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Administration**

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

U.S. Border Crossings with Canada and Mexico–Port Facilities, Inventory, and Constraints Volume 1

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U.S. Border Crossings with Canada and Mexico–Port Facilities, Inventory, and Constraints Volume 1

Sponsored by the
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Federal Highway Administration

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1. INTRODUCTION

The International Trade Route study is directed by Section 6015 of the Intermodal Surface Transportation Efficiency Act (ISTEA) of 1991. The objective of the study is to conduct a multi-modal assessment of existing and emerging trade routes and transportation subsystems. Such routes and subsystems can ease trade between Canada, the United States, and Mexico. The scope includes each transportation mode, intermodal and multi-modal transportation issues, in addition to economic development and transportation improvements needed to support economic growth.

The National Ports and Waterways Institute had completed a study covering the maritime trade routes affecting cargo flows through the United States Gulf, Atlantic, and Great Lakes ports. This report extends the analysis to cover the assessment of the U.S. maritime ports ability to accommodate the increasing demands of trade between the North America Trade partners. Included are: an inventory of port and intermodal facilities, estimates of their capacity, port constraints and institutional barriers for ports in the Gulf of Mexico, Great Lakes, and the Atlantic Coast regions.

The objectives for the study are:

1. Identify and describe port facilities with significant commerce with Canada and Mexico in the Great Lakes, Gulf of Mexico, and the Atlantic Ocean regions.
2. Identify and describe significant intermodal facilities within 20 miles of the ports.
3. Provide information on traffic volumes and qualitative assessment on existence of significant capacity constraints or congestion, and the ability to handle considerable additional traffic with Canada and Mexico.
4. Identify any relevant institutional impediments and describe customs services, facilities and practices in these ports.
5. For ports with significant current capacity constrains, obtain information about ongoing or planned improvements to facilities and operating procedures, as well as provide information about methods of financing such improvements.

The ports selected for the analysis were those with significant trade with Mexico and Canada. The selection criteria for ports was primarily based on the total tonnage of *non-petroleum* trade with Canada and Mexico. This selection was made since most of the petroleum terminals are privately owned and are capable of expansion whenever needed. Petroleum facilities generally rely on pipelines for land transportation, therefore they impose a minor impact on other land transportation facilitates. Ports with significant petroleum (liquid) cargo, however, were also analyzed as typical examples of this category.

A comprehensive database was established for the three maritime regions as described in Chapters 2 and 3. Chapter 4 includes Port profiles for typical ports which were compiled after a thorough review of the latest development programs for these ports. The capacity analysis for marine terminals within each port was performed and the results were provided in the port profile. Chapter 5 addresses the issues related to intermodal connections and their future potential.

Chapter 6 covers in detail the trends, impediments and implications affecting waterborne trade for the three regions, and includes specific case studies for some of the ports. Chapter 7 addresses current and forecasted port investments and methods planned to finance those improvements. Chapter 8 summarizes the research findings and assessment of the current capabilities of the Gulf, Atlantic, and Great Lakes ports in relation to the expected increase in North American trade.

2. Data Collection and Data Sources

Types of Maritime Terminals:

Typically, a port consists of one or more terminals. Each terminal is comprised of four basic elements: access channel, docking facility, storage yard, and land transport gates. A fifth, related element can exist for some terminals, namely the inland transfer area (for intermodal container terminals). For the purpose of the study, terminals were classified into four major categories based on the type of cargo served as follows:

1. General Cargo Terminal: serves break-bulk cargo, neo-bulk cargo (machinery, automobiles, steel products, etc.), containerized cargo or refrigerated units, or a combination of those commodities. Such terminals usually have open yard storage areas, sheds or warehouses . Smaller terminals of this category may rely on ships gear or movable cranes. Neo-bulk terminals usually are equipped with heavy lift cranes and may have Roll-On/Roll-Off (RO/RO) ramps to load and unload automobiles and similar cargo. Container terminals serve mainly marine containers and refrigerated units and usually have aprons equipped with gantry cranes and open yards for container storage arranged on chassis or by stacking.

2. Bulk Grain Terminal: serves large bulk grain cargos (i.e. corn, wheat, rice, soybean, etc.) and is usually equipped with silos and proper loading/unloading equipment. Such terminals can also serve other agricultural products that requires silo storage.

3. Dry Bulk Terminal: serves major dry bulk cargos, except grain. The terminal apron is usually equipped with stackers and loaders. Cargo served includes coal and coke, ores, fertilizers, salt, cement, sand and gravel or other loose bulk cargo material. Some terminals may have silo storage facilities to handle cargo such as cement.

4. Liquid Bulk Terminal: mostly serves petroleum Oil and derivatives, large pumping facilities and storage tank farms are in common use. A small liquid bulk terminal servicing liquid chemicals, edible oils and the like may not require pumps or tank facilities.

Terminal Data:

The major terminal parameters surveyed and analyzed were:

General:

Terminal Type (including its functional layout)

Terminal Name and Owner

Address, Contact Person and phone number

Total Acres

Number of Berths

Water & Land Access:

Water:	Length of access channel and turning basin radii
	Average depth in access channel
Rail:	Total length of working tracks
	Number of tracks
	Maximum continuous single track length
	Railway yard capacity (cars)
Highway:	Highway access connections
	Highway Classification (Interstate, State, and Local)
	Congestion measures and proximity to metropolitan areas.

Vessels:

Typical Ship size (DWT, LOA, Draft)

Typical Ship Load (tons)

Number of ships served per Year

Docking:

Water depth (Maximum Draft)

Total Dock Length (ft)

Number of ship/apron transfer units

Type of ship/apron transfer unit (i.e. longshoremen gangs, ships gear, cranes, gantry cranes, conveyor belts, hose connections, loading arms, ship loaders/ unloaders, etc..)

Practical Transfer rate per unit (tons/hour, lifts/hour) and time to load/unload ship

Time to Transfer Shipload to/from storage, and to/from Truck/Rail

Annual Throughput and estimated Capacity

Storage Yard:

Storage yard area and auxiliary area

Yard total storage capacity (tons)

Number and type of apron to storage transfer units (i.e. conveyors, pipes, forklifts, yard tractors, straddle carriers, etc.)

Transfer rate of apron to storage transfer units

Typical storage duration of cargo (days)

Throughput Density (tons/acre/year)

Intermodal Transfer (On-dock):

Number and type of storage to inland transport transfer units (i.e. Truck loading dock spaces, transtainer, car loader, dump truck, etc..)

Transfer rate of storage/inland transport transfer units

Number of inland transport unit processors

processing rate for inland transport units

Inland Transport:

Number & type of transportation units (i.e. trucks, trailer chassis, rail cars, tank trucks)

Transfer rate per unit (tons/hour)

Time to Load/Unload a transport unit (hours, min.)

Transportation unit maximum load and typical daily cargo (tons)

Inland Transfer Processing:

Peak Units per day

Gate processing time (min.)

Gate processing capability (units/hr)

Number of processors or lanes and transport queue space

Land Egress, Terminal Expansion, and Impediments:

Current Expansion projects and completion date

Available land and impediments for future expansion

Planned expansions and expected dates

Sources of Port Data:

A) Maritime Facilities Data

Source 1: U.S. Corps of Engineers (COE)

The COE Database covers the infrastructure facilities at ports and all coastline structures. The ports are geographically divided into coastline segments (port series). Each port can have multiple terminals, and for each terminal, updated information about the following items are maintained:

- Terminal Name, Location, Type, Address, Owner, Operator, Purpose, Identification and Location codes.
- Construction type, Structural description, Water depth, Berthing and apron dimensions, and available utilities.
- Mechanical Handling, Updated list of major equipment, Equipment type, number, configuration and handling capacities.

- Railway and Highway connections.
- Utilities, Security and Fire protection site information.
- Remarks mostly covering backup storage areas, warehousing, storage capacity, and details of land transportation connections.
- Mailing and Contact Information.
- Maps with details of facility location and land interfaces.

Despite the extensive contents of the COE database, most of its components are manually updated with a maintenance cycle of about six years. The data fields contain descriptive information representing a major difficulty in automated processing and coding cumulative analysis. Also this database is primarily focused on waterfront structures and waterway channel data.

Format : mostly as hard copies (COE Ports Series published at different dates), computerized data are available for some ports in descriptive format.

Ref.: John W. Vetter, COE, Water Resource Center, Ft. Belvoir VA (703)355-2495

Source 2: MARAD

The MARAD database is basically a subset of the COE database but it is more oriented towards the operational aspects of the port facilities, and contains most of the COE information in properly structured and coded fields. Additional sources of information are relied on to update this database. The database is currently processed/retrieved through a main-frame query system. The MARAD database does not include some of the descriptive elements of COE database, such as the detailed description of equipment and land configuration. Also the non-commercial and the non-operational terminals (of the COE database) are excluded.

Format: Hard copies and electronic formats are available. This database has been currently adapted and converted to microcomputer environment by the National Ports and Waterways Institute (NPWI).

Ref.: Bill Dean, MARAD, Office of Port Intermodal Development, Washington D.C. (202)366-4357

B) Waterborne Trade Data:

Source 1: U.S. Corps of Engineers

The waterborne commerce is grouped nationally for each trade region, providing freight tables by type of traffic for: Import, Export, Local and Internal. Freight data is broken down by their commodity code (Harm_code) (e.g. 1005 Corn, 2503 Sulfur of all kinds NESOI). Trade regions covers both inland and coastal ports (e.g. part 3 for the Great Lakes, part 2 for Mississippi River and Gulf Coast). Also the trade data is reported in

terms of both tonnage and dollar value. The 1989 data is the latest complete data nationwide, which also includes trade data by vessel draft, in addition to a national trade summary. The currently available portions of the 1990 data includes the Atlantic regions, Mississippi River & Gulf region, the newly adopted 5-digit commodity code, and for each region data is provided for each COE project (defined as a port or as a waterway).

The COE data includes both the domestic and foreign trade. The foreign trade data is a subset of the Dept. of Commerce Census Bureau data.

Ref.: Susan Hasset COE, Waterborne Commerce Statistics Center, New Orleans (504)862-1404

Source 2: MARAD

A partial database was obtained from MARAD Trade Data Center. This database is derived from the 1991 Census data for foreign trade with Canada and Mexico, and total port activity in foreign trade. The data is provided for every U.S. port in tonnage broken down by the harmonized commodity code, and by direction (import, export). The data does not include statistics for the inland port (e.g. Mississippi River), and does not allocate traffic volume to individual terminals within a port. Nationwide total trade by commodity are provided for comparative analysis. The data does not include any details about domestic cargo handled by the port district, and is available in magnetic file format.

Ref.: Doris Bautch, MARAD, Trade Data Center, Washington D.C. (202)366-5469

Source 3: Journal of Commerce

This database is an extensive commercial database which is compiled from vessel manifests, and includes various classification by shipper, shipment dates, tonnage, dollar value, vessel type, draft, port of origin/destination, individual commodity type, TEU's, and other attributes.

C) Updated Facilities and Trade Data

U.S. ports with significant trade with Mexico and Canada are identified as described in Chapter 3. Direct contacts were made with each port authority to obtain a port layout, latest update for facilities, current traffic volumes, and ongoing port improvements. The objective was to update the data obtained from the previous sources which was compiled within the past five years. Thirty five ports were contacted and eighteen responded. The information provided by these ports varies in terms of the level of detail and the scope of terminals covered (some ports did not report about any privately operated terminals). Additional information was also requested from selected ports which have intermodal connections on the Gulf and the Great Lakes.

D) Impediments, Port Expansion and Financing, and Implications for Trade

Data was obtained from other sources to cover the issues related to impediments, port expansion, land access/egress, and financing of port developments. These sources include a range of recent reports, port surveys, articles and publications from MARAD, Corps of Engineers, Transportation Research Board, American Association of Port Authorities, and the Journal of Commerce, as well as direct input of industry workshops organized by the U.S. DOT as a part of the outreach program for Section 6015 study.

3. PORT DATA ANALYSIS AND CAPACITY EVALUATION

Integration of Port Data

The inventory of port facilities required the collection of data from different sources (see Chapter 2 for sources of data). Extensive efforts were made to resolve the discrepancies for the different data items taking into consideration the following factors:

- There was no single data source that had all the data required for the port facilities in terms of the up-to-date dimensions, capabilities, equipment and functional use. Also, for few ports there are data discrepancies among the various sources for several ports (e.g. terminal berth length, type of terminal use, active vs. inactive terminals, number of berths per terminal).

- No single source provided the waterborne flows identified for individual terminals. Also, the flow data had discrepancies due to different annual aggregation periods (e.g. fiscal year vs. calendar year).

- Terminals exclusively active in domestic trade were excluded from the analysis. The evaluated excess capacity may be overestimated for those terminals actively shipping both foreign and domestic cargo.

- Many terminals are privately operated, with scarce information available in the public domain about their capabilities, annual flows, and their overall impacts on the port land access and land use.

- Each data source provided portions of data at different levels of aggregation (e.g. total storage for a group of terminals).

- Adjacent facilities impact the terminal capability to handle additional cargo. Neighboring terminals may have high level of flexibility for cargo handling and sharing of available resources such as stevedoring, handling equipment, rail cars, etc. In such situations, the estimated capacity was adjusted to reflect the additional resources available for a terminal.

Port Facility Data:

The MARAD database was converted into a microcomputer environment, and an automated query system was programmed to retrieve, into seven spreadsheets, the data for all terminals for a given port district. The spreadsheets report the terminals information (across), as described in Appendix B, and include: (1) terminal general information, (2) berthage characteristics, (3) pier/vessel information, (4) data for general cargo terminals, (5) data for dry bulk terminals, (6) data for bulk grain terminals, and (7) data for liquid bulk terminals. The last four spreadsheets had to be separate since the types of handling equipment and storage facilities differ according to the cargo handled. The facilities' information was then analyzed, verified and complemented by the latest information obtained directly from port authorities and terminal operators.

The inventory of facilities covered both private and public facilities. Following the rules of trade confidentiality, the cargo volumes were analyzed for each combined category of terminals for the four major classes of cargo: General Cargo, Dry Bulk, Bulk Grain, and Liquid bulk. A terminal group may have some congested terminals while many others are underutilized, the analysis did not address such situations which were beyond the scope of work.

Port Trade Data:

This section contains statistics that illustrate trends of the United States trade during the year 1991, and limited comparative analysis to prior years (1989 and 1990). The trade data was reviewed and compared to earlier years. Significant changes were noted for import and export tonnages, commodity movements, trading partners, U.S. port and coastal district activity, and the share transported as domestic commerce. **Table 3.1** provides a historical overall picture of the U.S. waterborne commerce in the 1980's, which shows a minor increase in the total trade, and signifies the share of the domestic waterborne commerce which represents about 52% of the total waterborne commerce.

During calendar year 1990, United States oceanborne foreign trade tonnage was 853.9 million long tons, which represented an increase of +2% compared to calendar year 1989. Import tonnage increased in 1990 by less than 1%, while exports increased by 5%. In 1991 the foreign commerce was about the same level as 1990 (i.e. 852 million tons), and the domestic trade is expected to be about the same (1991 domestic commerce was not available before completion of this report). Appendix B provides approximate statistics for 1991 foreign commerce for all U.S. ports including total tonnage and dollar value. Totals of different types of cargo (general cargo, petroleum, grain, dry bulk, etc) are approximate, since they were accumulations of the individual statistics of the 4-digit Harmonized Commodity Codes.

The latest detailed waterborne commerce data was primarily furnished by MARAD. The data provided was for the 1991 foreign trade volumes for every port in the Gulf, Atlantic and Great Lakes regions, for three categories: trade with Canada, trade with Mexico, and total trade (foreign). The data was provided in total long tons of export and of imports for every 4-digit Harmonized Commodity Code for every port. U.S. port trade data was first analyzed to identify those ports with significant trade with Canada and Mexico. **Table 3.2** shows these ports and their total 1991 tonnage for Canada, together with the percentage of each port to the total Canadian trade, and similar statistics for the Mexican trade.

The Canadian waterborne trade was dominated by the Great Lakes region (50% of the Canadian trade), Atlantic Coast region (38%), then the Gulf region (12%). On the other hand, Mexican trade was dominated by the Gulf of Mexico region (87% of the Mexican trade), and the Great Lakes region did not have any significant trade with Mexico. Mexican trade was more concentrated between fewer ports, and dominated by crude oil imports which represented about 67% of the Mexican trade. **Tables 3.3 and 3.4** show the estimates for each of these ports by type of cargo.

Cargo moving through U.S. Gulf ports represented about 46% of the total foreign trade. North Atlantic ports followed with a share of about 29%, and the Great Lakes region had about 3%. Summaries of total commerce and Mexican-Canadian trade are provided in **Table 3.5** for the 1991 trade activities of the Gulf, Atlantic and Great Lakes regions.

Table 3.1
Total U.S. Waterborne Statistics

Year	Total Tonnage	Total Foreign	Total Domestic
1980	1,998,887	921,404	1,077,483
1981	1,941,559	887,102	1,054,457
1982	1,776,741	819,731	957,010
1983	1,707,661	751,140	956,521
1984	1,836,021	803,339	1,032,682
1985	1,788,435	774,323	1,014,112
1986	1,874,416	837,224	1,037,192
1987	1,967,458	890,980	1,076,478
1988	2,087,933	976,221	1,111,712
1989	2,140,442	1,037,910	1,102,532

Source: U.S. Corps of Engineers, Water Resources Support Center.

