefits) on the New York/New Jersey – Boston route is \$51 per trailer.

- 8.** The presented example of the short-sea application does not include additional benefits, which, without HMT, may be generated by potential diversions of cross-boarder traffic in NAFTA from land to water. The quantitative estimate of these diversions is difficult to obtain at this time. Nevertheless, currently, there is an obvious discrepancy between water transportation, affected by HMT, and land transportation free of such additional costs. These short-sea applications and the additional diversion to water of some cross-boarder traffics may significantly reduce congestions on the busy highway system.
- 9.** It also should be noted that the introduction of intermodal short-sea services is creating a new activity and the elimination of the associated HMT would not reduce existing collections. Besides, short-sea vessels are shallow draft, normally about 15 feet, and would not require additional dredging in most cases.
- 10.**The expansion of short-sea services will open additional intermodal opportunities to the trucking industry, reduce their cost of delivery, save fuel, and reduce demand for truckers who are difficult to recruit. At the same time short-sea creates a fleet and cadres of mariners who may be used in emergency situations.
- 11.**In general, in addition to financial and external savings, short-sea operations contribute to a more flexible transportation system with higher safety, security, and the ability to respond to disruption of existing transportation pattern, be it a major road accident or hurricane, such as Katrina and Rita. During these catastrophic hurricanes several major ports in the Gulf of Mexico had to stop their operations with substantial losses in trade. For example, in port New Orleans the main problem was obstructions in the Mississippi navigation channel, which did not allow passage of large ocean vessels. A number of commodities, such as grain coffee, and fruits, could not move. Existing short-sea, smaller vessels could have resolved this situation, maintained normal deliveries and avoided spoilage of products.

Figure I-1: Comparison of Tax Revenues to Benefits in a Sample of Short-Sea Services

Item	Boston- NYC Loop	NYC-Miami Loop	Total
Annual TEU Estimate			
Number of Truck-Loads per Day	360	180	540
TEU Equivalent per Day @ 2.5 TEU/truck	900	450	1,350
Total TEU Handled per Year	315,000	157,500	472,500
Cargo Value Estimate			
Value/ton of Imports on Liner Vessels in 2004 (\$)	3,636	3,636	
Value per TEU @ 6.5 tons/TEU (\$)*	23,894	23,894	
Value of Cargo Handled (\$millions)	7,527	3,763	11,290
Total HMT Estimates for 2004			
HMT Gross Revenue in 2004(\$ millions)			880.0
Tax on Imports (\$ millions)			737.0
Tax on Domestics (\$ millions)			56.6
Short-Sea Collection of HMT (\$ millions)	9.4	4.7	14.1
Short-Sea Operation Benefits			
Financial Cost Savings per Trailer (\$)	51.0	335.0	
Annual Financial Cost Savings (\$ millions)	6.4	21.1	27.5
Social Cost Savings			
Infrastructure Costs (\$ millions)	0.2	0.5	0.7
Air Pollution Costs (\$ millions)	1.6	3.1	4.7
Congestion Costs (\$ millions)	9.6	11.0	20.6
Noise costs (\$ millions)	0.7	1.4	2.1
Accident Costs (\$ millions)	1.9	4.3	6.2
Annual Social Cost Savings (\$ millions)	14.0	20.3	34.3
Total Cost Savings (\$ millions)	20.4	41.4	61.8
Cost Savings to HMT Ratios	2.2	8.8	4.4
Short Sea Share of Total HMT (%)	1.0	0.5	1.5

Source: Figure II-1 and Figure III-7 of this report.

* As applies to trailers; average payload per TEU is based on conversion from average payload per truck-semi trailer combination at 36,000 lbs. as reported in "Freight Analysis Framework Highway Capacity Analysis – Methodology Report," Office of Freight Management and Operations, DOT, April 2002.

II Introduction

As long-term demand for freight transportation is projected to grow at a rapid pace, the development of transportation alternatives to relieve congestion and to limit the environmental damage from air pollutants and other impacts becomes increasingly important.¹ In order to attain these twin objectives, the feasibility of implementing short-sea vessel services (SSVS) where domestic trailers and international containers are moved from port-to-port has received much attention in recent years.

Such a system has proven to be financially and socially beneficial in many parts of the World, primarily in Western Europe. In the United States, however, this system is still in an introductory stage and currently limited to the movement of international containers between ports by ocean or river barges. Vessel operators already have ventured to offer limited port-to-port services in the Gulf connecting the ports of Houston and Miami and container-on-barge services in New York/New Jersey area.² Total existing domestic movement is minimal, in the range of \$1.5 billion generating \$1.7-1.9 million of HMT, which is 0.2% of total revenues.³

An even more attractive option is to introduce Ro/Ro Freight Ferries, which will be able to relieve congested coastal highways from the sizable number of both, domestic trailers and international containers. Several feasibility studies have examined the viability of such services, mainly concentrating on the North-East where limited space will constrain further expansion of land-based infrastructure.

In general, in addition to financial and external savings, short-sea operations provide a more flexible system with higher safety, security, and ability to respond to disruption of existing transportation patterns, be it a major road accident or hurricane, such as Katrina or Rita. During these catastrophic hurricanes several major ports had to stop their operations with substantial losses in trade. For example in port New Orleans, the main problem was obstructions in the Mississippi navigation channel, which did not allow passage of large ocean vessels. The number of commodities, such as grain, coffee, and fruits, could not

¹ U.S. freight transportation demand is projected to increase 60 % by 2025 (5 trillion ton-miles) and greenhouse gas emissions are estimated to increase from 500 million to 600 million metric ton of carbon equivalent between 2000 and 2005. *Changing Face of Transportation - 2005, Bureau of Transportation Statistics.*

² Texas-based Osprey Lines operates a service from Houston to Miami calling several other ports in between (Chicago Tribune, June 06, 2005); Columbia Line for transshipment in the Atlantic Coast and the Bridgeport Port Authority plans to ship containers by barge from New York and New Jersey ports (Traffic World, June 27, 2005).