Table 3.2

Waterborne Trade of U.S. Gulf, Atlantic, and Great Lakes Ports, 1991

with CANADA

Port Name	Tot. LT	%Tot	%Cum.
TOLEDO OHIO	4,661,051	9.94	9.94
ASHTABULA OHIO	3,838,313	8.19	18.13
BALTIMORE MD.	2,488,050	5.31	23.44
DULUTH MINN.	2,280,485	4.86	28.30
SUPERIOR WIS.	2,251,429	4.80	33.11
BOSTON MA.	2,098,840	4.48	37.58
CLEVELAND OHIO	2,084,095	4.45	42.03
PHILADELPHIA PA.	1,979,402	4.22	46.25
NEW YORK N.Y.	1,970,605	4.20	50.46
DETROIT MICH.	1,484,671	3.17	53.62
SAULT ST. MARIE MICH.	1,351,797	2.88	56.51
MOBILE AL.	1,169,848	2.50	59.00
PORTLAND ME.	981,893	2.09	61.10
HOUSTON TEX.	903,933	1.93	63.02
CHICAGO ILL.	878,011	1.87	64.90
JACKSONVILLE FL.	843,460	1.80	66.70
GARY IND.	765,616	1.63	68.33
BATON ROUGE LA.	709,619	1.51	69.84
OSWEGO N.Y.	704,004	1.50	71.35
MILWAUKEE WIS.	678,369	1.45	72.79
PORTSMOUTH N.H	619,708	1.32	74.11
TAMPA FL.	595,298	1.27	75.38
BUFFALO-NIAGARA FALLS N	579,514	1.24	76.62
SAVANNAH GA.	542,942	1.16	77.78
CORPUS CHRISTI, TEXAS	542,341	1.16	78.94
SAGINAW-BAY CITY MICH.	532,762	1.14	80.07
NORFOLK VA.	435,722	0.93	81.00
LAKE CHARLES, LA.	431,425	0.92	81.92
ROCHESTER N.Y.	429,296	0.92	82.84
MARQUETTE MICH.	426,536	0.91	83.75
WILMINGTON N.C	413,213	0.88	84.63
NEW HAVEN	397,257	0.85	85.48
CAMDEN N.J.	359,825	0.77	86.24
BRUNSWICK GA.	356,523	0.76	87.00
PORT CANAVERAL	355,146	0.76	87.76
WILMINGTON DEL	347,819	0.74	88.50
SAULT ST.MARIE	337,930	0.72	89.23
ALPENA MICH.	319,256	0.68	89.91
ROGERS CITY MICH.	309,533	0.66	90.57
SANDUSKY OHIO	261,910	0.56	91.13
GEORGETOWN S.C	261,228	0.56	91.68
TEXAS CITY	235,714	0.50	92.19
NEW ORLEANS LA.	227,374	0.49	92.67
ALBANY N.Y.	209,206	0.45	93.12
ERIE PA.	200,414	0.43	93.54
PORT ARTHUR TEX.	193,192	0.41	93.96
SEARSPORT,ME	180,932	0.39	94.34
PROVIDENCE R.I	179,241	0.38	94.72
MUSKEGON MICH.	157,548	0.34	95.06
CHARLESTON S.C.	152,543	0.33	95.39
PRESQUE ISLE MICH.	143,230	0.31	95.69
GREEN BAY WIS.	142,100	0.30	95.99
CHAMPLAIN-ROUSES POINT N	139,411	0.30	96.29
ALEXANDRIA VA.	119,427	0.25	96.55
CHESTER PA.	117,165	0.25	96.80
OGDENSBURG N.Y.	116,052	0.25	97.04
FREEPORT, TEXAS	103,154	0.22	97.26
GALVESTON, TEXAS	97,866	0.21	97.47
All Others	1,184,524	2.53	100.00
Total 1000 T	46,878		

with MEXICO

Port Name	Tot. LT	%Tot	%Cum.
HOUSTON TEX.	7,038,507	14.93	14.93
PASCAGOULA MISS.	5,861,182	12.44	27.37
GRAMERCY LA.	4,812,443	10.21	37.58
LAKE CHARLES, LA.	4,650,865	9.87	47.45
NEW ORLEANS LA.	4,076,049	8.65	56.10
TEXAS CITY	3,522,589	7.47	63.57
CORPUS CHRISTI, TEXAS	2,584,243	5.48	69.06
TAMPA FL.	2,005,301	4.26	73.31
BATON ROUGE LA.	1,798,887	3.82	77.13
PORT ARTHUR TEX.	1,587,349	3.37	80.50
NEW YORK N.Y.	1,460,538	3.10	83.60
PAULSBORO N.J.	1,438,966	3.05	86.65
PHILADELPHIA PA.	1,234,921	2.62	89.27
GALVESTON, TEXAS	1,026,015	2.18	91.45
NEWPORT NEWS VA.	578,188	1.23	92.67
DESTREHAN LA.	428,420	0.91	93.58
JACKSONVILLE FL.	427,957	0.91	94.49
MOBILE AL.	396,749	0.84	95.33
BEAUMONT TEX.	336,190	0.71	96.05
ST. ROSE LA.	335,962	0.71	96.76
GOOD HOPE LA.	195,539	0.41	97.18
BEAUFORT-MOREHEAD CITY N	175,542	0.37	97.55
BALTIMORE MD.	153,800	0.33	97.87
PORTLAND ME.	129,647	0.28	98.15
PORT LAVACA, TEXAS	101,405	0.22	98.36
WILMINGTON N.C	98,058	0.21	98.57
GULFPORT MISS.	76,717	0.16	98.73
GLOUCESTER CITY N.J.	75,487	0.16	98.90
MARCUS HOOK PA	72,178	0.15	99.05
PORT EVERGLADES FL.	71,568	0.15	99.20
NEW HAVEN	69,860	0.15	99.35
SAVANNAH GA.	49,631	0.11	99.45
BOSTON MA.	35,645	0.08	99.53
WILMINGTON DEL	32,995	0.07	99.60
MIAMI FL.	31,993	0.07	99.67
PORTSMOUTH N.H	29,526	0.06	99.73
HOPEWELL VA.	25,189	0.05	99.78
CHARLESTON S.C.	24,606	0.05	99.84
ALBANY N.Y.	20,678	0.04	99.88
FREEPORT, TEXAS	16,745	0.04	99.91
MORGAN CITY LA.	11,256	0.02	99.94
PORT MANATEE	7,620	0.02	99.96
NORFOLK VA.	5,094	0.01	99.97
PORT CANAVERAL	4,488	0.01	99.98
BROWNSVILLE TEX.	3,436	0.01	99.98
PROVIDENCE R.I	3,064	0.01	99.99
BRUNSWICK GA.	2,173	0.00	99.99
PENSACOLA, FLA.	1,081	0.00	100.00
AVONDALE LA.	1,043	0.00	100.00
KEY WEST FL.	372	0.00	100.00
FERNANDINA BEACH FL.	225	0.00	100.00
W. PALM BEACH FL.	125	0.00	100.00
PANAMA CITY, FLA.	34	0.00	100.00
ORANGE TEX.	25	0.00	100.00
DETROIT MICH.	22	0.00	100.00
SABINE TEX.	9	0.00	100.00
SAVAN-WILM, COTLNTRS	4	0.00	100.00
NORF-NEWPORT NEWS VALUE		0.00	100.00
Total 1000 T	47,128		

Table 3.3 U.S. Gulf and Atlantic Ports Trade with Mexico, 1991

U.S. Ports trading with		1991 Trade 1000ton/yr			General Cargo			Non-petroleum liquids			Petroleum oil & products			Bulk Grain			Other Dry Bulk		
code	Mexico	Total	Exports	Imports	Total	Exports	Imports	Total	Exports	Imports	Total	Exports	Imports	Total	Exports	Imports	Total	Exports	Imports
5301	HOUSTON TEX.	7,039	2,056	4,983	919	372	548	189	61	128	4,110	654	3,456	927	927		893	42	851
1903	PASCAGOULA MISS.	5,861	29	5,832	26	26	0				5,832		5,832	3	3				
2010	GRAMERCY LA.	4,812	854	3,958	55	8	47				3,884	28	3,856	814	814		59	4	55
2017	LAKE CHARLES, LA.	4,651	219	4,432	86	84	2				4,266	100	4,166	3	3		296	32	264
2002	NEW ORLEANS LA.	4,076	479	3,597	28	5	23	13	13		3,079	6	3,074	439	439		517	16	501
5306	TEXAS CITY	3,523	106	3,416	13	11	1	41	1	40	3,426	51	3,375	34	34		9	9	
5312	CORPUS CHRISTI, TEXAS	2,584	389	2,196	66	66					2,415	219	2,196	101	101		3	3	
1801	TAMPA FL.	2,005	519	1,486	143	1	142										1,863	518	1,345
2004	BATON ROUGE LA.	1,799	308	1,491	270	76	194	37	11	26	1,104	74	1,030	64	64		323	83	240
2101	PORT ARTHUR TEX.	1,587	55	1,532	54	7	47	3		3	1,349	15	1,335	23	23		158	11	147
1001	NEW YORK N.Y.	1,461	37	1,424	9	1	8	2	2		1,366	34	1,332				83		83
1105	PAULSBORO N.J.	1,439	11	1,428							1,439	11	1,428						
1101	PHILADELPHIA PA.	1,235	5	1,230	5	5					1,230		1,230						
5310	GALVESTON, TEXAS	1,026	243	783	3	1	2	20	1	18	390	0	390	241	241		373		373
1402	NEWPORT NEWS VA.	578		578							578		578						
2009	DESTREHAN LA.	428	428		2	2								426	426				
1803	JACKSONVILLE FL.	428	173	255	0	0	0				23		23				405	173	232
1901	MOBILE AL.	397	50	347	36	1	36				307		307	14	14		40	36	4
2104	BEAUMONT TEX.	336	50	286	0		0	2	2		287	1	286	47	47				
2013	ST. ROSE LA.	336	232	104	3	3		2	2		104		104	227	227				
2014	GOOD HOPE LA.	196	61	135							196	61	135						
1511	BEAUFORT-MOREHEAD CIT	176		176													176		176
1303	BALTIMORE MD.	154	6	148				6		6							148	6	143
0101	PORTLAND ME.	130		130	89		89				41		41						
5313	PORT LAVACA, TEXAS	101	101		101	101													
1501	WILMINGTON N.C	98		98	13		13										85		85
1902	GULFPORT MISS.	77	31	46	75	30	45				0	0					2	1	0
1113	GLOUCESTER CITY N.J.	75		75							75		75						
1118	MARCUS HOOK PA	72	4	68	26	4	21				47		47						
5203	PORT EVERGLADES FL.	72	7	64	5	1	3	0	0		61		61				6	6	0
0412	NEW HAVEN	70		70							70		70						
1703	SAVANNAH GA.	50	0	50	0	0	0										50		50
0401	BOSTON MA.	36	22	14							14		14				22	22	0
1103	WILMINGTON DEL	33		33	16		16										17		17
5201	MIAMI FL.	32	24	8	31	23	8	0	0	0	0	0					0	0	
0131	PORTSMOUTH N.H	30		30													30		30
1408	HOPEWELL VA.	25		25													25		25
1601	CHARLESTON S.C.	25	25	0	4	4	0							21	21				
1002	ALBANY N.Y.	21		21				21		21									
5311	FREEPORT, TEXAS	17	6	11	1	1		3		3							13	5	8
2001	MORGAN CITY LA.	11	11		5	5											6	6	
1821	PORT MANATEE	8		8							8		8						
1401	NORFOLK VA.	5	1	4	1	1	0										4		4
1816	PORT CANAVERAL	4		4							4		4						
2301	BROWNSVILLE TEX.	3	2	1	2	2	0	1		1									
0502	PROVIDENCE R.I	3		3	3		3												
1701	BRUNSWICK GA.	2	0	2	2	0	2												
1819	PENSACOLA, FLA.	1	1		1	1													
2012	AVONDALE LA.	1	1		1	1													
	TOTAL 1000 tons/yr	47,127	6,547	40,581	2,097	846	1,251	341	94	246	35,704	1,254	34,450	3,382	3,382		6,603	971	4,633

Table 3.4 U.S. Gulf, Atlantic, and Great Lakes Ports Trade with Canada, 1991

U.S. Ports trading with		1991 Trade 1000ton/yr			General Cargo			Non-petroleum liquids			Petroleum oil & products			Bulk Grain			Other Dry Bulk		
code	Canada	Total	Exports	Imports	Total	Exports	Imports	Total	Exports	Imports	Total	Exports	Imports	Total	Exports	Imports	Total	Exports	Imports
4105	TOLEDO OHIO	4,661	4,116	545	32	0	32				91	52	39	204	157	47	4,334	3,907	427
4108	ASHTABULA OHIO	3,838	3,606	232	0		0										3,838	3,606	232
1303	BALTIMORE MD.	2,488	42	2,446	38	0	38	0		0	117		117	24	24		2,310	18	2,291
3601	DULUTH MINN.	2,280	2,027	253	0	0					7	0	7	344	325	19	1,929	1,702	227
3608	SUPERIOR WIS.	2,251	1,884	368	202	0	202	0		0	29		29	939	814	125	1,081	1,070	12
0401	BOSTON MA.	2,099	88	2,011	2	1	0				1,887	82	1,805				211	5	206
4101	CLEVELAND OHIO	2,084	70	2,013	0	0					58	39	18				2,026	31	1,995
1101	PHILADELPHIA PA.	1,979	251	1,729	12	0	12				9		9	0	0		1,958	250	1,708
1001	NEW YORK N.Y.	1,970	126	1,845	272	68	204	11	0	10	899	54	845	0	0		789	3	786
3801	DETROIT MICH.	1,485	355	1,130	191	14	177	0	0	0	126	45	82				1,166	296	870
3802	SAULT ST. MARIE MICH.	1,352	133	1,219	1,029	0	1,029	0		0	5	2	2				318	130	188
1901	MOBILE AL.	1,170	10	1,160	3	3					6	6					1,160		1,160
0101	PORTLAND ME.	962	0	962	31	0	31				940		940				11		11
5301	HOUSTON TEX.	904	345	559	150	19	131	94		94	578	265	313				81	60	21
3901	CHICAGO ILL.	878	105	773	64	14	50	23		23	71	5	66				720	86	634
1803	JACKSONVILLE FL.	843	129	714	45	6	39				254	123	131				545		545
3905	GARY IND.	766	53	713	4		4										762	53	709
2004	BATON ROUGE LA.	709	129	580	21	0	21	4	4		265		265				419	125	294
0904	OSWEGO N.Y.	704	89	615	55	0	55				286	31	256				363	58	305
3701	MILWAUKEE WIS.	678	224	455	0	0								224	224		455		455
0131	PORTSMOUTH N.H	620	0	620	1	0	1				344		344				275		275
1801	TAMPA FL.	595	74	521	70	1	69										526	73	452
0901	BUFFALO-NIAGARA FALLS N	579	336	243	9	1	7				229	103	126	97	0	97	244	231	13
1703	SAVANNAH GA.	543	117	426	104	9	95				13		13				426	108	318
5312	CORPUS CHRISTI, TEXAS	542	537	5	539	534	5										3	3	
3804	SAGINAW-BAY CITY MICH.	533	89	444							3		3				529	89	440
1401	NORFOLK VA.	436	8	428	20	4	16				21		21				394	4	390
2017	LAKE CHARLES, LA.	431	207	224	178	178											254	30	224
0903	ROCHESTER N.Y.	429	270	159	0	0	0							9		9	421	270	150
3809	MARQUETTE MICH.	427	427														427	427	
1501	WILMINGTON N.C	413	0	413	99	0	99	107		107							206		206
0412	NEW HAVEN	397	90	307	3	2	1				340	87	253				54	1	53
1107	CAMDEN N.J.	360	0	360	19	0	19										341		341
1701	BRUNSWICK GA.	357	0	357	8	0	8										349		349
1816	PORT CANAVERAL	355	60	295	156		156				170	60	110				29		29
1103	WILMINGTON DEL	348	1	347	52	1	52				55		55				240		240
3803	SAULT ST.MARIE	338	261	76	3		3				55	5	51				280	257	23
3843	ALPENA MICH.	319	299	21							5		5				315	299	16
3818	ROGERS CITY MICH.	310	294	16													310	294	16
4107	SANDUSKY OHIO	262	212	50										30		30	232	212	20
1602	GEORGETOWN S.C	261	19	242	19	19											242		242
5306	TEXAS CITY	236	9	227	16	9	7	12		12	208		208						
2002	NEW ORLEANS LA.	227	18	209	9	0	9				15		15				203	18	185
1002	ALBANY N.Y.	209	0	209	0	0											209		209
4106	ERIE PA.	200	0	200	3	0	3										198		198
2101	PORT ARTHUR TEX.	193	118	75							119	45	75				73	73	
0152	SEARSPORT,ME	181		181							167		167				14		14
0502	PROVIDENCE R.I	179	0	179	5	0	4				99		99				76		76
3815	MUSKEGON MICH.	158		158													158		158
1601	CHARLESTON S.C.	152	50	102	29	1	28										123	49	74