³ Preliminary estimate for CY 2003-2004 domestic coastwise tonnage between non-exempt US Harbors, USACE.

move. Existence of short-sea vessels would have resolved this situation, maintained normal deliveries, and avoided spoilage of products.

One of the major issues which restrict expansion of short-sea operations is the imposition of the Harbor Maintenance Tax (HMT) on domestic shipping.

II.1 Scope and Objectives

The general objective of this report is to examine the feasibility of short-sea vessel services as a transportation alternative and to examine the issues relating to the withdrawal of Harbor Maintenance Tax (HMT) on domestic intermodal cargo movements. The report is organized into four major sections.

1. A brief review of the economic advantages of short-sea vessel services and typical operational characteristics of such services is included in the first section. The data presented in this section is only for a sample study and the full impact of the concept will be determined as vessel operators continue to expand these services.
2. The application of the Harbor Maintenance Tax focusing mainly on domestic intermodal movements as a revenue source in comparison with generated savings is analyzed in this section.
3. The HMT has affected the economics of U.S. trans-border trade movements from Mexico and Canada that could be moved either by land-based modes or as waterborne cargo. The HMT implications that affect trans-border movements are examined.
4. An overall assessment of the market and concluding recommendations are included in this section.

II.2 Short-Sea Coastwise Vessel Services – A Synopsis

A wide variety of short-sea vessel feasibility studies with different service characteristics have been developed in recent years. These studies may differ based on the types of cargo targeted for movement (containers, break-bulk, bulk, etc.), potential vessel systems (pull-barge, small conventional LO/LO container ships, fast RO/RO vessels, etc.), coastal range and ports to be covered, frequency of vessel calls, and many other operational characteristics. Several such SSVS

configurations have been developed by the National Ports and Waterways Institute, University of New Orleans (NPWI).⁴

The data presented in Figure II-1 are extracted from a NPWI short-sea vessel service feasibility study targeted to handle domestic trailers and marine containers on Ro/Ro freight ferries along the East Coast. The focus is on diversion of highway traffic, mostly from congested I-95. Two examples have been evaluated. One is Ro/Ro traffic between Boston and New York/New Jersey and another between New York and Miami. The Boston-NYC loop assumes three daily vessel departures from each end with 60 trailers/containers on board. The NYC-Miami loop assumes one daily departure from each end, both carrying 90 trailers/containers. The table presents possible and typical examples of short-sea applications and larger systems could be easily implemented in the next steps of development. These two examples of coastal shipping are being used in this report to illustrate the impact of HMT on the feasibility for expansion of short-sea operations in the U.S.

The preliminary data indicate that vessel service on both routes is financially competitive based on private costs. However, market prices do not account for the negative externalities generated by the existing systems. The evaluation of transportation alternatives social benefit-cost is vital for sustainable economic growth and development. In the examples shown in Figure II-1, the major social cost item is congestion accounting for 65% to 73% of total social costs. Although in a market-driven economy truck operators do not compensate for the congestion they create, it affects overall competitiveness and the cost is borne by other highway users. Similarly, air pollution, occurrence of accidents, and noise costs of transportation activities, which are substantial, must be taken into account.

The route characteristics and truck movement schedules for the ferry service from NYC-Boston departures are shown in Figure II-2. The average highway distance involved is 225 miles (one-way) and plans to divert 360 truck trailers from highways to the ferry service. This service will divert 81,000 truck-miles a day and about 126,000 trucks and 28 million truck-miles a year, assuming 350 working days. Further, note the emphasis given to time of travel and whether travel is urban or rural as these variables strongly influence congestion levels, human exposure to pollutants and noise, and accident probabilities, etc. The assessment

⁴ *High Speed Ferry and Coastwise Vessels: Assessment of a New York/Boston Service, 2003*, Prepared by the National Ports and Waterways Institute, University of New Orleans for Maritime Administration, Summary reports are available at www.marad.gov/ website.

of these external benefits was made in another NPWI study.⁵ All prerequisites necessary for social benefit-cost evaluation of transportation alternatives are explained and quantitative assessments are made in this study.

Figure II-1: Operational Characteristics and Cost Savings from a Typical SSVS: Boston-N.Y.C-Miami Example

Service Characteristics and Costs	Unit	Boston-N.Y Loop	N.Y-Miami Loop	Total Cost Savings
Operational				
Round trip distance	Miles	450	2490	
Urban/Rural segments (%)	Percent	60/40	25/75	
Total trailers diverted per day	Trailers	360	180	
Annual trailers diverted		126,000	63,000	
Cost Comparison				
Typical truck hire rates	\$	500	1795	
SSVS cost per trailer	\$	449	1460	
Savings per trailer		51	335	
Annual Financial Cost Savings	\$	6,426,000	21,105,000	
External Cost savings from SSVS				
Infrastructure	\$	200,000	500,000	
Air pollution	\$	1,600,000	3,100,000	
Congestion	\$	9,600,000	11,000,000	
Noise	\$	700,000	1,400,000	
Accidents	\$	1,900,000	4,300,000	
Annual External Cost Savings	\$	14,000,000	20,300,000	
Grand Total	\$	20,426,000	41,405,000	61,831,000

Notes:

1. Annual volume calculated assuming 350 work days a year.

2 Total impact on congestion is reduced to only amount of Public subsidy estimated at \$.007 per truck mile for both loops.

3. Air pollution, congestion, and Noise unit costs for Boston-N.Y.C loop:\$.067, \$.19 and \$.025 per mile respectively

3. Air pollution, congestion, and Noise unit costs for N.Y.C- Miami loop is \$.035, \$.10 and \$0.012 per mile.

⁵The Public Benefits of the Short-Sea Intermodal System, 2004, Prepared by the National Ports and Waterways Institute, University of New Orleans for the Short Sea Shipping Cooperative Program, Summary is available at www.Shortsea.us/ website.