Table 3.4 U.S. Gulf, Atlantic, and Great Lakes Ports Trade with Canada, 1991

3842	PRESQUE ISLE MICH.	143	142	1	1	0	0										143	142	0
3703	GREEN BAY WIS.	142		142							17		17				125		125
0712	CHAMPLAIN-ROUSES POINT	139	139	0	4	4	0				127	127					9	9	
5402	ALEXANDRIA VA.	119	0	119	119	0	119												
1102	CHESTER PA.	117	0	117	117	0	117												
0701	OGDENSBURG N.Y.	116	91	25	0	0											116	91	25
5311	FREEPORT, TEXAS	103	99	4	1		1										103	99	3
5310	GALVESTON, TEXAS	98	11	87	0	0					87		87				11	11	
0132	BELFAST, ME.	94	0	94	0	0					69		69				25		25
4121	LORAIN OHIO	94		94	4		4										90		90
3844	FERRSBURG MICH.	81		81													81		81
0410	BRIDGEPORT	77	0	77	2	0	1				75		75						
5203	PORT EVERGLADES FL.	72	0	72	41	0	41				30		30						
3820	MACKINAC ISLAND MICH.	66		66							66		66						
4117	HURON OHIO	63		63										63		63			
5201	MIAMI FL.	58	0	58	30	0	30										28		28
0906	SYRACUSE N.Y.	55		55							45		45				10		10
2010	GRAMERCY LA.	54	24	31	31	0	31										24	24	
1903	PASCAGOULA MISS.	42	42								42	42							
2013	ST. ROSE LA.	40	35	5							40	35	5						
1511	BEAUFORT-MOREHEAD CIT	39	14	25													39	14	25
3904	E. CHICAGO IND.	34		34													34		34
1105	PAULSBORO N.J.	33	33								33	33							
3819	DE TOUR VILLAGE MICH.	33	33														33	33	
2301	BROWNSVILLE TEX.	32	32								32	32							
2104	BEAUMONT TEX.	30	0	29	0	0					29		29						
0405	NEW BEDFORD MA	27		27													27		27
0407	FALL RIVER MA.	26		26							26		26						
0408	SALEM MA.	23	0	23	0	0					23		23						
0501	NEWPORT R.I.	22	0	22	0	0	0				22		22						
0714	CLAYTON N.Y.	21	21														21	21	
3702	MARINETTE WIS.	18		18	18		18												
0413	NEW LONDON	16		16	16		16												
1902	GULFPORT MISS.	8		8	5		5										3		3
1118	MARCUS HOOK PA	7		7													7		7
3808	ESCANABA MICH.	5		5													5		5
4109	CONNEAUT OHIO	4	4		4	4													
0708	ALEXANDRIA BAY N.Y.	3	3	0	0	0	0	0	0								3	3	
1113	GLOUCESTER CITY N.J.	2	2		2	2													
0103	EASTPORT ME	2	1	0	2	1	0	0	0										
1404	RICHMOND-PETERSBURG V	1		1	1		1												
0121	ROCKLAND ME.	1	0	0	1	0	0												
	TOTAL 1000 tons/yr	46,876	18,009	28,867	3,891	900	2,991	252	5	247	8,236	1,273	6,962	1,934	1,544	389	32,563	14,266	18,276

Table 3.5 Gulf, Atlantic, and Great Lakes Regional Trade Summary

Total foreign trade for U.S. Ports	1991 Trade 1000ton/yr			General Cargo			Non-petroleum liquids			Petroleum oil & products			Bulk Grain			Dry Bulk		
trading with Canada & Mexico	Total	Exports	Imports	Total	Exports	Imports	Total	Exports	Imports	Total	Exports	Imports	Total	Exports	Imports	Total	Exports	Imports
Great Lakes : Total Foreign Trade	28,040	16,699	11,340	3,615	497	3,118	24	0	24	531	142	389	3,269	3,048	220	20,601	13,012	7,589
Canadian Trade	23,503	14,334	9,169	1,555	33	1,522	23	0	23	533	148	385	1,804	1,520	284	19,587	12,633	6,954
Atlantic Coast: Total Foreign Trade	247,850	102,629	145,221	50,540	22,698	27,841	1,501	199	1,302	94,106	1,751	92,354	4,057	3,750	307	97,647	74,231	23,416
Canadian Trade	17,885	1,982	15,902	1,271	121	1,150	118	0	118	6,250	699	5,551	130	24	106	10,115	1,137	8,978
Mexican Trade	6,148	283	5,865	168	15	153	28	2	26	4,886	45	4,842	21	21		1,044	200	844
Gulf of Mexico: Total Foreign Trade	394,666	177,810	216,856	48,777	34,690	14,087	3,731	2,103	1,628	186,962	16,655	170,307	70,883	70,148	735	84,312	54,213	30,099
Canadian Trade	5,487	1,691	3,796	1,065	745	319	110	4	106	1,452	426	1,027				2,860	516	2,344
Mexican Trade	40,979	6,264	34,715	1,928	830	1,098	312	92	220	30,818	1,209	29,609	3,362	3,362		4,559	771	3,788
Total (in 1000 tons)	670,556	297,138	373,417	102,932	57,886	45,046	5,255	2,302	2,954	281,599	18,549	263,050	78,209	76,946	1,263	202,560	141,456	61,104

Terminal Capacity Evaluation:

The literature review of port capacity evaluation revealed that few research attempts were made to quantify the practical throughput of a maritime terminal in functional relationship to the terminal parameters. One approach (MARAD: "*Port Handbook for Estimating Marine Terminal Cargo Handling Capability*") evaluates the capacity of maritime terminals by applying a hierarchical procedure using the terminal modular approach: Every single-berth terminal is first classified based on the class of commodity handled (general cargo, containers, dry bulk, coal/coke, grain, and liquid bulk). The terminal is then subclassified based on type or size of storage facilities serving the terminal. A conservative estimate and an upper maximum throughput are given for every subclassification based on port surveys conducted in the late-1970's. These estimates reflect typical terminal throughput at the time under the most conservative operational limitations. Also these estimates reflect deficiencies existed for typical terminals, particularly with respect to handling equipment and storage. Such factors had been addressed during the 1980's and substantial capital investments were made for both equipment and storage.

The initial estimates based on that methodology are very conservative and the authors recommended multiplying such values by 2 or 3 if high terminal utilization can be expected, that is a 200 to 300% multiplier, or by going through a set of nomographs to evaluate the throughput of each berth given the actual terminal parameters. A major drawback to this approach is that the estimated terminal throughput is strongly related to the annual ship arrivals and that some of the impeded assumptions are quite low (utilization for some terminal modules are as low as 14%).

A second approach was introduced in the study entitled "*The 2020 San Pedro Bay Ports of Los Angeles and Long Beach*". The study uses the term "*Maximum Practical Capacity*" to refer to estimated cargo throughput volumes which are at the high end of a realistic operating scenario. This scenario assumes that all cargo handling elements at the terminal are working at full capacity and the study devised "Standard Terminal Modules" where such cargo handling elements are "balanced" (i.e. no single element imposes a substantial bottleneck).

The NPWI methodology follows primarily the MARAD approach, but adopts a more realistic estimate of terminal maximum practical capacity. Eleven standard modules were constructed to represent the different types and size categories of terminals. The major characteristics of these design modules are described in **Table 3.6**.

The NPWI approach starts first by identifying the terminal category, which is dictated by the functional type of commodities served. Then, given the berthage length and depth, a typical berthage capacity is evaluated. Adjustments are then applied to adjust the berthage capacity based on the number of berths in the terminal and the degree of berth utilization. The next step is to evaluate the storage capacity by adjusting the storage capacity of the module proportionally based on the ratio of the actual storage area available at the terminal to the nominal storage area for the module. The terminal maximum practical capacity is the minimum of either the berthage capacity or the storage capacity for the terminal being analyzed. The procedure was implemented in a computerized program, and the final results are provided for the three features of capacity in each port profile (berthage, Storage, and maximum practical capacities).

Table 3.6 Capacity Design Modules Specifications

Terminal module type ->		GC 1	GC 2	GC 3	DB 1	DB 2	DB 3	LQ 1	LQ 2	LQ 3	BG 1	BG 2
DWT.Depth.Length		18.32.600	20.35.650	40.38.800	60.41.840	60.41.840	150.50.950	25.33.700	50.36.800	150.50.950	70.41.840	100.50.840
Average Ship Load -2-way	tons	2,015	3,400	4,500	16,700	22,000	100,000	6,600	26,000	110,000	20,000	30,000
Average transfer rate	ton/hr	90	210	450	620	900	2,000	250	700	2,500	740	1,640
Working hours/day	hr/day	12	12	16	12	14	14	14	20	22	18	18
Average daily transfer rate	tons/day	1,080	2,520	7,200	7,440	12,600	28,000	3,500	14,000	55,000	13,320	29,520
Ship Interarrival/Service time	days	11	5	4	12	8	8	12	6	7	7	4
Berthage Capacity	**tons/yr**	**137,970**	**321,930**	**919,800**	**950,460**	**1,609,650**	**3,577,000**	**447,125**	**1,788,500**	**7,026,250**	**1,701,630**	**3,771,180**
Gross Storage Area **	acres	5	10	15	8	7	15	450	900	2,500	3,000	5,000
Outside Storage	acres	2	5	9	3	3	8	3	5	9		
Inside Storage	1000 ft2	50	100	150							80	150
Outside Density	tons/acre	1,500	1,500	1,500	10,000	20,000	20,000	5,000	10,000	10,000		
Inside Desity	tons/unit	3,000	3,000	3,000							44,000	44,000
Outside Storage Capacity	tons	3,000	7,500	13,500	33,000	66,000	160,000	16,500	45,000	90,000	0	0
Inside Storage Capacity	tons	3,444	6,887	10,331	0	0	0	0	0	0	80,808	151,515
Static Storage capacity	tons	6,444	14,387	23,831	33,000	66,000	160,000	16,500	45,000	90,000	80,808	151,515
Cargo Dwell Time in storage	days	13	10	7	9	9	9	10	5	4	9	9
Storge Capacity	**tons/yr**	**144,732**	**420,102**	**994,076**	**892,222**	**1,784,444**	**4,325,926**	**481,800**	**1,877,143**	**7,508,671**	**1,872,695**	**4,096,521**

Remarks:

Module	Description
CG1	Small size gen.cargo terminal, storage < 5 acres
CG2	Med.size gen.cargo,container & neu-bulk terminal on 10 acre area
CG3	Container terminal, equiped with gantry cranes, stacking yard on 15 acre area
DB1	Low density dry bulk terminal with conveyor belt system - fertilizers, non-metalic ores
DB2	High density dry bulk terminal, conveyor belts/clam shell buckets system, metalic ores
DB3	High capacity coal terminal with loading tower/conveyor belts/others
LQ1	Non-petroleum liquid terminal, low turnaround time, <1 mil. bbls storage
LQ2	Petroleum terminal serving <50k DWT ship, barges, oil products, 3 mil. bbls storage
LQ3	High capacity petroleum terminal for ships > 50k DWT, 6 mil. bbls storage
BG1	Bulk grain terminal with storage cap. 3 mil. bushels or less
BG2	High capacity buk grain terminal, 5 mil. bushels storage

** Field contents:
1000 bbls for liquid bulk terminal,
1000 bushels for bulk grain terminal

4. PORT PROFILES

Port Profile Description:

The port capacity evaluations are performed on the basis of individual terminals and are calculated as the sum of the critical capacities of the port terminals. Each terminal is first categorized based on the general class of cargo handled (i.e. as a general cargo, a dry bulk, a bulk grain, or a liquid bulk terminal). The capacity is then evaluated based on the terminal size by calculating the *Terminal Capacity* (based on the berthage specifications), and the *Storage Capacity* (based on the data for the storage areas for the terminal). The *Critical Capacity* for a terminal is the minimum of either capacity calculations.

A port profile is normally summarized on one sheet (as shown in the following sections). Additional sheets are provided, as needed, whenever the port includes more then ten terminals.

The first section of the profile provides general information about the port, including: port name, code, coordinates, water channel codes, depths, and turning basin radii, region, state, and profile sheet identification.

The second section presents the berthage characteristics for up to ten terminals, including: Corps of Engineers terminal Code and terminal name, type of terminal usage, Maximum Ship Dead Weight (DWT in 1000 tons), data for up to three berth groups (or pier sides), *Terminal Capacity,* and flow. For each berth group, the data includes: land access to berth, berth length, water depth and number of docking ships along the berth group, and berth width. The *Terminal Capacity* is evaluated for all berths for each terminal in 1000 tons/year. Given the available data (MARAD), annual flows could not be identified for each individual terminal. The total flow for each terminal category (e.g. General cargo, Dry Bulk, etc.) was evaluated based on the port data for individual commodities (provided in 4-digit harmonized commodity codes).

The third section presents the storage area characteristics, including: number of available TEU slots, number of reefer spaces, total static storage in acres and in tons, data for up to 3 storage area groups, and the calculated *Storage Capacity.* For each storage area the information includes type of land access, inside and outside storage area, inside and outside static capacity. The term outside storage refers to uncovered fenced storage area. Inside storage refers to transit sheds, tank farm, or silos in the case of general cargo, liquid, or grain terminals, respectively. The last column provides the calculated *Storage Capacity* in 1000 tons/year.

The fourth section describes the loading/unloading and handling equipment existing for each terminal. The last two columns provide the critical capacity and the 1991 flows in 1000 tons/year. **The fifth section** provides general information about each terminal, including the terminal owner and general remarks.

The last section includes general remarks pertaining to the port, and a summary table for the annual tonnage for the four terminal categories for the following: combined Canadian and Mexican trade, total 1991 foreign trade, and expected throughput (port capacity by category), all in 1000 tons/year.

The inventory of facilities covers both private and public facilities. Following the rules of trade confidentiality, the cargo volumes were analyzed for each combined category of terminals for the four major classes of cargo: general cargo, dry bulk, bulk grain, and liquid bulk.

General Observations on Port Profiles:

Port Capacity Observations

The following analysis and observations pertain to the ports analyzed on the Gulf of Mexico, the Great Lakes, and the Atlantic Coast region with significant trade with Mexico and Canada. It should be noted that all percentage comparisons refer to weight of cargo handled by the ports.

As indicated in the following port profiles, the U.S. ports trading with Mexico and Canada in the Eastern part of the U.S. have excess capacities to accommodate the anticipated increase in commerce with the North American trading partners. In general, this excess capacity can absorb an additional increase of foreign trade in the range of 30%. Given the current levels of commerce with Canada and Mexico (94 million tons), which represent about 14% of the total waterborne foreign trade for these regions (671 million tons), such ports can handle a substantial increase in North American commerce. **Table 4.1** provides a summary of the capacity analysis for representative ports in the three regions.

Some of the ports presented difficulty in the analysis due to the incompleteness and incompatibility of reported data. In addition, assessing private terminals capabilities without disclosing proprietary trade information was also difficult. An important observation about private facilities, is that they possess a higher degree of responsiveness to demand, more flexibility for work hours, and more responsiveness to switching from one type of commodity handling to another, as needed.

The analysis was confined to facilities active in foreign trade. Facilities excluded were either dedicated for domestic trade and barge operations, or ship maintenance and mooring. It should be noted, however, some of the terminals analyzed are active in both foreign and domestic commerce. Although the general conclusions about available excess capacity still holds for such terminals, the estimate of such excess capacity may be somewhat lower. The impact of domestic cargo, however, should not be significant as most of barge handling takes place at separate terminals or in midstream.

Most of the ports surveyed indicated continuous expansion of facilities and access improvements in response to commodity volume increases, and changes in cargo type and handling requirements.

Terminal Facility Capital Improvements

Most of the port capital improvements (current and planned) are: privately financed for private facilities (mainly for additional storage, automation and equipment), or publicly financed for public facilities (mainly moderate expansions in transit sheds and cranes). The major improvement categories are:

1- Modernization of facilities to provide multi-use for different types of cargo (neo-bulk, containerized and refrigerated units).

2- Rehabilitation and additions to transit sheds.

3- Additions of new transfer equipment and handling equipment.

4- Deepening of depth at berth and extension of berth lengths.

5- Investments in automation, gate processing, information systems, etc.

Table 4.1 Summary of Capacity Evaluation for U.S. Ports Trading with Canada & Mexico

	General Cargo				Dry Bulk				Bulk Grain				Liquid Bulk			
	%Canada & Mexico	91 Tons 1000 tons/yr	Capacity 1000 tons/yr	Capacity Reserves	%Canada & Mexico	91 Tons 1000 tons/yr	Capacity 1000 tons/yr	Capacity Reserves	%Canada & Mexico	91 Tons 1000 tons/yr	Capacity 1000 tons/yr	Capacity Reserves	%Canada & Mexico	91 Tons 1000 tons/yr	Capacity 1000 tons/yr	Capacity Reserves
Houston		14,097	23,461	40%	32%	3,002	8,900	66%	13%	7,313	13,240	45%	13%	36,562	52,071	30%
NewOrleans	9%	6,263	11,579	46%	5%	13,117	22,112	41%	4%	11,709	12,618	7%	27%	11,481	18,321	37%
Baton Rouge	1%	5,526	6,185	11%	5%	13,557	18,776	28%	3%	2,338	6,378	63%	11%	12,790	24,340	47%
Pascagola	6%	523	992	47%		1,362	3,121	56%	2%	159	1,700	91%	38%	15,291	16,030	5%
Tampa	5%	1,753	3,924	55%	14%	17,008	21,863	22%		33	1,700	98%		247	6,810	96%
Mobile	12%	3,008	6,348	53%	9%	13,242	16,678	21%	5%	257	3,362	92%	16%	1,911	5,098	63%
Port Arthur	1%	642	731	12%	16%	1,454	6,080	76%	4%	569	3,400	83%	9%	15,650	16,068	3%
Gulf of Mexico	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Baltimore		4,371	7,352	41%	20%	12,027	21,418	44%	1%	1,990	3,740	47%	4%	2,927	11,160	74%
Jacksonville	1%	1,829	1,900	4%	22%	1,955	2,670	27%					28%	3,448	4,500	23%
Newport News	2%	628	1,151	45%		22,018	23,481	6%					22%	2,677	3,760	29%
Atlantic Ports	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Duluth		40	980	96%	99%	1,956	18,839	90%	60%	573	14,449	96%	100%	7	2,133	100%
Superior		281	320	12%	98%	1,108	8,730	87%	100%	29	10,200	100%	61%	1,542	1,790	14%
Cleveland	72%	399	932	57%	46%	4,380	14,810	70%			312	100%	100%	58	900	94%
Ashtabula					96%	3,989	9,799	59%								
Toledo		142	554	74%	41%	10,516	16,985	38%	22%	913	2,203	59%	34%	266	4,270	94%
Great Lakes	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
All Region	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

Note: The regional estimates for Capacity and capacity Reserves were adjusted (reduced) in proportion to the domestic share of cargo served by each group of facilities

A- The Gulf of Mexico Region

The gulf of Mexico region is the most active region in the combined trade with Mexico and Canada. Most of the Gulf port districts have significant proportion of their facilities as private terminals handling petroleum products, ores, and bulk grain. Domestic commerce averages about 50% of the Gulf waterborne commerce. Canadian and Mexican trade represent about 12% of the foreign commerce for these ports,. The 1991 commerce of both countries with the Gulf region was 46.5 million tons, of which 3 million tons are general cargo and break bulk, and 32.3 million tons are crude oil and petroleum products.

Port of Houston, Texas:

The port of Houston is a 25-mile-long complex of private and public facilities connected by four major railroads and more than 120 truck lines to the continental United States, Canada, and Mexico. The Southern Pacific, Union Pacific, Burlington Northern, and Sante Fe railroads serve the port tenants. Private companies have invested more than $17 billion in manufacturing and processing facilities along the Houston Ship Channel.

Nationwide, the port is ranked third in total tonnage and second in foreign waterborne commerce. The port reported a total foreign trade of 72 million tons in FY92 which represented a 6.5% increase (mostly in exports) compared to FY91. Domestic trade averages about 40% annually.

The port area includes: (1) the Houston Ship Channel and its tributary channels and basins extending from Morgan's Point, at the head of Galveston Bay, to and including a turning basin within the city limits of Houston; (2) the Buffalo Bayou extending from the turning basin to the Main Street Bridge, and (3) the port facilities at Bayport near Red Bluff on the west side of upper Galveston Bay. About 61 million tons of foreign trade passed through the port in 1991, of which 36 million tons are in petroleum crude and petroleum products.

The major terminals in the port include: the Turning Basin Terminal for handling general cargo and neo-bulk by its 37 public wharves, Wharf 32 for heavy lift long term cargo, five grain elevator terminals, and the Fentress Bracewell Barbours Cut terminal (five berths over 203 acres) serving containerized and refrigerated cargo. Bulk cargo is handled by one public terminal and 9 private terminals. Three major terminals serve liquid bulk cargo and petro-chemicals in the Bayport turning basin. An additional 21 private liquid bulk terminals are located along the Houston channel.

New facilities include: the Jacintoport Terminal, a three berth general cargo facility extending over 125 acres, with 7.5 acres of paved cargo marshalling area, and an 83,000 square feet transit shed. Also a sixth berth is scheduled for completion in 1995 in the Barbours Cut Container facility. Other improvements planned include widening of the Houston Ship Channel to 530 feet and increasing its depth to 45 feet.

Canadian and Mexican Trade totals are about 13% of total foreign trade, including 1.1 million tons of break bulk and general cargo. Other bulk commodities include: petroleum products and natural gas, crude oil, grain, chemicals and fertilizers. Major commodities handled by Houston include: crude oil, petroleum products, chemical and polymers, iron/steel products, machinery and tools, grain and farm products, forest and paper products, electric equipment and electronics.

Port of New Orleans, Louisiana:

The port of New Orleans extends along both banks of the Mississippi River over a 34-mile stretch, 20 miles via Southwest Pass and 12 miles via South Pass and covers 334 wharves, piers and docks. Twenty six companies operate 37 terminals for dry bulk handling (sand, gravel, scrap metal, fertilizers, gypsum, rock, coke, salt, sugar, cement and barite). Ten companies operates liquid bulk facilities (petroleum, petrochemicals, chemicals, molasses, tung and edible oils). Eleven companies and the Port Authority operate warehouses having a total of 2.2 million square-foot of dry storage and 5 million cubic feet of refrigerated storage with access to railroad and major highways. The port has 32 locations which provide open storage for containerized/general cargo. Open bulk storage is operated by private terminal operators. More than 40 terminals serve general cargo and neo-bulk (mostly operated by the port authority).

Six major railroads connect the port to the continental United States: CSX, Kansas City Southern, Illinois Central, Southern Pacific, Norfolk Southern, and Union Pacific. New Orleans Public Belt is a terminal switching railroad and provides rail services for the East Bank terminals. Highway access and overpasses were recently improved to provide easy access to I-10, I-55 and I-59.

Recent capital improvements include major rehabilitation projects for storage facilities and local highway access for the public terminals (shaded areas in the New Orleans Port Layout), new terminal facility (Nashville Avenue Wharf), and new transit sheds at Louisiana Avenue Wharf. The New Orleans Public Belt Railroad had extended recently its tracks for most of the Eastern Bank terminals and extended 24 hour operation. Planned improvements include additional storage area rehabilitation, completion of Nashville Avenue and Louisiana Avenue Wharves.

Annual volume is around 43 million tons of foreign trade and 31 million tons of domestic cargo. Canadian and Mexican trade is about 10% of the total foreign trade, including the following major commodities: crude oil, grain, gravel and gypsum. The port's major commodities are: crude oil and petroleum products, coal/coke, grain and farm products, gravel and sulfates, chemicals and rubber, forest and paper products, iron and steel products, machinery, and textiles.

Port of Tampa, Florida:

The port of Tampa is a landlocked harbor with an entrance at Egmont Key and located at Tampa Bay on the Gulf of Mexico at about 35 miles from the open sea. Port District boundaries extends over parts of the Tampa Bay, Hillsborough Bay, McKay Bay, Hillsborough River and Old Tampa Bay for a total water front of about 33 miles. Principal channels have project depths of 43 feet; all others have 34 feet with 34 to 39 feet at quays. The port includes seven large elevators for phosphate loading, eleven general cargo terminals with adequate storage facilities, and elevators for loading grain and unloading bulk cement.

The port is served by CSX railroads. Oil facilities have bunkers with delivery by pipelines, barges and trucks. Annual marine traffic averages 1500 vessels, 1250 barges and 1200 tugs. The Sunshine Skyway Bridge spans lower Tampa Bay with clearances of 175' high, 875' wide.

The Port of Tampa is also completing the general complex at Berths 201 and 202, and a new 86,000 square foot warehouse to provide covered storage for all types of cargos. A new mobile crane will also be used in this area and, refrigerated plugs for reefer containers are available.

The complex will cost $10 million to complete. Also just completed is Berth 219, a $4.7 million heavy-lift cargo berth. Future plans for the port include at least two new berths and another storage warehouse, all to be built over the next three years.

About 95-98% of the total annual commerce of the port is bulk cargo; the total annual commerce is about 50 million tons, of which over 18 million tons is in foreign trade. Foreign trade has a ratio of 3:1 of exports to imports by weight, and the major commodities are: fertilizers, calcium and phosphates, fruits and vegetable products, grain, iron and steel products, ammonia, cement and sulfur. The average Annual Canadian trade is about 600,000 tons for imports and 250,000 for exports. Mexican trade is 1,750,000 tons for imports and 400,000 for exports. Major Canadian imports are gypsum and granite rock, lumber and forest products, sulfuric acid and potash, while Mexican imports are liquid sulphur and sulfuric acid, ammonia, and limestone. Major exports to both countries are phosphate rock and chemicals, and scrap metal, in addition to growing containerized cargo to Mexico (1000 tons in 1992).

Port of Baton Rouge, Louisiana:

The port of Baton Rouge is both a deepwater (40') and a shallow draft-port extending on both banks of the Mississippi River for over 87 miles. The port is served by the Southwest and South Passes in addition to a direct connection to the Gulf Intercoastal Waterway through the Port Allen Lock.

The Union Pacific, Illinois Central, and KCS railroads serve the port. Major Interstate Highways serving the port are : Interstate 10, 12, 49, 55, 59, Highway 61, 65 and 190. Within the port complex there are about 17 miles of rails with spurs serving the port tenants.

Recent facility improvements were concentrated mainly in adding newer transit sheds, acquisition of handling equipment, and water draft deepening at berths. Planned improvements include: additional barge terminals and major improvements to the Burnside Bulk terminal, in addition to a range of water rehabilitation projects.

The Mexican and Canadian trade is about 7% of the total foreign trade, including the following major commodities: crude oil and petroleum products, coke and coal, grain, molasses and salt. Major foreign trade commodities include: crude oil and petroleum products, coal and coke, grain and farm products, iron and aluminum ores, fertilizers, calcium and phosphates, ammonia and potash, and forest products.

Port of Mobile, Alabama:

The port of Mobile State Dock's facilities include 26 general cargo piers, a container terminal, a RO/RO berth, a Bulk Materials Handling Plant, and a Grain Elevator.

In the past six years, public ports improvements, renovations and new construction cost about $80 million, including covered warehouses completed in 1992. Additional warehouses are planned for completion by 1995 for a total area of 250,000 square feet at a cost of $21.5 million. These added or approved facilities are being built to handle the increased cargos in forest products and heavy metals. Railroad tracks and facilities have been upgraded and environmental projects have

been completed. System automation is underway, including the installation of fiber optic computer networks. Major improvements are underway for the McDuffie Coal terminal including channel deepening, system automation and berthage expansion. Additional sites are acquired for future expansion.

Major railroads serving the port include CSX, Burlington Northern, Illinois Central, Gulf and Mississippi Railroad and Norfolk Southern through a joint interchange yard adjacent to the State Docks with accommodation for 1,200 rail cars. The State Docks Authority operates a fleet of 900 50-foot Hydro-Cushion box cars. Uncongested access to the I-10 (east-west) and the I-65 (north-south) is used by 65 truck lines serving the port. About 1,500 miles of navigable inland barge routes are connected to the port.

The port 1992 statistics show the continuing increase of handled cargo (19.8 million tons) which reflects the nationwide 2.5% annual increase. The major commodities handled include coal and coke, forest/paper products, grain, iron ores, steel and heavy metal products, crude oil, chemicals and rubber, and containerized general cargo. Canadian trade was 1.65 million tons and the total Mexican trade was 410,000 tons; both were mostly imported cargos including: iron ores, manganese ores, and crude oil. Domestic commerce is about 50% of the total trade.

Port Arthur, Texas:

The port is served by two major railroads: KCS and Southern Pacific, and more than 20 truck lines with good access to the I-10 and other major state highways (highway 73, 68 and 87). The only public facility, a 2-berth general cargo terminal, is currently being expanded to a 5-berth facility. Additional transit shed and open storage is under construction.

The Channel is about 19 miles from deep waters and the average draft for most of the terminals is about 40 feet. The public terminal has on-dock 3 rail tracks facilitating direct ship-to-rail loading and unloading.

Within the port district major private bulk cargo facilities handle crude oil and petroleum products, grain, soda ash, forest products, chemicals, coke and bitumen. The public facility handles iron and steel products, forest products, chemicals and containers. Major commodities traded with Mexico and Canada are about 10% of all foreign cargo and includes: crude oil and petroleum products (1.3 million tons), gravel and forest/paper products (158,000 tons), machinery and steel products (54,000 tons). Domestic cargo is about 42% of the total annual tonnage handled by the port.

Port of Pascagola, Mississippi:

The port is located in the southeastern part of Mississippi, about 12 miles from the Gulf of Mexico's deep waters, and about 4 miles from the Gulf Intercoastal Waterway, with a channel depth of 38 feet and width of 350 feet. The port has two harbors, the Pascagola River Harbor (west) and the Bayou Casotte Harbor (east), with facilities for handling general cargo, break-bulk cargo, refrigerated cargo, oil products and bulk and bagged grains.

Pascagola has connections to major railroads including: Gulf and Mississippi Railroad, KCS, and Norfolk Southern, and more than 20 truck lines with good access to the I-90 (east-west) and other major state highways (highway 10, 63 and 613). Pascagola is also designated as a Naval Homeport with a Naval Base on Singing River Island.

The west harbor includes: four general cargo wharves handling break-bulk, RO/RO, and heavy lift cargo, a 3.1 million bushel capacity grain elevator, a cold storage facility. The east harbor includes: 2 general cargo wharves, 2 deep draft public liquid bulk wharves, 3 Chevron petroleum and coke terminals, phosphate plant and terminal, and a liquid chemical terminal.

Most of the facilities were expanded and upgraded in the past five years. Additional improvements are planned to add warehousing and transit sheds on the Pascagola River Harbor, and repairs for Bayou Casotte Harbor facilities.

The port handles about 30 million tons of cargo annually, and domestic cargo is about 40% of the total annual tonnage. Major exports include: petroleum products, petroleum coke, bitumen and petro-chemicals, fertilizers, bulk and bagged grains, machinery and vehicles, forest/paper products, and general cargo. Major imports include: crude oil, chemicals and rubber, forest products and general cargo. Mexican trade is mostly crude oil imports and totals about 34% of the port's foreign commerce.

Port of Houston, Texas	Code	60370				Reg'n	Gulf of Mexico	List of Sheets 1-4 General Cargo	Sheet: 1 of 8
Code 5301	COE	Depth	40			State	Texas	5 Dry Bulk	
Coord 29 44 N 95 05 W	Channels	T.basin				owner	Public & Private	6 Bulk Grain, Liquid Bulk	6-8 Liquid Bulk

Berthage Characteristics		Types of Terminal Use			Max.	Pier Face / Berth Group # 1					Pier Side 1/ Berth Group # 2					Pier Side 2/ Berth Group # 3					Term.cap	1991 flow
Code	Name	type 1	type 2	type 3	DWT	Access	length	depth	vsl's	width	Access	length	depth	vsl's	width	Access	length	depth	vsl's	width	1000 ton/yr	1000 ton/yr
221C	Care Shipping Terminal	Gen Cargo				rail, truck	500	39	1												140	+
283A	Greens Bayou Terminal Yard D	Gen Cargo	RO/RO	Iron,Steel		truck	730	24	1			104	24								320	+
221B	Inbesia America Dock	Gen Cargo	Iron,Steel			rail, truck	832	42	1	58											320	+
346A	International Terminal - 1	Gen Cargo	RO/RO			rail, truck	595	42	1	70											320	+
346B	International Terminals - 2, 3	Gen. Cargo				rr, truck, pipe	1250	38	2	70											731	+
221A	Jacinport Terminal #1, 2, 3	Gen. Cargo	RO/RO	Liq. bulk		rail, truck	1500	38	3	49											1,234	+
648B	Manchester Terminal Wharf	Gen Cargo				rail, truck	1520	34	2	25											731	+
631A	Manchester Wharf 2	Gen Cargo	Bulk grain	dry bulk		RR,conveyor,tr	500	32	1	20											320	+
601A	New Terminal Warehouse - 1, 2	Gen Cargo	Scrap me			truck	830	27	2	35											731	+
711A	Phillips Petroleum #4, 5, 6, 7	Gen Cargo	Liq bulk			RR,truck,pipe	1780	22	4												1,234	+

Storage Area Characteristics		Container	Reefer	Total Storage		Storage Area number 1					Storage Area number 2					Storage Area number 3					6,061
Code	Name	Hold	storage	Area acres	Capacity tons	Access	storage area inside	storage area outside	Capacity tons IN	Capacity tons OUT	Access	storage area inside	storage area outside	Capacity tons IN	Capacity tons OUT	Access	storage area inside	storage area outside	Capacity tons IN	Capacity tons OUT	Storage cap 1000 ton/yr
221C	Care Shipping Terminal					rail, truck	40	7													140
283A	Greens Bayou Terminal Yard D					truck		25													420
221B	Inbesia America Dock					rail, truck	60														420
346A	International Terminal - 1					rail, truck		19													420
346B	International Terminals - 2, 3					rail, truck	136														420
221A	Jacinport Terminal #1, 2, 3			55		rail, truck	55														2,310
648B	Manchester Terminal Wharf					rail, truck	900	22			rail, truck	2150	BU								420
631A	Manchester Wharf 2					rail, truck	58														420
601A	New Terminal Warehouse - 1, 2			23		rail, truck	45	23													966
711A	Phillips Petroleum #4, 5, 6, 7			25		rail, truck		25													1,050

Load./ Unload.& Handling Equipment		Loading / Unloading Equipment				Handling Equipment # 1					Handling Equipment # 2					Handling Equipment # 3				Rail	6,966	
Code	Name	Type	load rate	unld rate	capacity	Type	Rate	Units	Cap.	shared	Type	Rate	Units	Cap.	shared	Type	Rate	Units	Cap.	Car hold	Capacity 1000 ton/yr	
221C	Care Shipping Terminal					stevedore					crawler crane		1	300							140	+
283A	Greens Bayou Terminal Yard D					stevedore															320	+
221B	Inbesia America Dock					gantry crane		2	100												320	+
346A	International Terminal - 1					mobile crane		3	300		fork lifts		25								320	+
346B	International Terminals - 2, 3																				420	+
221A	Jacinport Terminal #1, 2, 3					stevedore														140	234	+
648B	Manchester Terminal Wharf					mobile crane		2	125		mobile crane		3	75		chute spout	20	5			420	+
631A	Manchester Wharf 2					stevedore														8	320	+
601A	New Terminal Warehouse - 1, 2					stevedore					fork lifts		14							20	731	+
711A	Phillips Petroleum #4, 5, 6, 7					stevedore															1,050	+
																					15,275	14,097

Terminal General Remarks		Owner	
221C	Care Shipping Terminal	Care Shipping Terminal Inc	Handles containers. Depth alongside ranges from 39-42.
283A	Greens Bayou Terminal Yard D	Highland Resources Inc	Crawler, mobile and floating cranes available from other company facilities.
221B	Inbesia America Dock	Inbesia America Inc	
346A	International Terminal - 1	International Terminals Cor	Used transit sheds listed for berths 2, 3. Handles containers. Storage area 1: general cargo, containers
346B	International Terminals - 2, 3	International Terminals Cor	See berth 1 for equipment. Liq. cargo , vegetable oil
221A	Jacinport Terminal #1, 2, 3	Port of Houston Authority	Docks 2 & 3: spiralveyor bag handling facility. Docks 1 & 2 open wharf.
648B	Manchester Terminal Wharf	Manchester Terminal Corp	
631A	Manchester Wharf 2	Port of Houston Authority	Handles bulk & bagged rice. Wharf cranes prohibited.
601A	New Terminal Warehouse - 1, 2	New Terminal Whse Corp	Dock apron limited to 50 ton mobile cranes
711A	Phillips Petroleum #4, 5, 6, 7	Phillips Petroleum Co	Liq Storage for Lpg. Deph Alongside Ranges from 22/35. Berths 4 & 5 handle Lpg.