**Figure II-2: (Study Extract) Operational Characteristics of Trucking Services
NYC – Boston Loop**

	Unit	Value
<i>Route Characteristics</i>		
Distance (one way)	Miles	225
Urban Segments (60%)	Miles	135
Rural Segments (40%)	Miles	90
Peak Hours - 7AM- 8PM	Hours	13
Off-Peak Hours 8PM-7AM	Hours	11
<i>Truck Movements</i>		
Total Truck Trips	Trips/day	360
Total Truck Miles @ 225 per Trip	Truck miles	81,000
Urban Truck Miles	Truck miles	48,600
Rural Truck Miles	Truck miles	32,400
Truck Speed	MPH	45
Trip Duration -Hours (one way)	Truck-hours	5
Truck Departures/ Hour (one way)	Trucks	7.5

In Figure II-3 the operational data on Loop 2 from NYC-Miami is included. In this case, with the project, 224,100 truck-miles a day (or 78 million a year) will be diverted. While 60% of the traversed miles on NYC to Boston are in urban sectors, on NYC-Miami it is only 40%, resulting in lower social costs per truck mile.

**Figure II-3: (Study Extract) Operational Characteristics of Trucking Services
NYC – Miami Loop**

	Unit	Value
<i>Route Characteristics</i>		
Distance (one way)	Miles	1,245
Urban Segments (40%)	Miles	498
Rural Segments (60%)	Miles	747
<i>Truck Movements</i>		
Total Truck Trips	Trips/day	180
Total Truck Miles @ 1,245 per Trip (Two-way)	Truck miles	224,100
Urban Truck Miles	Truck miles	89,640
Rural Truck Miles	Truck miles	134,460
Truck Speed	MPH	45
Trip Hours (one way)	Truck-hours	72
Truck Departures/ Hour (both ends)	Trucks	7.5

The social cost estimates shown in Figure II-1 were made according to accepted practices and after an extensive analysis of published data on each area. These negative externalities generated by trucking activities are non-market costs borne by society at large. The estimates made in the NPWI study were compared with similar other studies of external benefits and found to be generally in the mid range. The NYC-Boston service which diverts 28 million truck miles accounts for \$16.7 million deriving social costs of about \$0.6 per truck mile. [Figure II-4](#) is lower due to different road characteristics and is about \$0.4. For the NYC-Miami loop that diverts 78 million truck miles a year, the social cost per truck mile is about \$0.38.

Figure II-4: (Study Extract) Estimated Social Cost Savings from NYC-Boston Loop

Cost Category	Rate/mile	Cost savings/trip(\$)	Annual Savings (\$)
Infrastructure	\$0.09	20.52	2,711,520
Air pollution	\$0.06	12.53	1,578,780
Congestion	\$0.34	77.08	9,712,080
Noise	\$0.03	5.64	710,640
Accidents	\$.04	14.94	1,882,440
Fuel savings	\$0.002	0.46	57,960
Total	\$0.562	131.17	16,653,420

The major cost items included in Figure II-4 are congestion, air pollution, and accident costs that are not borne either by the truck operators or by shippers. However, as the bulk of public infrastructure costs are paid by the truckers as license fees and other taxes, the element of public subsidy is small. In Figure II-1 the cost of infrastructure should be reduced accordingly from \$2.7 million to \$0.2 million for Boston and to \$0.5 million for the Miami route.

In summary, as a transportation alternative, short-sea vessel services have the following characteristics.

- Feasibility studies indicate that short-sea vessel services could open, in selected markets, additional options for trucking industry;
- In terms of social costs, it is a far superior alternative mitigating negative externalities of transportation activities; and
- Since a considerable share of the savings is in terms of social cost savings, public policy intervention may be necessary to establish socially-desirable transportation alternatives.

III Harbor Maintenance Tax Revenues

III.1 Introduction

The Water Resources Development Act of 1986 established the Harbor Maintenance User Tax (HMT) on the value of the commercial cargo loaded or unloaded at a port, including any cargo transported on a commercial vessel, as well as passengers transported for compensation or hire. The HMT is assessed as a 0.125% *ad valorem* fee on the value of commercial cargo transported on vessels using federally maintained navigation projects. HMT revenues collected by U.S. Customs are transferred to the Harbor Maintenance Trust Fund (HMTF) for disbursement upon appropriation by Congress. Alaska, Hawaii, and insular possessions of the United States are exempt from the user tax. However, the exemption does not cover crude petroleum movements from Alaska.

The HMTF is authorized to be used to recover 100% of the U.S. Army Corps of Engineers (COE) eligible Operation and Maintenance (O&M) expenditures for commercial navigation, along with 100% of the O&M cost of the St. Lawrence Seaway Development Corporation, certain costs of the National Oceanic and Atmospheric Administration, and the costs to administer the HMTF. The Federal share for construction of Dredged Material Disposal Facilities (DMDFs) is also eligible for recovery from the HMTF

The U.S. Supreme Court's March 31, 1998 ruling on *U.S. Shoe Corp. v. The United States* found that the HMT violated the export clause of the Constitution. As a result of the Supreme Court's decision, the U.S. Customs Service halted HMT collections on U.S. exports in Fiscal Year (FY) 1998. The *U.S. Shoe* decision struck down the HMT as it applied to exports, but the U.S. Government is statutorily required to continue collecting the HMT from other cargo and passenger categories. Therefore, collection of the HMT on these other categories is continued. Exports comprised about 30% of the HMT collections before this decision was rendered.