Flows in 1000 tons/yr for	Canada & Mexico		1991 Flow Total	Port Capacity
Gen.cargo	1209	9%	14,097	23,461
Dry bulk	974	32%	3,002	8,900
Bulk grain	927	13%	7,313	13,240
Liquid bulk	4831	13%	36,562	52,071
All Cargo	7941	13%	60,974	97,672

Port Remarks: Excluded terminals(not listed) are either: exclusively receiving domestic cargo or barges, inactive, or mooring terminals. Approximate flows for each cargo group are derived from MARAD 1991 4-digit Harmonized commodity census for the port, and may/may not represent corresponding terminal group. Total flow is for foreign commerce, domestic cargo is about 40% of the total commerce. Some of the listed terminals are active in both foreign and domestic commerce. Some of the listed terminals are active in both foreign and domestic trade.

+ all dimensions are in feet. Storage area: Inside in 1000 ft2, Outside in acres. Storage for Liquids is in 1000 bbls, and for bulk grain is in 1000 bushels

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Port of Houston, Texas

Port of Houston, Texas	Code	60370	Reg'n	Gulf of Mexico	List of Sheets 1-4 General Cargo	Sheet: 2 of 8
Code 5301	COE Depth	40	State	Texas	5 Dry Bulk	
Coord 29 44 N 95 05 W	Channels T.basin		owner	Public & Private	6 Bulk Grain, Liquid Bulk . 6-8 Liquid Bulk	

Code	Name	Types of Terminal Use type 1	type 2	type 3	Max. DWT	Pier Face / Berth Group # 1 Access	length	depth	vsl's	width	Pier Side 1/ Berth Group # 2 Access	length	depth	vsl's	width	Pier Side 2/ Berth Group # 3 Access	length	depth	vsl's	width	Term.cap 1000 ton/yr	1991 flow 1000 ton/yr
710A	Phillips Petroleum #8, 9	Gen Cargo	Iron,steel			truck	960	22	2												731	+
920A	Port of Houston - Barbous Cut	Gen Cargo	Ro/Ro			truck	4000	42	4		truck	282	42	1		truck	425	24	1	50	5,322	+
397A	Public Wharf - 15	Gen Cargo	Bulk grain			conveyor,rr,tr	526	34	1	30											320	+
395A	Public Wharf - 17	Gen Cargo	Iron,stl,mi			rail,truck	600	38	1												320	+
394A	Public Wharf - 18	Gen Cargo				rail,truck	600	38	1	52											320	+
393A	Public Wharf - 19	Gen. Cargo				rail,truck	577	38	1	52											320	+
391A	Public Wharf - 20	Gen Cargo	Iron,steel			rail,truck	593	38	1												320	+
390A	Public Wharf - 21	Gen Cargo				rail,truck	600	38	1	56											320	+
389A	Public Wharf - 22	Gen Cargo				rail,truck	600	38	1	56											320	+
387A	Public Wharf - 23	Gen. Cargo	Iron,steel	automobil		rail,truck	600	38	1												320	+
																					8,613	14,097

Code	Name	Container Hold	Reefer storage	Total Storage Area acres	Capacity tons	Storage Area number 1 Access	storage area inside	outside	Capacity tons IN	OUT	Storage Area number 2 Access	storage area inside	outside	Capacity tons IN	OUT	Storage Area number 3 Access	storage area inside	outside	Capacity tons IN	OUT	Storage cap 1000 ton/yr
710A	Phillips Petroleum #8, 9			15		truck															630
920A	Port of Houston - Barbous Cut			88		rail, truck	100	36			rail, truck	100	32			truck		40			6,808
397A	Public Wharf - 15					rail, truck	114														420
395A	Public Wharf - 17					rail, truck		3													420
394A	Public Wharf - 18					rail, truck	66														420
393A	Public Wharf - 19					rail, truck	67	1													420
391A	Public Wharf - 20					rail, truck		4													420
390A	Public Wharf - 21					rail, truck	72	1													420
389A	Public Wharf - 22					rail, truck	72	1													420
387A	Public Wharf - 23					rail, truck		4													420
																					9,798

Code	Name	Loading / Unloading Equipment Type	load rate	unld rate	capacity	Handling Equipment # 1 Type	Rate	Units	Cap	shared	Handling Equipment # 2 Type	Rate	Units	Cap	shared	Handling Equipment # 3 Type	Rate	Units	Cap	Rail Car hold	Capacity 1000 ton/yr	
710A	Phillips Petroleum #8, 9					stevedore															630	+
920A	Port of Houston - Barbous Cut					container crane	29	6	40		container crane	29	2	30		transtainer		11	30	37	5,322	+
397A	Public Wharf - 15					stevedore					chute spout		8							16	320	+
395A	Public Wharf - 17					stevedore														16	320	+
394A	Public Wharf - 18					stevedore														16	320	+
393A	Public Wharf - 19					stevedore														16	320	+
391A	Public Wharf - 20					stevedore														8	320	+
390A	Public Wharf - 21					stevedore														16	320	+
389A	Public Wharf - 22					stevedore														16	320	+
387A	Public Wharf - 23					stevedore														8	320	+
																					8,512	14,097

Terminal General Remarks		Owner	
710A	Phillips Petroleum #8, 9	Phillips Petroleum,Co.	
920A	Port of Houston - Barbous Cut	Port of Houston Authority	Ro/Ro ramp located at lower end berth 1. Stern ramp vessels. Adjacent to terminal # 55,000 sq. ft. cfs & intermodal rail facility.
397A	Public Wharf - 15	Port of Houston Authority	14 & 15 are contiguous. Gallery covers wharves 14 & 15. Mobile cranes available, 150 tons max. allowed. Only one spout in use.
395A	Public Wharf - 17	Port of Houston Authority	Cargo moved directly by truck to off terminal storage.
394A	Public Wharf - 18	Port of Houston Authority	
393A	Public Wharf - 19	Port of Houston Authority	
391A	Public Wharf - 20	Port of Houston Authority	Cargo moved directly by truck to off terminal storage.
390A	Public Wharf - 21	Port of Houston Authority	Mobile cranes available. 150 tons max. allowed.
389A	Public Wharf - 22	Port of Houston Authority	Mobile cranes available. 150 tons max. allowed.
387A	Public Wharf - 23	Port of Houston Authority	

Port Remarks: Excluded terminals(not listed) are either: exclusively receiving domestic cargo or barges, inactive, or mooring terminals. Approximate flows for each cargo group are derived from MARAD 1991 4-digit Harmonized commodity census for the port, and may/may not represent corresponding terminal group. Total flow is for foreign commerce, domestic cargo is about 40% of the total commerce. Some of the listed terminals are active in both foreign and domestic commerce. Some of the listed terminals are active in both foreign and domestic trade.

Flows in 1000 tons/yr for	Canada & Mexico		1991 Flow Total	Port Capacity
Gen.cargo	1209	9%	14,097	23,461
Dry bulk	974	32%	3,002	8,900
Bulk grain	927	13%	7,313	13,240
Liquid bulk	4831	13%	36,562	52,071
All Cargo	7941	13%	60,974	97,672

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Port of Houston, Texas	Code	60370				Reg'n	Gulf of Mexico	List of Sheets 1-4 General Cargo	Sheet: 3 of 8
Code 5301	COE	Depth	40			State	Texas	5 Dry Bulk	
Coord 29 44 N 95 05 W	Channels	T.basin				owner	Public & Private	6 Bulk Grain, Liquid Bulk	6-8 Liquid Bulk

Berthage Characteristics		Types of Terminal Use			Max.	Pier Face / Berth Group # 1					Pier Side 1/ Berth Group # 2					Pier Side 2/ Berth Group # 3					Term.cap	1991 flow
Code	Name	type 1	type 2	type 3	DWT	Access	length	depth	vsl's	width	Access	length	depth	vsl's	width	Access	length	depth	vsl's	width	1000 ton/yr	1000 ton/yr
386A	Public Wharf - 24	Gen. Cargo				rail,truck	600	38	1	56											320	+
385A	Public Wharf - 25	Gen. Cargo				rail,truck	600	38	1	56											320	+
383A	Public Wharf - 26	Gen. Cargo	automobil			rail,truck	600	38	1												320	+
382A	Public Wharf - 27	Gen. Cargo				rail,truck	600	38	1	60											320	+
380A	Public Wharf - 28	Gen. Cargo				rail,truck	600	38	1	60											320	+
379A	Public Wharf - 29	Gen. Cargo	automobil			rail,truck	600	38	1												320	+
377ba	Public Wharf - 30,31,32	Gen. Cargo	RO/RO	automobil		rail,truck	1976	38	3	60											3,548	+
403A	Public Wharf - 10	Gen. Cargo				rail,truck	600	33	1	46											320	+
402A	Public Wharf - 11	Gen. Cargo				rail,truck	530	33	1	30											320	+
401A	Public Wharf - 12	Gen. Cargo	wood pro			rail,truck	530	33	1												320	+

Storage Area Characteristics				Total Storage		Storage Area number 1					Storage Area number 2					Storage Area number 3					6,428	14,097
Code	Name	Container Hold	Reefer storage	Area acres	Capacity tons	Access	storage area inside	storage area outside	Capacity tons IN	Capacity tons OUT	Access	storage area inside	storage area outside	Capacity tons IN	Capacity tons OUT	Access	storage area inside	storage area outside	Capacity tons IN	Capacity tons OUT	Storage cap 1000 ton/yr	
386A	Public Wharf - 24					rail, truck	72	1													420	
385A	Public Wharf - 25					rail, truck	72	1													420	
383A	Public Wharf - 26					rail, truck		4													420	
382A	Public Wharf - 27					rail, truck	72	1													420	
380A	Public Wharf - 28					rail, truck	72	1													420	
379A	Public Wharf - 29					rail, truck		4													420	
377ba	Public Wharf - 30,31,32			35		rail, truck	141	25													2,310	
403A	Public Wharf - 10					rail, truck	48	2													420	
402A	Public Wharf - 11					rail, truck	41	1													420	
401A	Public Wharf - 12					rail,truck		1													420	

Load./ Unload.& Handling Equipment		Loading / Unloading Equipment				Handling Equipment # 1					Handling Equipment # 2					Handling Equipment # 3				Rail Car	6,090 Capacity	
Code	Name	Type	load rate	unld rate	capacity	Type	Rate	Units	Cap	shared	Type	Rate	Units	Cap.	shared	Type	Rate	Units	Cap.	hold	1000 ton/yr	
386A	Public Wharf - 24					stevedore														16	320	+
385A	Public Wharf - 25					stevedore														16	320	+
383A	Public Wharf - 26					stevedore														8	320	+
382A	Public Wharf - 27					stevedore														16	320	+
380A	Public Wharf - 28					stevedore														16	320	+
379A	Public Wharf - 29					stevedore														8	320	+
377ba	Public Wharf - 30,31,32					container crane	21	1	40		gantry crane		1	30		mobile crane		6	80	40	2,310	+
403A	Public Wharf - 10					stevedore														16	320	+
402A	Public Wharf - 11					stevedore														16	320	+
401A	Public Wharf - 12					stevedore														12	320	+
																					6,190	14,097

Terminal General Remarks		Owner	
386A	Public Wharf - 24	Port of Houston Authority	
385A	Public Wharf - 25	Port of Houston Authority	
383A	Public Wharf - 26	Port of Houston Authority	
382A	Public Wharf - 27	Port of Houston Authority	
380A	Public Wharf - 28	Port of Houston Authority	
379A	Public Wharf - 29	Port of Houston Authority	
377ba	Public Wharf - 30,31,32	Port of Houston Authority	Equipment shared among berths 23-32
403A	Public Wharf - 10	Port of Houston Authority	Mobile cranes available. 140 tons max allowed
402A	Public Wharf - 11	Port of Houston Authority	Mobile cranes available. 140 tons max allowed.
401A	Public Wharf - 12	Port of Houston Authority	Mobile cranes available. 150 tons max. allowed. Contiguous to wharf 13.

Port Remarks: Excluded terminals(not listed) are either: exclusively receiving domestic cargo or barges, inactive, or mooring terminals. Approximate flows for each cargo group are derived from MARAD 1991 4-digit Harmonized commodity census for the port, and may/may not represent corresponding terminal group. Total flow is for foreign commerce, domestic cargo is about 40% of the total commerce. Some of the listed terminals are active in both foreign and domestic commerce. Some of the listed terminals are active in both foreign and domestic trade.

Flows in 1000 tons/yr for	Canada & Mexico		1991 Flow Total	Port Capacity
Gen.cargo	1209	9%	14,097	23,461
Dry bulk	974	32%	3,002	8,900
Bulk grain	927	13%	7,313	13,240
Liquid bulk	4831	13%	36,562	52,071
All Cargo	7941	13%	60,974	97,672

* all dimensions are in feet. Storage area: Inside in 1000 ft2. Outside in acres. Storage for Liquids is in 1000 bbls. and for bulk grain is in 1000 bushels

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Port of Houston, Texas

Port of Houston, Texas	Code	60370				Reg'n	Gulf of Mexico	List of Sheets 1-4 General Cargo	Sheet: 4 of 8
Code 5301	COE	Depth	40			State	Texas	5 Dry Bulk	
Coord 29 44 N 95 05 W	Channels	T.basin				owner	Public & Private	6 Bulk Grain, Liquid Bulk	6-8 Liquid Bulk

Berthage Characteristics		Types of Terminal Use			Max.	Pier Face / Berth Group # 1					Pier Side 1/ Berth Group # 2					Pier Side 2/ Berth Group # 3					Term.cap	1991 flow
Code	Name	type 1	type 2	type 3	DWT	Access	length	depth	vsl's	width	Access	length	depth	vsl's	width	Access	length	depth	vsl's	width	1000 ton/yr	1000 ton/yr
399A	Public Wharf - 13	Gen Cargo				rail, truck	603	33	1	30											320	•
396A	Public Wharf - 16	Gen Cargo	iron,steel			rail,truck	554	38	1												320	•
587A	Public Wharf - 2	Gen Cargo	liq bulk			truck,pipeline	521	33	1	30											320	•
585A	Public Wharf - 3	Gen. Cargo	wood pro			truck	800	33	2	30											731	•
583A	Public Wharf - 4	Gen Cargo				truck	779	27	2	20											731	•
406A	Public Wharf - 8, 9	Gen Cargo	iron,steel	wood pro		rail,truck	1179	36	2	50											731	•
595A	Public Wharves - 41 thru 48	Gen Cargo	dru bulk			RR,truck,pipe	3426	33	7	25											1,234	•
300A	TXTX Marine - Lower Wharf	Gen Cargo	dry bulk	iron,steel		conveyor, rail	1080	36	1												920	14,097
																					8,307	14,097

Storage Area Characteristics		Container Hold	Reefer storage	Total Storage Area acres	Total Storage Capacity tons	Storage Area number 1 Access	storage area inside	storage area outside	Capacity IN	Capacity OUT	Storage Area number 2 Access	storage area inside	storage area outside	Capacity IN	Capacity OUT	Storage Area number 3 Access	storage area inside	storage area outside	Capacity IN	Capacity OUT	Storage cap 1000 ton/yr
399A	Public Wharf - 13					rail, truck	86														420
396A	Public Wharf - 16					rail, truck		3													420
587A	Public Wharf - 2					truck	57	1													420
585A	Public Wharf - 3					truck	35	1													420
583A	Public Wharf - 4			12		truck	14	1			truck	25									504
406A	Public Wharf - 8, 9			15		rail, truck	50	5													630
595A	Public Wharves - 41 thru 48			25		rail, truck	731	7													1,050
300A	TXTX Marine - Lower Wharf					rail, truck															990
																					4,654

Load./ Unload.& Handling Equipment		Loading / Unloading Equipment Type	load rate	unld rate	capacity	Handling Equipment # 1 Type	Rate	Units	Cap	shared	Handling Equipment # 2 Type	Rate	Units	Cap	shared	Handling Equipment # 3 Type	Rate	Units	Cap	Rail Car hold	Capacity 1000 ton/yr	
399A	Public Wharf - 13					stevedore															320	•
396A	Public Wharf - 16					stevedore														8	320	•
587A	Public Wharf - 2					stevedore															320	•
585A	Public Wharf - 3					stevedore															420	•
583A	Public Wharf - 4					stevedore															504	•
406A	Public Wharf - 8, 9					stevedore														28	630	•
595A	Public Wharves - 41 thru 48					other		1	75											75	1,050	•
300A	TXTX Marine - Lower Wharf					gantry crane		1	87												920	14,097
																					4,484	14,097

Terminal General Remarks		Owner	
399A	Public Wharf - 13	Port of Houston Authority	Used mainly as a lay berth. Mobile cranes available 150 tons max. allowed. Warehouse in poor condition
396A	Public Wharf - 16	Port of Houston Authority	Cargo moved directly by truck to off terminal storage.
587A	Public Wharf - 2	Port of Houston Authority	Mobile cranes available. 140 tons max allowed.
585A	Public Wharf - 3	Port of Houston Authority	Mobile cranes available. 140 tons max. allowed for East 3 and 90 tons for West 3 Cargo trucked directly to off terminal storage Warehouse in poor condition.
583A	Public Wharf - 4	Port of Houston Authority	Depth alongside ranges 27-32 ft Used mainly as a lay berth Mobile cranes available 90 tons max allowed East whse condemned, west whse leaks.
406A	Public Wharf - 8, 9	Port of Houston Authority	Mobile cranes available. 200 tons max allowed.
595A	Public Wharves - 41 thru 48	Port of Houston Authority	Stiff leg derrick serves #42 only. Mobile cranes up to 140 tons available except for first 140 ft of #41 Cranes prohibited Other equip.: stiff leg crane. Warehouses in very poor condition.
300A	TXTX Marine - Lower Wharf	Armco Western Steel Div.	There is an adjacent barge dock (not inventoried) Cranes equipped with magnets and 7 cuyd buckets

Flows in 1000 tons/yr for	Canada & Mexico		1991 Flow Total	Port Capacity
Gen.cargo	1209	9%	14,097	23,461
Dry bulk	974	32%	3,002	8,900
Bulk grain	927	13%	7,313	13,240
Liquid bulk	4831	13%	36,562	52,071
All Cargo	7,941	13%	60,974	97,672

Port Remarks: Excluded terminals(not listed) are either: exclusively receiving domestic cargo or barges, inactive, or mooring terminals. Approximate flows for each cargo group are derived from MARAD 1991 4-digit Harmonized commodity census for the port, and may/may not represent corresponding terminal group. Total flow is for foreign commerce, domestic cargo is about 40% of the total commerce. Some of the listed terminals are active in both foreign and domestic commerce. Some of the listed terminals are active in both foreign and domestic trade.

Port of Houston, Texas	Code	60370				Reg'n	Gulf of Mexico	List of Sheets	1-4 General Cargo	Sheet: 5 of 8
Code 5301	COE	Depth	40			State	Texas		5 Dry Bulk	
Coord 29 44 N 95 05 W	Channels	T.basin				owner	Public & Private		6 Bulk Grain, Liquid Bulk.	6-8 Liquid Bulk

Berthage Characteristics		Types of Terminal Use			Max.	Pier Face / Berth Group # 1					Pier Side 1/ Berth Group # 2					Pier Side 2/ Berth Group # 3					Term.cap	1991 flow
Code	Name	type 1	type 2	type 3	DWT	Access	length	depth	vsl's	width	Access	length	depth	vsl's	width	Access	length	depth	vsl's	width	1000 ton/yr	1000 ton/yr
352A	Arrow Terminals	Dry bulk	minerals	Iron steel		truck	1200	32	1												950	*
283B	Bulk Materials Wharf	Dry bulk	grain	ores		conveyor, truck	650	40	1	65											950	*
232B	Cargo Carriers Dock	Dry bulk	fertilizers	molasses		RR, truck, pipe	300	35	1												950	*
677C	Crown Central Petroleum -Coke	Dry bulk	coal/coke			conveyor	640	39	1												950	*
705B	Kerley Ag Products	Dry bulk	liq bulk	fertilizers		conveyor, pipe	430	28	1												950	*
196B	Lone Star Falcon Cement Co.	Dry bulk	cement			conveyor	950	41	1												950	*
699D	Mobil - East Dock	Dry bulk	minerals			conveyor	615	30	1												950	*
699C	Mobil - West Dock	Dry bulk	fertilizers			conveyor	470	32	1												950	*
249A	Oiltanking - 1	Dry bulk	liq bulk	propane g		conveyor, pipe	900	42	1												950	3,002
779A	U S Gypsum Co Wharf	Dry bulk	minerals			conveyor	600	32	1												9,500	3,002

Storage Area Characteristics		Container	Reefer	Total Storage		Storage Area number 1					Storage Area number 2					Storage Area number 3					Storage cap
Code	Name	Hold	storage	Area acres	Capacity tons	Access	storage area inside	storage area outside	Capacity IN	tons OUT	Access	storage area inside	storage area outside	Capacity IN	tons OUT	Access	storage area inside	storage area outside	Capacity IN	tons OUT	1000 ton/yr
352A	Arrow Terminals					rail,truck				50											890
283B	Bulk Materials Wharf					rail, truck	22														890
232B	Cargo Carriers Dock					rail, truck	33														890
677C	Crown Central Petroleum -Coke					rail, truck	24														890
705B	Kerley Ag Products					rail, truck				25											890
196B	Lone Star Falcon Cement Co					truck	63														890
699D	Mobil - East Dock					rail, truck	46														890
699C	Mobil - West Dock					rail, truck	40														890
249A	Oiltanking - 1					rail, truck				100											890
779A	U S Gypsum Co Wharf					rail, truck	40														890
																				Rail	8,900

Load./ Unload.& Handling Equipment		Loading / Unloading Equipment				Handling Equipment # 1					Handling Equipment # 2					Handling Equipment # 3				Car	Capacity	
Code	Name	Type	load rate	unld rate	capacity	Type	Rate	Units	Cap	shared	Type	Rate	Units	Cap	shared	Type	Rate	Units	Cap.	hold	1000 ton/yr	
352A	Arrow Terminals					clam shell buck	300	1													890	*
283B	Bulk Materials Wharf					load/Unl tower	1000	2			conveyor	1800	1							72	890	*
232B	Cargo Carriers Dock					gantry+bucket	250	1	10		conveyor		1								890	*
677C	Crown Central Petroleum -Coke					shiploader	1000	1			conveyor		1								890	*
705B	Kerley Ag Products					load/Unl tower	500	1			conveyor		1								890	*
196B	Lone Star Falcon Cement Co.					auger	460	3			conveyor		1			pneumatic load	65	1			890	*
699D	Mobil - East Dock					load/Unl tower	900	1			conveyor		1								890	*
699C	Mobil - West Dock					shiploader	300	1			conveyor		1								890	*
249A	Oiltanking - 1					conveyor		1													890	*
779A	U S Gypsum Co Wharf					conveyor	1000	1													890	3,002
																					8,900	3,002

Terminal General Remarks		Owner	
352A	Arrow Terminals	Dravo Basic Materials Co.	
283B	Bulk Materials Wharf	Port of Houston Authority	Lay berth adjacent to bulk wharf. Storage facility privately owned.
232B	Cargo Carriers Dock	Cargo Carriers Inc.	Grain storage at adjacent Cargill Dock. Bulk fertilizer storage.
677C	Crown Central Petroleum -Coke	Crown Central Petr. Corp.	Mooring dolphins 950 ft of continuous berthing space w/adjacent to berth. 1 barge dock with 30,000 t of coke storage (not inventoried)
705B	Kerley Ag Products	Kerley Ag Products	Liq. storage sulfuric acid not in use. Electric revolving unloading tower 7 1/2cu yard clamshell trolle.
196B	Lone Star Falcon Cement Co.	Lone Star Falcon Cement	
699D	Mobil - East Dock	Mobil Mining & Minerals C	Cargo: phosphate rock.
699C	Mobil - West Dock	Mobil Mining & Minerals C	East-west docks provide continuous berthing space of 1,060 feet. Storage is in plant facilities at rear of wharf.
249A	Oiltanking - 1	Oiltanking Inc.	See Oiltanking docks 2,3 for liq storage. Dry bulk: aragonite. There are 3 barge docks (not inventoried)
779A	U S Gypsum Co Wharf	U S Gypsum Co.	Conveyor belt for self unloaders.

Flows in 1000 tons/yr for :	Canada & Mexico		1991 Flow Total	Port Capacity
Gen.cargo	1200	9%	14,097	23,461
Dry bulk	974	32%	3,002	8,900
Bulk grain	927	13%	7,313	13,240
Liquid bulk	4831	13%	36,562	52,071
All Cargo	7941	13%	60,974	97,672

Port Remarks: Excluded terminals(not listed) are either: exclusively receiving domestic cargo or barges, inactive, or mooring terminals. Approximate flows for each cargo group are derived from MARAD 1991 4-digit Harmonized commodity census for the port, and may/may not represent corresponding terminal group. Total flow is for foreign commerce, domestic cargo is about 40% of the total commerce. Some of the listed terminals are active in both foreign and domestic commerce. Some of the listed terminals are active in both foreign and domestic trade.

* all dimensions are in feet. Storage area: Inside:in 1000 ft2, Outside:in acres. Storage for Liquids is in 1000 bbls, and for bulk grain is in 1000 bushels

Port of Houston, Texas	Code	60370				Reg'n	Gulf of Mexico	List of Sheets 1-4 General Cargo	Sheet: 6 of 8
Code 5301	COE	Depth	40			State	Texas	5 Dry Bulk	
Coord 29 44 N 95 05 W	Channels	T.basin				owner	Public & Private	6 Bulk Grain, Liquid Bulk	6-8 Liquid Bulk

Berthage Characteristics		Types of Terminal Use			Max.	Pier Face / Berth Group # 1					Pier Side 1/ Berth Group # 2					Pier Side 2/ Berth Group # 3					Term.cap	1991 flow
Code	Name	type 1	type 2	type 3	DWT	Access	length	depth	vsl's	width	Access	length	depth	vsl's	width	Access	length	depth	vsl's	width	1000 ton/yr	1000 ton/yr
232A	Cargill Houston Grain Elevator	Bulk grain					39	44			conveyor	780	44	1		conveyor	780	44	1		3,885	•
947A	International Terminal - Grain	Bulk grain				conveyor	650	42	1												3,770	•
398A	Open Wharf 14	Bulk grain				convey,rr,truck	480	34	1												1,700	•
779A	Union Equity Coop Grain Pier	Bulk grain					42				conveyor	830	50	1		conveyor	830	50	1		3,885	7,313
308A	Amerada Hess - Ship Dock-2	liquid bulk				pipeline	700	32	1												450	•
310	Warren Petro Docks 1,2,2a,5	liquid bulk				pipeline	850	45	1		pipeline	300	36	1		pipeline	300	36	1		3,735	•
942C	Baytank #1	liquid bulk				pipeline	1087	40	1												1,790	•
942B	Celanese Terminal	liquid bulk				pipeline	225	37	1												450	•
677B	Crown Central Petroleum Dock	liquid bulk				pipeline	950	39	1												1,790	•
653	Texas Petrochemicals A,B	liquid bulk				pipeline	273	38	1		pipeline	273	38	1							4,091	36,582
																					23,546	

Storage Area Characteristics				Total Storage		Storage Area number 1					Storage Area number 2					Storage Area number 3					
Code	Name	Container Hold	Reefer storage	Area acres	Capacity tons	Access	storage area inside	storage area outside	Capacity tons IN	Capacity tons OUT	Access	storage area inside	storage area outside	Capacity tons IN	Capacity tons OUT	Access	storage area inside	storage area outside	Capacity tons IN	Capacity tons OUT	Storage cap 1000 ton/yr
232A	Cargill Houston Grain Elevator			6500		rail, truck	6500														4,052
947A	International Terminal - Grain			6354		rail, truck	6354														5,210
398A	Open Wharf 14			6000		rail, truck	6000														3,740
779A	Union Equity Coop Grain Pier			6500		rail, truck	6500														5,296
308A	Amerada Hess - Ship Dock-2			4500		rail, truck	4500														4,800
310	Warren Petro Docks 1,2,2a,5			626		pipeline	626				truck	640									668
942C	Baytank #1			957		rail, truck	957														1,999
942B	Celanese Terminal			649		rail, truck	649														692
677B	Crown Central Petroleum Dock			1301		rail, truck	1301														2,718
653	Texas Petrochemicals A,B			1567		rail, truck	1567														3,273
																					32,450

Load./ Unload.& Handling Equipment		Loading / Unloading Equipment				Handling Equipment # 1					Handling Equipment # 2					Handling Equipment # 3					Rail	Capacity	
Code	Name	Type	load rate	unld rate	capacity	Type	Rate	Units	Cap	shared	Type	Rate	Units	Cap.	shared	Type	Rate	Units	Cap.	Car hold	1000 ton/yr	
232A	Cargill Houston Grain Elevator					chute ld spout	70	6													3,885	•
947A	International Terminal - Grain					chute ld spout	120	3			conveyor		2								3,770	•
398A	Open Wharf 14					chute ld spout	80	5			conveyor		4								1,700	•
779A	Union Equity Coop Grain Pier					chute ld spout	50	6			conveyor		4							400	3,885	7,313
308A	Amerada Hess - Ship Dock-2	cargo hoses	200	180																	450	•
310	Warren Petro Docks 1,2,2a,5	cargo hoses	40	35		hoses/mech.	40	1			hoses/mech.	10	1								668	•
942C	Baytank #1																				1,790	•
942B	Celanese Terminal	cargo hoses	50	30																	450	•
677B	Crown Central Petroleum Dock	cargo hoses	50	150																	1,790	•
653	Texas Petrochemicals A,B	cargo hoses	10	10																	3,273	36,582
																					21,661	

Terminal General Remarks		Owner	
232A	Cargill Houston Grain Elevator	Cargill Inc.	Depth alongside ranges form 44 to 46 ft.. 6 loading spouts on each side
947A	International Terminal - Grain	International Terminals Inc	
398A	Open Wharf 14	Port of Houston Authority	Wharves 14 & 15 are contiguous.
779A	Union Equity Coop Grain Pier	Union Equity Coop Exch	Combined loading rate.
308A	Amerada Hess - Ship Dock-2	Amerada Hess Corp	Storage located at barge dock 3. Hess operates 3 adjacent barge docks (not in inventory)
310	Warren Petro Docks 1,2,2a,5	Warren Petroleum Co	Facility consists of separate offshore wharves
942C	Baytank #1	Baytank Inc.	Liquid storage: 1-chemicals, 2-bunker oil.
942B	Celanese Terminal	Celanese Chemical Co.	Storage located at adjacent barge dock (not inventoried)
677B	Crown Central Petroleum Dock	Crown Central Petroleum	Mooring dolphins
653	Texas Petrochemicals A,B	Port of Houston Authority	Storage facilities located at plant (Texas Petrochemicals Inc)

Flows in 1000 tons/yr for	Canada & Mexico		1991 Flow Total	Port Capacity
Gen.cargo	1209	9%	14,097	23,461
Dry bulk	974	32%	3,002	8,900
Bulk grain	927	13%	7,313	13,240
Liquid bulk	4631	13%	36,582	52,071
All Cargo	7941	13%	60,974	97,672

Port Remarks: Excluded terminals(not listed) are either: exclusively receiving domestic cargo or barges, inactive, or mooring terminals. Approximate flows for each cargo group are derived from MARAD 1991 4-digit Harmonized commodity census for the port, and may/may not represent corresponding terminal group. Total flow is for foreign commerce, domestic cargo is about 40% of the total commerce. Some of the listed terminals are active in both foreign and domestic commerce. Some of the listed terminals are active in both foreign and domestic trade.

36

Port of Houston, Texas

Port of Houston, Texas	Code	60370	Reg'n	Gulf of Mexico	List of Sheets 1-4 General Cargo	Sheet: 7 of 8
Code 5301	COE Depth	40	State	Texas	5 Dry Bulk	
Coord 29 44 N 95 05 W	Channels T.basin		owner	Public & Private	6 Bulk Grain, Liquid Bulk 6-8 Liquid Bulk	

Berthage Characteristics		Types of Terminal Use			Max.	Pier Face / Berth Group # 1					Pier Side 1/ Berth Group # 2					Pier Side 2/ Berth Group # 3					Term.cap	1991 flow
Code	Name	type 1	type 2	type 3	DWT	Access	length	depth	vsl's	width	Access	length	depth	vsl's	width	Access	length	depth	vsl's	width	1000 ton/yr	1000 ton/yr
131abc	Exxon Piers 1, 2, 5	liquid bulk				pipeline	930	40	1		pipeline	832	40	2		pipeline	832	40	1		6,904	*
336D	Gatx Barge Dock 3	liquid bulk				pipeline	225	36	1												450	*
336AC	Gatx Dock 1, 3	liquid bulk				pipeline	965	36	2		pipeline	500	36	1							6,904	*
686A	Gatx Pasadena Terminal	liquid bulk				pipeline	230	40	1												450	*
733A	Georgia-Gulf Corp	liquid bulk				pipeline	900	42	1	60											450	*
648A	Hill Petroleum Oil Dock	liquid bulk				pipeline	700	34	1		pipeline	41	20	1							4,091	*
210A	Houston Fuel Oil Terminal Co	liquid bulk				pipeline	900	40	1												450	*
778A	Intercontinental Terminal Wharf	liquid bulk				pipeline	1370	40	3	30											6,904	*
657ab	Lyondell - Docks B, C	liquid bulk				pipeline	1290	38	2												4,091	*
630A	Manchester Bulk Wharf 1	liquid bulk				pipeline,truck	220	32	1			16					16				450	36,562
																					31,144	36,562

Storage Area Characteristics				Total Storage		Storage Area number 1					Storage Area number 2					Storage Area number 3					
Code	Name	Container Hold	Reefer storage	Area acres	Capacity tons	Access	storage area inside	storage area outside	Capacity tons IN	Capacity tons OUT	Access	storage area inside	storage area outside	Capacity tons IN	Capacity tons OUT	Access	storage area inside	storage area outside	Capacity tons IN	Capacity tons OUT	Storage cap 1000 ton/yr
131abc	Exxon Piers 1, 2, 5			2200		RR, truck, pipe	2200														4,596
336D	Gatx Barge Dock 3			800		RR, truck, pipe	800														853
336AC	Gatx Dock 1, 3			4000		rail, truck	5000														8,356
686A	Gatx Pasadena Terminal			4656		rail, truck	4656														4,966
733A	Georgia-Gulf Corp			266			266														284
648A	Hill Petroleum Oil Dock			3100		pipeline	3100														6,476
210A	Houston Fuel Oil Terminal Co			2520		rail, truck	2520														2,688
778A	Intercontinental Terminal Wharf			3000		rail, truck	3000														6,267
657ab	Lyondell - Docks B, C			9316		RR, truck, pipe	9316														19,460
630A	Manchester Bulk Wharf 1			40		rail, truck	40														43
																					53,988

Load./ Unload.& Handling Equipment		Loading / Unloading Equipment				Handling Equipment # 1					Handling Equipment # 2					Handling Equipment # 3					Rail Car hold	Capacity 1000 ton/yr	
Code	Name	Type	load rate	unld rate	capacity	Type	Rate	Units	Cap	shared	Type	Rate	Units	Cap.	shared	Type	Rate	Units	Cap.				
131abc	Exxon Piers 1, 2, 5	cargo hoses	60	61																		4,596	*
336D	Gatx Barge Dock 3																					450	*
336AC	Gatx Dock 1, 3	cargo hoses	50	70																		6,904	*
686A	Gatx Pasadena Terminal	cargo hoses	650	120																		450	*
733A	Georgia-Gulf Corp		33																			284	*
648A	Hill Petroleum Oil Dock	cargo hoses	20	30																		4,091	*
210A	Houston Fuel Oil Terminal Co.																					450	*
778A	Intercontinental Terminal Wharf	cargo hoses	150	150																		6,267	*
657ab	Lyondell - Docks B, C	cargo hoses	20	180																		4,091	*
630A	Manchester Bulk Wharf 1	cargo hoses		10																		43	36,562
																						27,625	36,562

Terminal General Remarks		Owner	
131abc	Exxon Piers 1, 2, 5	Exxon USA	Storage area 1: 11.5 million bbls capacity. There are 3 adjacent barge docks. Liquid storage area: 1-product, 2-petrochemicals, 3-chemicals.
336D	Gatx Barge Dock 3	Gatx Terminals Corp.	
336AC	Gatx Dock 1, 3	Gatx Terminals Corp.	Facility consists of 2 wharves.
686A	Gatx Pasadena Terminal	Gatx Terminals Corp.	
733A	Georgia-Gulf Corp	Georgia Gulf Corp.	Import: bencine. Export: cumene.
648A	Hill Petroleum Oil Dock	Hill Petroleum Co	Barge dock adjacent to oil dock. Liquid storage area: 1-product, 2-crude
210A	Houston Fuel Oil Terminal Co.	Houston Fuel Oil Term. Co	Storage located at dock 4. There are 4 barge docks (not inventoried)
778A	Intercontinental Terminal Wharf	International Terminals Inc	
657ab	Lyondell - Docks B, C	Lyondell Petrochemical Co	There exist 2 additional barge facilities.
630A	Manchester Bulk Wharf 1	port of Houston Authority	2.5 ton Derrick for cargo hoses, electric and hand operated. Cranes prohibited on wharf. Wharf in poor condition.