III.2 HMT Revenue Collections from International Trade

The major sources of HMT collections, equal to 81% of the total, are from foreign trade activities consisting of imports. Foreign trade zones generate 11%. Domestic cargo movements and passenger travel contribute only about 7% to the Fund (Figure III-1).

Figure III-1: HMT Collections by Source, 1998-2002 (\$ 1,000)

Fiscal Year	Imports	Exports	Foreign Trade Zone	Domestic	Passenger	Total
1998	462,895	94,998	45,319	39,158	2,460	644,830
1999	484,169	-49,552	66,674	48,801	1,213	551,305
2000	558,513	-9,587	76,883	44,502	2,152	672,463
2001	583,198	2,455	86,285	39,365	10,309	721,612
2002	544,746	1,566	69,115	27,786	9,643	652,856
5-year total	2,633,521	39,880	344,276	199,612	25,777	3,243,066
5-Year Average Share	81%	1%	11%	6%	1%	100%

Source: HMT Annual Report to Congress, Fiscal Years 2000, 2001 and 2002.

The data up to 2002 with a division between types of services are available from HMT's Annual report to Congress. Since 2002 there have been considerable increases in costs, specifically for petroleum and other raw materials. To reflect these increases, the information was extended to 2004 based on the U.S. Bureau of the Census trade data, matched with the U.S. Custom vessel entrances and clearances. There may be some differences in the forthcoming COE report to Congress but they should not be significant. The information is presented in [Figure III-2](#). It can be noticed that liner vessels contribute more than 50% of total HMT collection. Value of commodities in liner service over the years has been more or less equal with some reduction in 2004. As is expected, collection from tankers and tramp vessels has increased significantly in last two years due to a higher unit cost of commodities. Still costs of liner cargoes are 5 to 15 times greater than for other types of services. Domestic HMT provides 5-6.5% of total. Domestic containers generate only 0.2% of total HMT, [Figure III-2](#) and [Figure III-3](#).

Average value of goods per ton is \$3,676. An average load of an international container is 13 ton in a 40' container (2 TEU) with value of \$47,788. With double collection for international containers at port of arrival and at transshipment port, the amount of HMT comes to \$120 per box. For local heavier trailers (2.5 TEU) average HMT comes, accordingly, to \$75 per load. In both situations these amounts substantially reduce or simply eliminate any financial savings generated by short-sea services, especially on typical short-sea routes. For instance, as shown in [Figure II-1](#) the entire financial savings on New York/New Jersey – Boston route is \$51 per trailer.

Figure III-2: Cargo Value by Vessel Service and HMT Collections

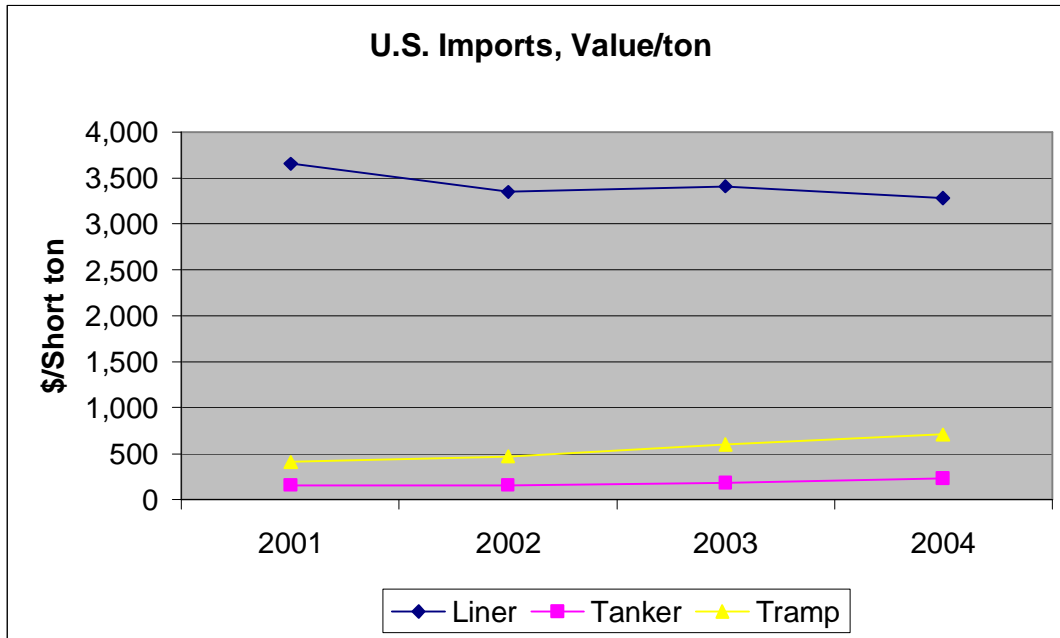
Vessel Service	2001	2002	2003	2004	2001-2004 Change (%)
Liner Vessels					
Value (\$ millions)	345,458	353,861	358,322	376,679	9.0%
Weight (1000 metric tons)	84,493	94,424	93,934	102,479	21.3%
Value/metric ton (\$)	4,089	3,748	3,815	3,676	-10.1%
Annual Change (%)		-8.3%	1.8%	-3.6%	
Tanker Vessels					
Value (\$ millions)	98,914	95,507	123,765	165,047	66.9%
Weight (1000 metric tons)	572,794	550,150	604,520	630,089	10.0%
Value/metric ton (\$)	173	174	205	262	51.7%
Annual Change (%)		0.5%	17.9%	27.9%	
Tramp Vessels					
Value (\$ millions)	78,714	89,082	122,544	177,042	124.9%
Weight (1000 metric tons)	172,673	168,997	182,960	223,679	29.5%
Value/metric ton (\$)	456	527	670	792	73.6%
Annual Change (%)		15.6%	27.1%	18.2%	
Total					
Value (\$ millions)	523,086	583,450	604,631	718,765	37.4%
Weight (1000 metric tons)	829,959	813,571	881,414	956,247	15.2%
Value/metric ton (\$)	630	717	686	752	19.3%
Annual Change (%)		13.8%	-4.3%	9.6%	
HMT Revenue by Source*					
Imports (\$ Millions)	583.2	544.7	620.0	737.0	26.4%
Exports (\$ Millions)	2.5	1.7	n/a	n/a	n/a
Domestic (\$ Millions)	39.4	27.8	40.6	56.6	43.7%
Domestic Containers (\$ Millions)	n/a	n/a	1.9	1.7	n/a
Other (\$ Millions)	96.6	78.7	n/a	n/a	n/a
HMT Total	721.7	652.9	827.0	880.0	21.9%
HMT Total-Annual Change (%)		-9.5%	26.7%	6.4%	
HMT for Containers (%)**			0.2%	0.2%	