Flows in 1000 tons/yr for	Canada & Mexico		1991 Flow Total	Port Capacity
Gen.cargo	1209	9%	14,097	23,461
Dry bulk	974	32%	3,002	8,900
Bulk grain	927	13%	7,313	13,240
Liquid bulk	4831	13%	36,562	52,071
All Cargo	7941	13%	60,974	97,672

Port Remarks: Excluded terminals(not listed) are either: exclusively receiving domestic cargo or barges, inactive, or mooring terminals. Approximate flows for each cargo group are derived from MARAD 1991 4-digit Harmonized commodity census for the port, and may/may not represent corresponding terminal group. Total flow is for foreign commerce, domestic cargo is about 40% of the total commerce. Some of the listed terminals are active in both foreign and domestic commerce. Some of the listed terminals are active in both foreign and domestic trade.

* all dimensions are in feet. Storage area: Inside:in 1000 ft2, Outside:in acres. Storage for Liquids is in 1000 bbls, and for bulk grain is in 1000 bushels

Port of Houston, Texas

Code	60370				Reg'n	Gulf of Mexico	
Depth	40				State	Texas	
Channels	T.basin				owner	Public & Private	

Code 5301
Coord 29 44 N 95 05 W
COE

List of Sheets 1-4 General Cargo
5 Dry Bulk
6 Bulk Grain, Liquid Bulk 6-8 Liquid Bulk

Sheet: 8 of 8

Berthage Characteristics

Code	Name	Types of Terminal Use type 1	type 2	type 3	Max. DWT	Pier Face / Berth Group # 1 Access	length	depth	vsl's	width	Pier Side 1/ Berth Group # 2 Access	length	depth	vsl's	width	Pier Side 2/ Berth Group # 3 Access	length	depth	vsl's	width	Term.cap 1000 ton/yr	1991 flow 1000 ton/yr
633A	Manchester Wharf 3	liquid bulk				pipeline	500	36	1												450	•
249A	Oiltanking - 2, 3	liquid bulk				pipeline	900	42	2												4,091	•
592A	Pacific Molasses Dock	liquid bulk				pipeline	600	30	1												450	•
779B	Partank Deer Park #1	liquid bulk				pipeline	900	40	1												450	•
344A	Partank Corp	liquid bulk				rail,pipeline	900	34	1												450	•
779-80	Partank Deer Park 2, 3	liquid bulk				pipeline	900	40	1												450	•
942A	Petrounited Terminals Inc	liquid bulk				pipeline	240	38	1												450	•
588-9	Public Wharf 1	liquid bulk				pipeline,truck	827	34	2	55											4,091	•
752A	Shell Oil - Crude Oil Dock	liquid bulk				pipeline	850	41	1												450	•
750	Shell Oil - East, West, 2, 3 dock	liquid bulk				pipeline	1250	40	2		pipeline	650	37	1		pipeline	238	33			6,904	36,562
																					18,236	36,562

Storage Area Characteristics

Code	Name	Container Hold	Reefer storage	Total Storage Area acres	Capacity tons	Storage Area number 1 Access	storage area inside	outside	Capacity tons IN	OUT	Storage Area number 2 Access	storage area inside	outside	Capacity tons IN	OUT	Storage Area number 3 Access	storage area inside	outside	Capacity tons IN	OUT	Storage cap 1000 ton/yr
633A	Manchester Wharf 3			1198		rail, truck	1198														1,278
249A	Oiltanking - 2, 3			2610		rail, truck	2610														5,452
592A	Pacific Molasses Dock			563			563														601
779B	Partank Deer Park #1			4250		rail, truck	4250														4,533
344A	Partank Corp			936		rail, truck	936														998
779-80	Partank Deer Park 2, 3																				480
942A	Petrounited Terminals Inc			1753		rail, truck	1753														1,870
588-9	Public Wharf 1					rail, truck	27														1,880
752A	Shell Oil - Crude Oil Dock																				480
750	Shell Oil - East, West, 2, 3 dock			5000		RR, truck, pipe	7600				RR, truck, pipe	2850				RR, truck, pipe	750				10,444
																				Rail Car hold	28,016

Load./ Unload.& Handling Equipment

Code	Name	Loading / Unloading Equipment Type	load rate	unld rate	capacity	Handling Equipment # 1 Type	Rate	Units	Cap	shared	Handling Equipment # 2 Type	Rate	Units	Cap	shared	Handling Equipment # 3 Type	Rate	Units	Cap.	Capacity 1000 ton/yr	
633A	Manchester Wharf 3	cargo hoses	30	50																450	•
249A	Oiltanking - 2, 3																			4,091	•
592A	Pacific Molasses Dock																			450	•
779B	Partank Deer Park #1	cargo hoses	70	200																450	•
344A	Partank Corp	cargo hoses	10	10																450	•
779-80	Partank Deer Park 2, 3	cargo hoses	70	200																450	•
942A	Petrounited Terminals Inc.																			450	•
588-9	Public Wharf 1	cargo hoses	2	1																1,880	•
752A	Shell Oil - Crude Oil Dock	cargo hoses	100	250																450	•
750	Shell Oil - East, West, 2, 3 dock	cargo hoses	300	750																6,904	36,562
																				18,025	36,562

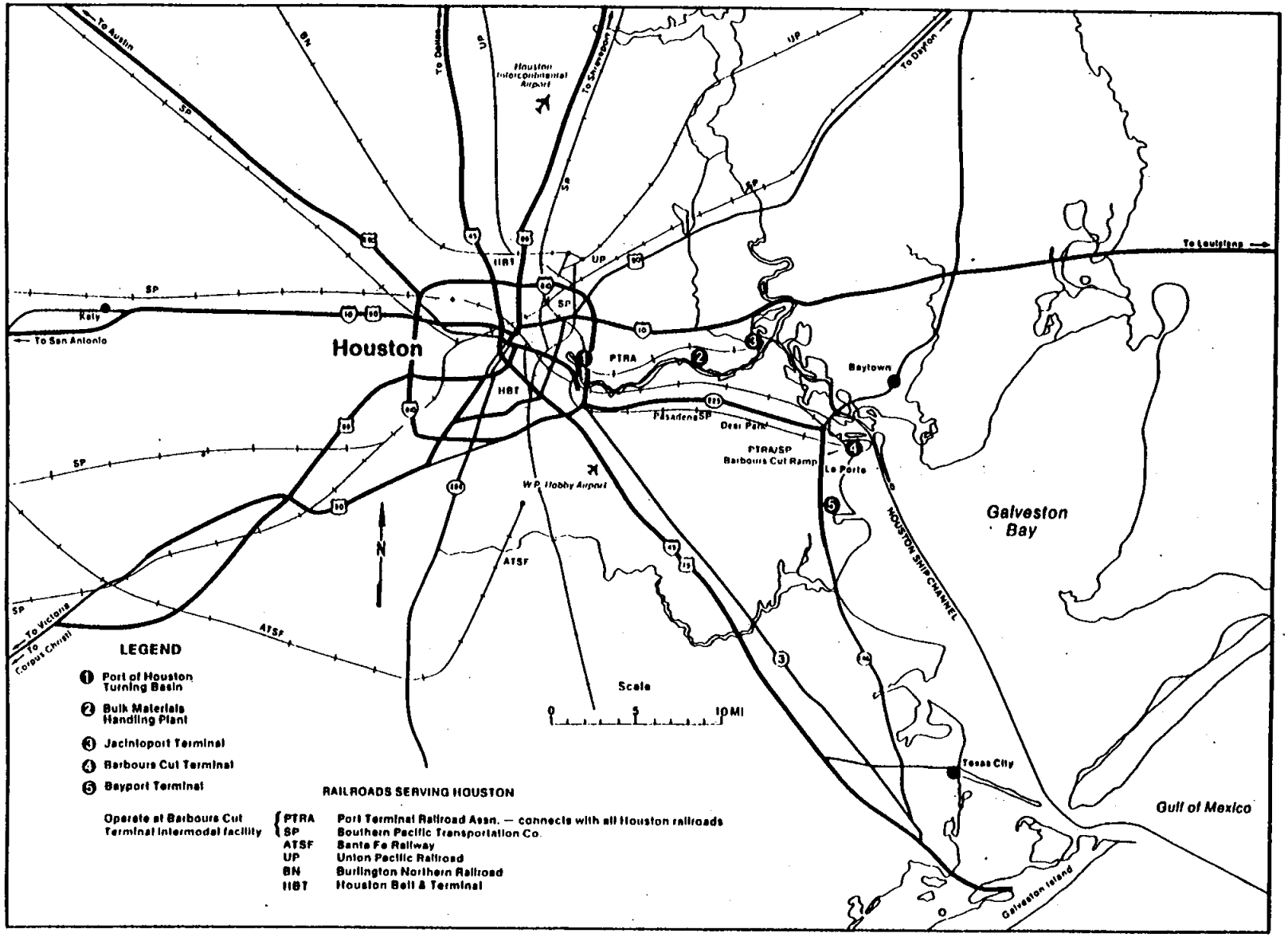
Terminal General Remarks

Code	Name	Owner	Remarks
633A	Manchester Wharf 3	Port of Houston Authority	Liquid storage area: 1-Hill Petroleum, 2-South Coast, 3-Cargill. Wahrf cranes prohibited.
249A	Oiltanking - 2, 3	Oiltanking Inc.	Liquid storage: 1-crude oil, 2-petroleum, 3-tallow/vegetable oils, 4-fats/oils/chemicals.
592A	Pacific Molasses Dock	Pacific Molasses Co.	
779B	Partank Deer Park #1	Partank Corp.	There are 3 barge docks adjacent to docks 1-3 (not inventoried).
344A	Partank Corp	Partank Corp.	
779-80	Partank Deer Park 2, 3	Partank Corp	See #1 for storage area.
942A	Petrounited Terminals Inc.	Petrounited Terminals Inc.	Storage located at adjacent barge dock (not inventoried).
588-9	Public Wharf 1	Port of Houston Authority	East and West berths East storage located at Pacific Molasses dock Other cargo: tallow and vegetable oil Wharf cranes prohibited. Warehouse in poor condition.
752A	Shell Oil - Crude Oil Dock	Shell Oil Co.	
750	Shell Oil - East, West, 2, 3 dock	Shell Oil Co	West dock 1 contiguous to dock 3 and fuel dock: 2400 ft Liquid storage: 1/3-petroleum, 2-crude, 4-chemicias, 5-petrochemical.

Flows in 1000 tons/yr for	Canada & Mexico		1991 Flow Total	Port Capacity
Gen.cargo	1209	9%	14,097	23,461
Dry bulk	974	32%	3,002	8,900
Bulk grain	927	13%	7,313	13,240
Liquid bulk	4831	13%	36,562	52,071
All Cargo	7941	13%	60,974	97,672

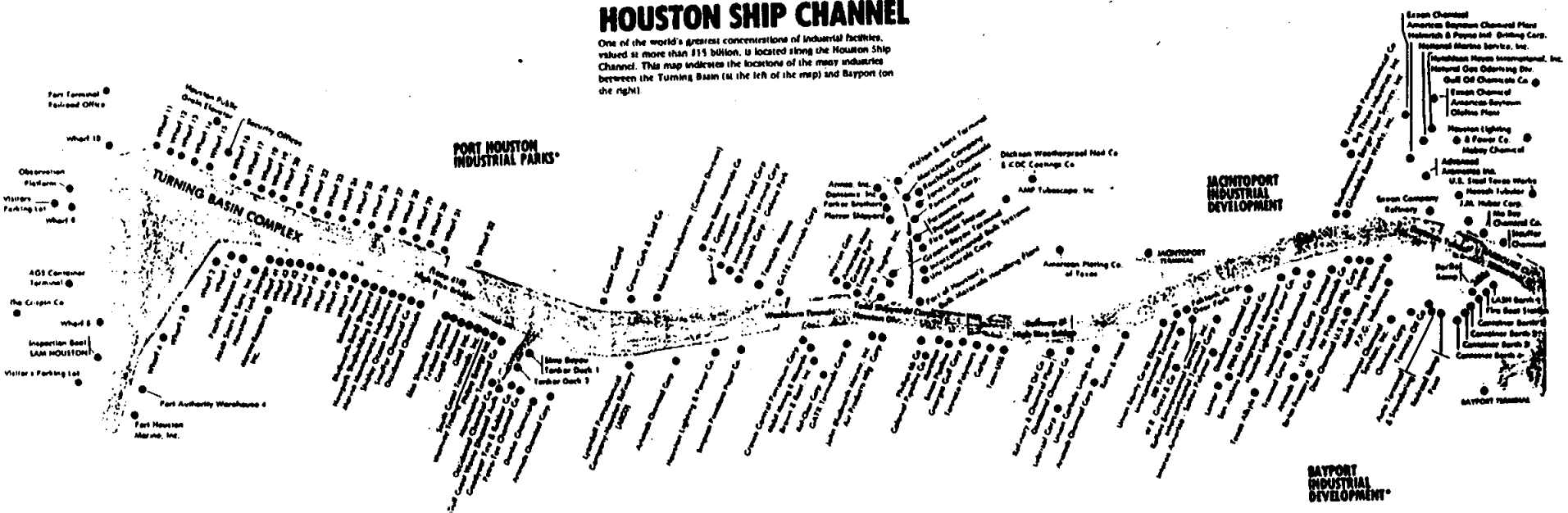
Port Remarks: Excluded terminals(not listed) are either: exclusively receiving domestic cargo or barges, inactive, or mooring terminals. Approximate flows for each cargo group are derived from MARAD 1991 4-digit Harmonized commodity census for the port, and may/may not represent corresponding terminal group. Total flow is for foreign commerce, domestic cargo is about 40% of the total commerce. Some of the listed terminals are active in both foreign and domestic commerce.

THE HOUSTON CONNECTION

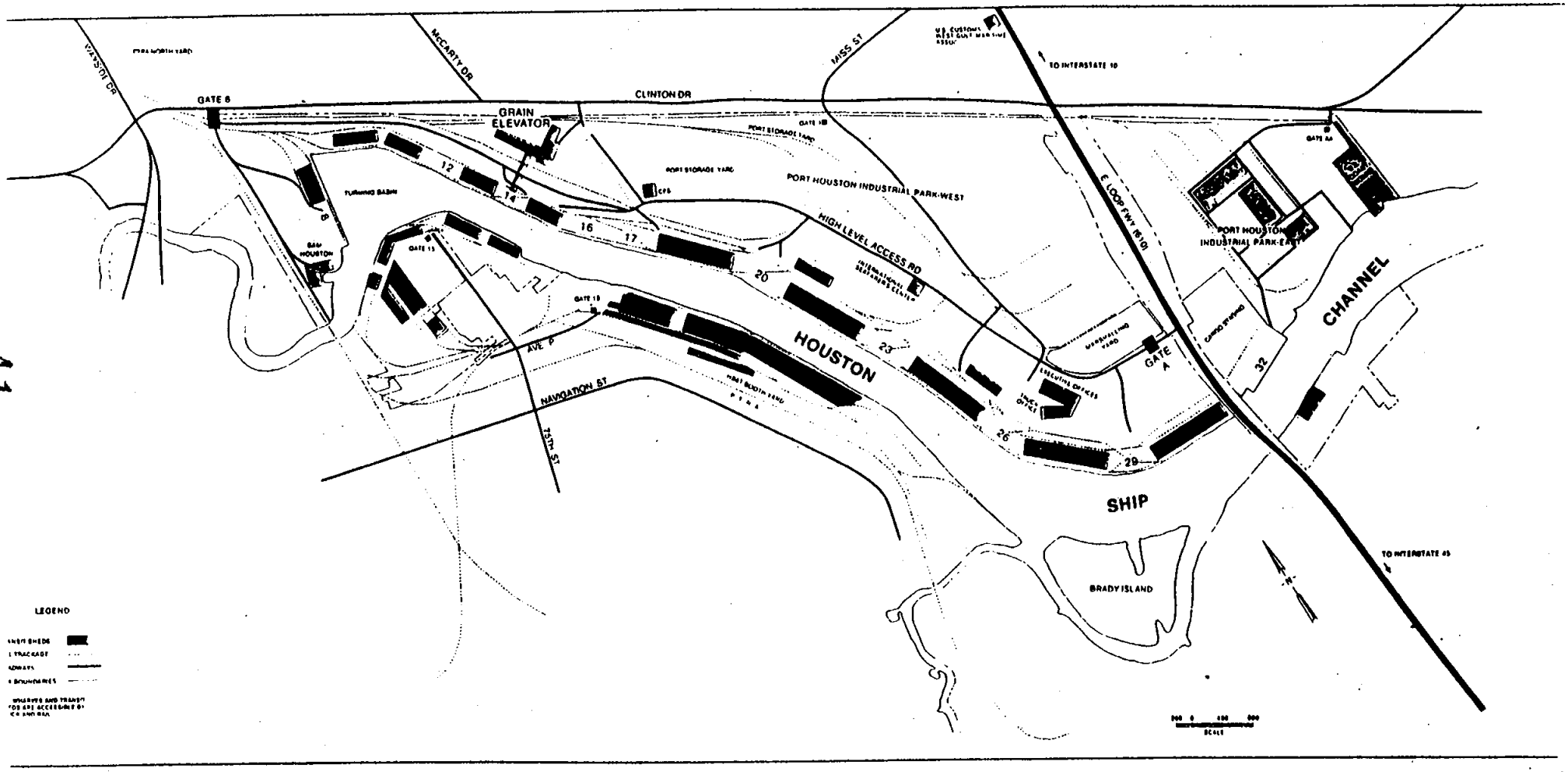


INDUSTRIAL MAP OF THE HOUSTON SHIP CHANNEL

One of the world's greatest concentrations of industrial facilities, valued at more than $15 billion, is located along the Houston Ship Channel. This map indicates the locations of the many industries between the Turning Basin (at the left of the map) and Bayport (on the right).