Source: Army Corps of Engineers Report to the U.S. Congress and U.S Bureau of Census.

* HMT Revenues for 2003 and 2004 are estimates based on 2002 HMT Annual Report to Congress, and the U.S imports value trends.

** Share of domestic containers is provided by " Preliminary Estimate of CY 2003 and 2004 Domestic Coastwise Tonnage", USACE.

Figure III-3: Value of U.S. Imports per Ton and by Vessel Type



III.3 Revenue Collection from Domestic Trade

Fiscal HMT revenue trends are compared with aggregate tonnage data for coastwise and lake-wise cargo movements in [Figure III-4](#) and [Figure III-5](#). The revenue trends could differ from tonnage trends due to structural changes in domestic commodities subject to HMT, price variations, and the degree of tax compliance and enforcement. First, while the revenue collections for domestic trade decreased 29%, the overall tonnage decreased only 15% during the period. Second, under the assumption of full compliance, the value of waterborne domestic shipments fell from \$31 billion in 1998 to \$22 billion in 2002 or a 30% decline in five years. Third, the average value of shipments declined 17%. If the effects of general price inflation are added to these figures, even wider contrasts will emerge. All indications point to significantly low levels of tax compliance by cargo owners and the difficulties that confront tax enforcement ([Figure III-5](#)).⁶

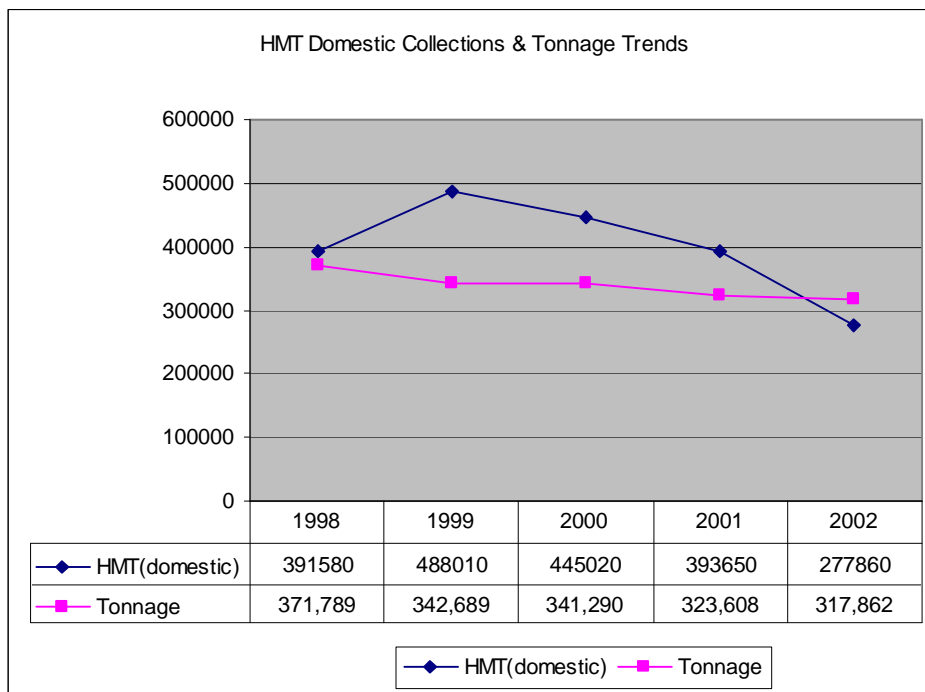
⁶ During the period HMT tax was in effect for exports, tax compliance was about 75 % of the potential ceiling for export collections. *Annual Report to Congress, 2000, 2001 and 2002.*

Figure III-4: HMT Domestic Collection Trends and Coastwise / Lake-wise Tonnage Trends, 1998-2002

Fiscal Year	HMT Revenue Domestic (\$1,000)	Change (%)	Total Coastwise & Lakewise Tonnage (1,000)	Change (%)	Total Value of shipments (\$ millions)	Value/ton (\$)
1998	39,158	19.3%	371,789	-3.7%	31,326	84
1999	48,801	24.6%	342,689	-7.8%	39,041	114
2000	44,502	-8.8%	341,290	-0.4%	35,602	104
2001	39,365	-11.5%	323,608	-5.2%	31,492	97
2002	27,786	-29.4%	317,862	-1.8%	22,229	70
1998-2002 Change	-11,372	-29%	-53,927	-15%	-9,098	-17%

Sources: HMT Annual Report to Congress, Fiscal Years 2000, 2001 and 2002, and Annual publications of the Waterborne Commerce of the United States.

Figure III-5: HMT Domestic Collection Trends and Coastwise / Lake-wise Tonnage Trends, 1998-2002



Note: Tonnage is in thousand units and HMT data is in \$100 units.

The enforcement of 0.125% *ad-valorem* tax, HMT, on domestic cargo movements is complicated by many factors. First, vessel operators carrying domestic cargo

are used to reporting the weight of shipments and not the value, and secondly, as most of the cargo involved are bulk shipments, the calculation of weights is relatively easy. In contrast, break-bulk cargo and space consuming light material, etc. are reported in terms of measurement tons and the overall tonnage is often estimated as revenue tonnage. Because of these data constraints, it is not possible to compare actual revenue collections against the value of domestic cargo or to determine the degree of compliance in paying the levy. The data in Figure III-4 indicate that the level of compliance, basically, is the same over the period.

The annual progress review reports on HMT revenue collections continue to identify aggregate revenues from domestic movements and note the need for additional data. In fact, funding has been provided to the U.S. Customs Service to study and recommend initiatives to increase the accuracy and completeness of domestic shipping information.⁷

As reported by IWR, U.S. Army Corps of Engineers, collection of domestic HMT is further complicated by requirements for double taxing in the case of domestic transshipment of international import. First, HMT is collected from foreign delivery at port of arrival and then, in the case of domestic transshipment, once again at delivery to another port.

Collection of the current *ad-valorem* rate of 0.125% as HMT on imports is routinely performed by the U.S. Customs along with other tariff assessments. The application of HMT on foreign trade transactions with well-defined documentation on merchandise value is straight forward and it is easier to maintain a high degree of compliance compared to a loosely defined domestic system based on cargo weight. In summary, the collection of harbor maintenance tax on domestic movements is relatively more complicated than the levy on imports.

The coastwise and lake-wise cargo movements for 2002 and 2003 are analyzed by commodity types and in terms of relative shares in [Figure III-6](#). Almost all lake-wise cargo movements fall into two categories: 75% as Crude Materials, Inedible except Fuels (SITC Code 4000) and 20% as coal (SITC Code 1000). A smaller share (less than 5%) categorized as primary manufactured goods is largely cement and concrete. In general, the cargos are confined to low-value industrial raw-materials which are within a narrow range in terms of cargo value.

⁷ Annual Report to the Congress on the Status of the Harbor Maintenance Trust Fund for Fiscal Years 2000, 2001, 2002. IWR- Report, U.S. Army Corps of Engineers, p. 10.

Coastwise cargo movements are dominated by crude petroleum and petroleum products responsible for more than 70% of the tonnage. Chemicals and chemical products, (SITC Code 3000) Crude materials (SITC 4000), and Coal (SITC 1000) are other important categories in terms of weight. Food and Farm Products (SITC 6000) and Manufactured Equipment, Machinery and Products are relatively high value cargos comprising 5-6% of coastwise shipments by weight.

The domestic cargo tonnage that may be subject to HMT was estimated for 2003 by subtracting tax exempt cargo from the total coastwise shipments presented in Figure III-7. While 8% of all coastwise shipments (or 17 million tons) qualified as tax exempt, no lake-wise cargo movements qualified as tax-exempt. The net coastwise tonnage subject to HMT in 2003 is estimated at 206 million tons and 73% of this tonnage is crude petroleum and petroleum products (Figure III-7).

As mentioned earlier, since all domestic shipment databases are weight-based almost no information is available on the value of domestic shipments. In the case of imports, aggregate tonnages imported and the values are available by vessel types (Figure III-2). Using this data it is possible to estimate HMT revenues and make short-term revenue forecasts.

However, as petroleum and petroleum products consist of more than 70% of the domestic tonnage and a relatively higher share by value, data from different sources were combined together to estimate HMT domestic tax collections (Figure III-8). First, the value of tanker vessel imports was compared with the value of oil and gas imports (columns 1 and 2 in Figure III-8). As both datasets follow each other closely, the values per ton of tanker cargo could be used as a proxy for the value of a ton of petroleum and petroleum products. When these values are applied, petroleum is responsible for more than 80% of the domestic HMT collections in 2001 and more than 90% of 2003 collections. The reasons for inconsistency in 2002 could not be traced; and the results for 2004 are incomplete as some data are not available for analysis.

In summary, the collection of HMT levies on domestic cargo movements are more complicated due to difficulties in the fiscal system, existence of double-taxing for domestic transshipment of international cargoes, and reporting by weight rather than by value. In any case, petroleum and petroleum products are responsible for 73% of the domestic cargo subject to HMT by weight and perhaps more than 80% by value.

Figure III-6: Summary of Coastwise and Lake-wise Waterborne Commerce by Commodity - 2003

SITC Code	Commodity Description	Coastwise			Lakewise			Total Major Group
		Tonnage (1,000)	Major Group	Minor Group	Tonnage (1,000)	Major Group	Minor Group	
	Total all commodities	223,458	100%	--	89,776	100%	--	--
10	Total Coal	10,607	5%	--	17,959	20%	--	9%
20	Total Petroleum and Products	161,361	72%	--	1,531	2%	--	52%
21	Crude Petroleum	50,953	--	32%	0	--	0%	--
2-29	Petroleum Products	110,409	--	68%	1,531	--	100%	--
30	Total Chemicals & Products	13,014	6%	--	198	0%	--	4%
31	Fertilizers	1,454	--	11%	0	--	--	--
32	Other Chemicals & Products	11,561	--	89%	198	--	100%	--
40	Total Crude Materials, Inedible	13,868	6%	--	65,793	73%	--	25%
41	Forest Products, wood & Chips	1,989	--	14%	0	--	0%	--
43	Soil, Sand, Gravel, Rock & Stone	10,551	--	76%	25,549	--	39%	--
44	Iron Ore & Scrap	400	--	3%	39,095	--	59%	--
46	Non Ferrous Ores & Scrap	662	--	5%	26	--	0%	--
47	Sulphur, Clay & Salt	15	--	0%	38	--	0%	--
50	Total Primary Manufactured Goods	8,826	4%	--	3,933	4%	--	4%
51	Paper Products	179	--	2%	0	--	0%	--
52	Lime Cement & Glass	2,650	--	30%	3,781	--	96%	--
53	Non Ferrous Metal Products	5,647	--	64%	1	--	0%	--
60	Total Food & Farm Products	6,101	3%	--	316	0%	--	2%
2-65	Grain & Oilseeds	322	--	5%	299	--	95%	--
66	Processed Grain & Animal Feed	842	--	14%	9	--	3%	--
68	Other Agr. Products	4,849	--	79%	0	--	0%	--
70	Total All Man. Equipment, Machinery & Pr.	9,619	4%	--	0	--	--	3%
	Total Commodity Shares		100%	--	--	100%	--	100%

Source: Waterborne Commerce of the United States, Calendar Year 2003.

Figure III-7: Coastwise Tonnage Estimates Subject to HMT Levy, 2003

SITC Code	Commodity Description	Coastwise (Gross)		HMT Exempt		Coastwise Net	
		Commodity Shares & Tonnage		Tonnage	Commodity Share	Tonnage	Commodity Share
		Tonnage (1,000)	Share	Tonnage (1000)		Tonnage	Commodity Share
	Total all commodities	223,458	100%	16,999	8%	206,459	100%
10	Total Coal	10,607	5%	0	0%	10,607	5%
20	Total Petroleum and Products	161,361	72%	10,845	5%	150,516	73%
30	Total Chemicals & Products	13,014	6%	696	0%	12,318	6%
40	Total Crude Materials, Inedible	13,868	6%	3,608	2%	10,260	5%
50	Total Primary Manufactured Goods	8,826	4%	0	0%	8,826	4%
60	Total Food & Farm Products	6,101	3%	540	0%	5,561	3%
70	Total All Man. Equipment, Machinery	9,619	4%	1,310	1%	8,309	4%
	Total Commodity Shares		100%	16,999	--		100%

Figure III-8 : HMT Domestic Levy Estimates from Petroleum and Petroleum Products

Year	Value of Oil & Gas Imports (1) (\$ millions)	Value of Tanker Cargo (2) (\$ millions)	Value/ton (3) (\$)	Coastwise Petroleum & Prod. Tonnage (4) (1,000tons)	Coastwise Petroleum HMT levy (5) (\$ millions)	Total Domestic HMT (6) (\$ millions)	Percent of HMT from Petroleum (7) (%)
2001	94.7	98.9	154	164,703	31.7	39.4	80.5%
2002	92.9	95.5	155	154,303	29.9	27.8	107.5%
2003	124.8	123.8	183	161,361	36.9	40.6	90.9%
2004	162.2	165	234	--	--	56.6	

Notes: sources

1. U.S. International Trade Commission Database, www.usitc.gov.
2. U.S. Army Corps of Engineers database
3. Derived by dividing aggregate value by total tons
4. Waterborne Commerce of the United States
- 5 (column 3*column 4)*.00125(HMT levy)
6. Hmt data for 2003 and 2004 provided by David Grier, IWR

IV U.S. Trans-Border Trade with Mexico and Canada

IV.1 Introduction

Any review of HMT revenues may be incomplete without an evaluation of the large volume of trans-border trade movements across the North American continent. At present more than 90% of these movements are by surface modes - truck, rail, pipelines, etc. While waterborne inbound movements (or imports) are subject to HMT, other imports moving by surface modes do not pay such a levy, imposing a competitive disadvantage on waterborne movements. This disparity is quite evident for cargo movements across the US/Canadian border and in trade with Mexico.

IV.2 Growth Patterns and Imports vs. Exports

U.S. trans-border trade under NAFTA expanded rapidly in the 1990s with Canada and Mexico emerging as the two largest U.S. trading partners. In 2004 the value of trade with the two countries was \$670 billion and the average annual volume for the 2001-2004 periods was \$600 billion ([Figure IV-1](#)). The trans-border trade, imports in particular, by surface modes have grown very quickly (U.S. Department of Transportation newsletter, May 27, 2005):

“... (T)otal surface transportation trade value in March (2005) was up 30.3% compared to March 2002 and 80.5% compared to March 1995, a period of 10 years. Exports in March were up 64.6% compared to March 1995, while imports were up 94.8%...”¹

Trans-border trade movements are dominated by imports and the trend continued through the last decade. For example, during the period 1997-2003 U.S. imports from Mexico grew by 19% compared to 3% for exports, and the comparable numbers for Canada are 18% growth in imports to the U.S., compared to 13% for exports. As a result, in 2004, 62% of the total cross-border trade was imports, and more than 90% of this cargo entered the U.S. using surface-based transportation modes.

¹ “*Moving the American Economy*,” U.S. Department of Transportation, Research and Innovative Technology Administration, News release May 27, 2005.

Figure IV-1: Value of U.S. Trade with Mexico and Canada, Annual Data 2001 to 2004

Country/Trade	Year				Average
	2001	2002	2003	2004	
	\$ millions				
Mexico:					
Imports	131,826	135,501	138,788	156,885	140,750
Exports	90,537	86,076	83,108	93,018	88,185
Total Trade	222,363	221,577	221,896	249,903	228,935
2001 -2004 Growth (%)					
Imports				19	
Exports				3	
Total Trade				12	
Canada					
Imports	220,008	213,876	227,497	259,531	230,228
Exports	144,621	142,543	148,749	163,168	149,770
Total Trade	364,629	356,419	376,246	422,699	379,998
2001 -2004 Growth (%)					
Imports				18	
Exports				13	
Total Trade				16	

Source: U.S. International Trade Commission foreign trade database.

Website: www.usitc.gov

IV.3 Trans-Border Trade – Modal Shares

A detailed analysis of the trans-border trade movements using different modes is included in [Figure IV-2](#). Cargo movements by truck are responsible for about 68% of the modal share with 14% by rail, 3% by pipelines, and another 4% by other

surface modes. However, the truck and rail shares grew at a slower pace than air cargo shipments and waterborne cargo during the period. The changes in pipeline modal shares may be directly related to the crude petroleum supply and demand characteristics. While cargo movements by water contributed an average of 4% of the modal share in value, it grew by 51% during this period, increasing its relative share from 4.6% in 1997 to 5.0% in 2000. Although the data sources indicating the volume of trade by weight are limited, U.S. waterborne trade tonnage data with Mexico and Canada maintained by the U.S. Maritime Administration are shown in (Figure IV-3). During the six-year period from 1997-2003, total waterborne trade tonnage increased by 28%, with 24% and 34% increases for Mexico and Canada, respectively.

Figure IV-2: Value of U.S. Merchandise Trade with Canada and Mexico by Mode, 1997-2000 (\$ millions)

Mode	1997	1998	1999	2000	Avg. Modal Share	1997 -2000 Change (%)
Truck	323,298	349,979	385,413	428,700	68%	33%
Rail	69,844	67,872	78,414	94,198	14%	35%
Air	27,744	30,127	34,380	44,950	6%	62%
Water	21,661	20,852	23,357	32,607	4%	51%
Pipeline	14,132	11,289	12,315	23,592	3%	67%
Other	18,704	22,596	25,107	29,224	4%	56%
Total Trade	475,383	502,715	558,986	653,271	100%	37%

Source: Bureau of Transportation Statistics, NAFTA Modal Shares.

Website: www.bts.gov/publications/north_american_trade_and_travel_trends

**Figure IV-3: U. S. Waterborne Trade with Mexico and Canada by Tonnage
1997-2003 (1,000 metric tons)**

Country	Year						
	1997	1998	1999	2000	2001	2002	2003
<u>Mexico</u>	97,902	100,287	100,089	108,386	110,481	116,684	121,572
Annual Growth (%)	--	2.4%	-0.2%	8.3%	1.9%	5.6%	4.2%
1997-2003 Growth(%)							24.2%
<u>Canada</u>	70,153	74,763	86,272	89,292	87,897	96,429	94,135
Annual Growth (%)	--	6.6%	15.4%	3.5%	-1.6%	9.7%	-2.4%
1997-2003 Growth(%)							34.2%
<u>Total Trade</u>							
1997-2003 Growth(%)							28.3%

Source: U.S. Maritime Administration, Waterborne Databank.

IV.4 Trans-border Trade – Origins and Destinations and Border Crossings

The top-ten states engaged in trans-border trade with Canada and Mexico based on trade data for 2000 are shown in [Figure IV-4](#). Trans-border trade is highly concentrated in a few states, with Michigan, New York, and Ohio leading the Canadian trade and Texas, California, and Michigan leading in trade with Mexico. The addition of this traffic, especially 18-wheeler trucks on already congested highways, leads to many adverse consequences, in safety, environmental pollution, and congestion delays.

Truck-traffic crossings into the U.S. generated by trans-border trade indicate that traffic increased from 20-40% during 1996-2000 ([Figure IV-5](#)). In 2000, more than 4,000 trucks entered daily through Detroit, Michigan and Laredo, Texas experiencing 33% and 47% increase in truck traffic in 4 years, respectively. Considering that these are crossings into the U.S., mainly associated with imports without including exports, the total traffic could be expected to be much higher.

Figure IV-4: Top Ten States Engaged in Trans-Border Trade Using Surface Modes

U.S.-Canada Trade in 2000			U.S.-Mexico Trade in 2000		
State	Rank	Value \$ billions	State	Rank	Value \$ billions
Michigan	1	68	Texas	1	69
New York	2	31	California	2	32
Ohio	3	24	Michigan	3	23
Illinois	4	23	Arizona	4	10
Washington	5	22	Indiana	5	6
California	6	15	Illinois	6	6
Pennsylvania	7	14	N. Carolina	7	6
Texas	8	12	Ohio	8	6
Indiana	9	11	Tennessee	9	5
Minnesota	10	9	New York	10	5

Source: Bureau of Transportation Statistics, Trans-border Surface Freight Data, 1995-2000.

Figure IV-5: Truck Traffic Crossing into the United States at Major Trans-Border Crossings, 1996 and 2000

Rank In 2000	Port Name	1996 Total Trucks (1,000)	2000 Total Trucks (1,000)	% Change	1996 Avg. Trucks per Day	2000 Avg. Trucks per Day
1	Detroit, MI	1,332	1,769	32.8	3,649	4,848
2	Laredo, TX	1,016	1,493	47	2,784	4,091
3	Buffalo-Niagara Falls, NY	996	1,198	20.3	2,729	3,282
4	Port Huron, MI	636	839	31.9	1,742	2,299
5	El Paso, TX	556	720	29.6	1,523	1,974
6	Otay Mesa/San Ysidro, CA	531	688	29.6	1,455	1,886
7	Blaine, WA	402	517	28.6	1,101	1,416
8	Champlain-Rouses Pt., NY	279	391	40.1	764	1,071
9	Hidalgo, TX	205	374	82.5	562	1,025
10	Brownsville, TX	226	299	32.4	619	820
11	Calexico East/Calexico, CA	171	279	63	468	764
12	Alexandria Bay, NY	203	278	37.1	556	763
13	Nogales, AZ	229	255	11.2	627	698
14	Pembina, ND	141	214	52	386	587
15	Calais, ME	116	154	32.7	318	422

Source: Bureau of Transportation Statistics, Special Tabulation, August 2001.

Along with the expansion of U.S. trans-border trade under NAFTA, the surface transportation networks of the three countries also expanded rail and trucking services. However, the growth trends for waterborne commerce was less pronounced leaving the bulk of the trade to trucking and associated additional congestion, environmental damage, and safety problems. It is economically and socially desirable to encourage trans-boarder waterborne commerce as an alternative by eliminating additional costs for HMT collections.