*See Page 8 for complete list of industries in these complexes.


McCARTY DR
MISS ST
CLINTON DR
GATE 8
GRAIN ELEVATOR
TURNING BASIN
PORT STORAGE YARD
PORT HOUSTON INDUSTRIAL PARK-WEST
HIGH LEVEL ACCESS RD
E LOOP FWY (610)
TO INTERSTATE 10
PORT HOUSTON INDUSTRIAL PARK-EAST
CHANNEL
HOUSTON
AVE P
NAVIGATION ST
73RD ST
GATE A
SHIP
BRADY ISLAND
TO INTERSTATE 45
12
14
16
17
20
23
26
29
32
LEGEND

Port of New Orealns, Louisiana

Port of New Orleans	Code	15800	20055	20095	20500	20063	Reg'n	Gulf of Mexico	List of Sheets				Sheet: 1 of 7
Code 2002	COE Depth	36	40	40	36	40	State	Louisiana	1	Dry Bulk	5,6	Liquid Bulk	
Coord 30 00 00 N 90 00 00 W	Channels T.basin						owner	Public & Private	2,3,4	General Cargo	7	Liq.Bulk & Bulk Grain	

Berthage Characteristics		Types of Terminal Use			Max.	Pier Face / Berth Group # 1					Pier Side 1/ Berth Group # 2					Pier Side 2/ Berth Group # 3					Term.cap	1991 flow
Code	Name	type 1	type 2	type 3	DWT	Access	length	depth	vsl's	width	Access	length	depth	vsl's	width	Access	length	depth	vsl's	width	1000 ton/yr	1000 ton/yr
110A	Dundee Cement Co	Cement				Pipeline	175	30	1												950	•
910A	Lone Star Industries	Cement				Conveyor	580	34	1		Pipeline	45	18								1,610	•
502ab	Electro-Coal Transfer #1,2	Dry Bulk	coal/coke			Conveyor	1747	55	3		Conveyor	662	30	1		Conveyor	762	20	1		6,210	•
602B	Amax Nickel -lower dock	Dry Bulk				Truck	774	37	1		Truck	500	37	1							2,171	•
103A	Amstar Wharf	Dry Bulk	sugar			Rail, truck	1115	45	1	15											950	•
599A	Gold Bond Bldg Products	Dry Bulk	Liq Bulk			Conveyor	720	29	1												950	•
595D	Stan-Blast Abrasives	Dry Bulk	coal/coke	Barges		Conveyor	420	32	1												1,610	•
222A	U S Gypsum Co	Dry Bulk	coal/coke	nonmetal		Conveyor	362	25	1		Conveyor	240	12	1							3,680	•
001B	Gulf Oil - Coke Wharf	Dry Bulk	coal/coke	Barges		Conveyor	702	40	1		Conveyor										3,580	•
738A	M-I Drilling Fluids Co	Dry Bulk	Ores			Conveyor	500	30	1												950	13,117
																					22,661	13,117

Storage Area Characteristics				Total Storage		Storage Area number 1					Storage Area number 2					Storage Area number 3					
Code	Name	Container Hold	Reefer storage	Area acres	Capacity tons	Access	storage area inside	storage area outside	Capacity tons IN	Capacity tons OUT	Access	storage area inside	storage area outside	Capacity tons IN	Capacity tons OUT	Access	storage area inside	storage area outside	Capacity tons IN	Capacity tons OUT	Storage cap 1000 ton/yr
110A	Dundee Cement Co					rail, truck			10												1,890
910A	Lone Star Industries					rail, truck			61												1,760
502ab	Electro-Coal Transfer #1,2			25		rail, truck				2 5K											6,181
602B	Amax Nickel -lower dock			17		rail, truck		2													1,891
103A	Amstar Wharf					rail, truck	60														1,890
599A	Gold Bond Bldg Products					rail, truck		3		75											1,890
595D	Stan-Blast Abrasives					rail, truck		2		40											1,760
222A	U S Gypsum Co			20		rail, truck			60	16											4,944
001B	Gulf Oil - Coke Wharf					rail, truck		2													4,330
738A	M-I Drilling Fluids Co					rail		1		80											1,890
																				Rail	24,466

Load./ Unload.& Handling Equipment		Loading / Unloading Equipment				Handling Equipment # 1					Handling Equipment # 2					Handling Equipment # 3					Capacity	
Code	Name	Type	load rate	unld rate	capacity	Type	Rate	Units	Cap	shared	Type	Rate	Units	Cap.	shared	Type	Rate	Units	Cap.	hold	1000 ton/yr	
110A	Dundee Cement Co					pneumatic unldr	200	1													1,890	•
910A	Lone Star Industries					unloader+bucke	3000	1			conveyor		1			pneumatic		2			1,610	•
502ab	Electro-Coal Transfer #1,2					unload tower	1200	1			unload tower	1500	2			other	4000	1			6,181	•
602B	Amax Nickel -lower dock					mobile crane	40	1													1,891	•
103A	Amstar Wharf					gantry crane	250	2			conveyor		1								1,890	•
599A	Gold Bond Bldg Products					ship gear	800				conveyor		1								1,890	•
595D	Stan-Blast Abrasives					gantry unldr+bu	700	1			other	100	1			conveyor		1			1,610	•
222A	U S Gypsum Co					ship gear					conveyor		13			other		1			3,680	•
001B	Gulf Oil - Coke Wharf					unload tower		1			conveyor		1								3,580	•
738A	M-I Drilling Fluids Co																				1,890	13,117
																					22,112	13,117

Terminal General Remarks		Owner	
110A	Dundee Cement Co	Dundee Cement Co	
910A	Lone Star Industries	Lone Star Industries Inc	Pneumatic loaders used to load barges
502ab	Electro-Coal Transfer #1,2	Electro-Coal Transfer Corp	Depth alongside face 55-70', rear 30-60', other equip.: barge unloader
602B	Amax Nickel -lower dock	Amax Nickel Refinig Co	
103A	Amstar Wharf	Amstar Sugar Corp	All raw sugar received is moved directly to refinery , none is shipped by ship
599A	Gold Bond Bldg Products	National Gypsum Co	Other equip -100t receiving hopper
595D	Stan-Blast Abrasives	Stan-Blast Abrasives	Cargo- Coal Slag, Other equip- 100t receiving hopper
222A	U S Gypsum Co	Port of New Orleans	Cargo-Gypsum rock & shell, Other Equip-receiving hopper
001B	Gulf Oil - Coke Wharf	Gulf Oil Corp.	River terminal at Alliance
738A	M-I Drilling Fluids Co	Port of New Orleans	Barite trans by floating crane, 150t/hr belt conveyor

Flows in 1000 tons/yr for	Canada & Mexico		1991 Flow Total	Port Capacity
Gen.cargo	43	1%	6,263	11,579
Dry bulk	720	5%	13,117	22,112
Bulk grain	439	4%	11,709	12,618
Liquid bulk	3091	27%	11,481	16,321
All Cargo	4293	10%	42,570	64,630

Port Remarks: Excluded terminals(not listed) are either: exclusively receiving domestic cargo or barges, inactive, or mooring terminals. Approximate flows for each cargo group are derived from MARAD 1991 4-digit Harmonized commodity census for the port, and may/may not represent corresponding terminal group. Total flow is for foreign commerce, domestic cargo is about 50% of the total commerce. Some of the listed terminals are active in both foreign and domestic commerce. About 168 acres are available for expansion for private operators on demand. Capacity and flow should be considered in combination with those for Port of Superior. The port is served by US-35 freeway and 6 major railroads (see attachment). Most of Duluth's excess capacity is in handling dry bulk and ores.

Storage for Liquids is in 1000 bbls, and for bulk grain is in 1000 bushels

Port of New Orealns, Louisiana

Port of New Orleans	Code			20095		Reg'n	Gulf of Mexico	List of Sheets			Sheet: 2 of 7
Code 2002	COE	Depth		40		State	Louisiana	1	Dry Bulk	5,6 Liquid Bulk	
Coord 29 57 20 N 90 02 10 W	Channels	T.basin				owner	Public & Private	2,3,4	General Cargo	7 Liq.Bulk & Bulk Grain	

Berthage Characteristics		Types of Terminal Use			Max.	Pier Face / Berth Group # 1					Pier Side 1/ Berth Group # 2					Pier Side 2/ Berth Group # 3					Term.cap	1991 flow
Code	Name	type 1	type 2	type 3	DWT	Access	length	depth	vsl's	width	Access	length	depth	vsl's	width	Access	length	depth	vsl's	width	1000 ton/yr	1000 ton/yr
056A	Chalmette slip dock #2	gen cargo				rail, truck	1680	32	2												731	•
094B	Chalmette lip dock #1	gen.cargo / dry	coal/coke	wood mat		rail	1280	30	2												320	•
132A	Alabo st wharf	gen cargo				truck	1316	36	2	81											731	•
159A	Poland ave wharf-4,5	gen cargo	container			rail, truck	932	40	2	35											731	•
166A	Pauline st wharf	gen.cargo				rail, truck	581	35	1	125											140	•
178A	Louisa st wharf /open	gen cargo	liq bulk			rail, truck	1061	35	2												731	•
184A	Press st wharf	gen cargo				truck	947	35	1												320	•
188A	Mandeville st wharf	gen cargo				truck	1121	35	2	20											320	•
190A	Esplande ave wharf	gen cargo				truck	584	35	1	20											140	•
197A	Gov Nicholls st wharf	gen cargo				truck	1211	40	2	30											731	•
																					4,895	

Storage Area Characteristics				Total Storage		Storage Area number 1					Storage Area number 2					Storage Area number 3					Storage cap
Code	Name	Container Hold	Reefer storage	Area acres	Capacity tons	Access	storage area inside	storage area outside	Capacity tons IN	Capacity tons OUT	Access	storage area inside	storage area outside	Capacity tons IN	Capacity tons OUT	Access	storage area inside	storage area outside	Capacity tons IN	Capacity tons OUT	1000 ton/yr
056A	Chalmette slip dock #2			18		rail, truck	700	4													756
094B	Chalmette lip dock #1					rail	700	1													140
132A	Alabo st wharf					rail, truck		15													420
159A	Poland ave wharf-4,5					rail, truck	250	2													420
166A	Pauline st wharf					rail, truck	250														140
178A	Louisa st wharf /open			12		rail, truck	250	2													504
184A	Press st wharf					rail, truck	250	2													420
188A	Mandeville st wharf					rail, truck	300														140
190A	Esplande ave wharf					rail, truck	350														140
197A	Gov Nicholls st wharf			15		rail, truck	850	1													630
																				Rail	3,710

Load./ Unload.& Handling Equipment		Loading / Unloading Equipment				Handling Equipment # 1					Handling Equipment # 2					Handling Equipment # 3					Capacity
Code	Name	Type	load rate	unld rate	capacity	Type	Rate	Units	Cap	shared	Type	Rate	Units	Cap.	shared	Type	Rate	Units	Cap.	Car hold	1000 ton/yr
056A	Chalmette slip dock #2					stevedoring															731
094B	Chalmette lip dock #1					fork lifts		3	10		fork lifts		2	5							140
132A	Alabo st wharf					stevedoring															420
159A	Poland ave wharf-4,5					stevedoring															420
166A	Pauline st wharf					stevedoring															140
178A	Louisa st wharf /open					stevedoring															504
184A	Press st wharf					stevedoring															420
188A	Mandeville st wharf					stevedoring															140
190A	Esplande ave wharf					stevedoring															140
197A	Gov Nicholls st wharf					stevedoring															630
																					3,565

Terminal General Remarks		Owner	
056A	Chalmette slip dock #2	Norfolk Southern Corp	
094B	Chalmette lip dock #1	Norfolk Southern Corp	
132A	Alabo st wharf	Port of New Orleans	
159A	Poland ave wharf-4,5	U S government	contiguous with Pauline st wharf
166A	Pauline st wharf	Port of new orleans	
178A	Louisa st wharf /open	Port of new orleans	contiguous with Press st wharf
184A	Press st wharf	Port of new orleans	contiguous with Mandeville st wharf
188A	Mandeville st wharf	Port of new orleans	contiguous with Esplande ave wharf
190A	Esplande ave wharf	Port of new orleans	contiguous with Gov. Nicholls st wharf
197A	Gov Nicholls st wharf	Port of new orleans	

Flows in 1000 tons/yr for	Canada & Mexico		1991 Flow Total	Port Capacity
Gen.cargo	43	1%	8,263	11,579
Dry bulk	720	5%	13,117	22,112
Bulk grain	439	4%	11,709	12,618
Liquid bulk	3091	27%	11,481	18,321
All Cargo	4293	10%	42,570	64,630

Port Remarks: Excluded terminals(not listed) are either: exclusively receiving domestic cargo or barges, inactive, or mooring terminals. Approximate flows for each cargo group are derived from MARAD 1991 4-digit Harmonized commodity census for the port, and may/may not represent corresponding terminal group. Total flow is for foreign commerce, domestic cargo is about 50% of the total commerce. Some of the listed terminals are active in both foreign and domestic commerce. About 168 acres are available for expansion for private operators on demand. Capacity and flow should be considered in combination with those for Port of Superior.

Port of New Orealns, Louisiana

Port of New Orleans	Code			20095		Reg'n	Gulf of Mexico	List of Sheets			Sheet: 3 of 7
Code 2002	COE	Depth		40		State	Louisiana	1	Dry Bulk	5,6	Liquid Bulk
Coord 29 55 10 N 90 04 30 W	Channels	T.basin				owner	Public & Private	2,3,4	General Cargo	7	Liq.Bulk & Bulk Grain

Berthage Characteristics		Types of Terminal Use			Max.	Pier Face / Berth Group # 1					Pier Side 1/ Berth Group # 2					Pier Side 2/ Berth Group # 3					Term.cap	1991 flow
Code	Name	type 1	type 2	type 3	DWT	Access	length	depth	vsl's	width	Access	length	depth	vsl's	width	Access	length	depth	vsl's	width	1000 ton/yr	1000 ton/yr
234A	Erato st wharf	gen cargo				truck	1067	35	2												731	*
240A	Thalia st wharf	gen cargo				truck	860	35	1												140	*
251A	Orange st wharf	gen cargo				truck	1017	30	2												320	*
254A	Market st wharf	gen cargo				truck	1015	30	2	14											320	*
256A	Celeste st wharf	gen cargo				truck	1200	35	2												320	*
265A	St Andrew st wharf	gen cargo				truck	1598	35	2												731	*
275A	First st wharf	gen cargo				truck	1275	35	2	18											731	*
283A	Wasfington ave wharf	gen cargo				truck	871	35	1	50											140	*
287A	Seventh st wharf	gen cargo				rail, truck	1196	32	2	12											320	*
294A	Harmony st wharf	gen cargo	container			rail, truck	1089	32	2	50											320	*
																					4,073	

Storage Area Characteristics				Total Storage		Storage Area number 1					Storage Area number 2					Storage Area number 3					
Code	Name	Container Hold	Reefer storage	Area acres	Capacity tons	Access *	storage area inside	storage area outside	Capacity tons IN	Capacity tons OUT	Access	storage area inside	storage area outside	Capacity tons IN	Capacity tons OUT	Access	storage area inside	storage area outside	Capacity tons IN	Capacity tons OUT	Storage cap 1000 ton/yr
234A	Erato st wharf					truck															420
240A	Thalia st wharf					rail, truck	350														140
251A	Orange st wharf					rail, truck															140
254A	Market st wharf					rail, truck															140
256A	Celeste st wharf					rail, truck															140
265A	St Andrew st wharf					rail, truck															420
275A	First st wharf					rail, truck	750	1													420
283A	Washington ave wharf					rail, truck															140
287A	Seventh st wharf					rail, truck	500	3													140
294A	Harmony st wharf					rail, truck	750	1													140
																					2,240

Load./ Unload.& Handling Equipment		Loading / Unloading Equipment				Handling Equipment # 1					Handling Equipment # 2					Handling Equipment # 3					Rail	Capacity
Code	Name	Type	load rate	unld rate	capacity	Type	Rate	Units	Cap.	shared	Type	Rate	Units	Cap.	shared	Type	Rate	Units	Cap.		Car hold	1000 ton/yr
234A	Erato st wharf					stevedoring																420 *
240A	Thalia st wharf					stevedoring																140 *
251A	Orange st wharf					stevedoring																140 *
254A	Market st wharf					stevedoring																140 *
256A	Celeste st wharf					stevedoring																140 *
265A	St Andrew st wharf					stevedoring																420 *
275A	First st wharf					stevedoring																420 *
283A	Washington ave wharf					stevedoring																140 *
287A	Seventh st wharf					stevedoring																140 *
294A	Harmony st wharf					stevedoring																140 *
																						2,240

Terminal General Remarks		Owner	
234A	Erato st wharf	Port of new orleans	contiguous with Thalia st wharf
240A	Thalia st wharf	Port of new orleans	contiguous with st wharf
251A	Orange st wharf	Port of new orleans	contiguous with Orange st wharf
254A	Market st wharf	Port of new orleans	contiguous with Market st wharf
256A	Celeste st wharf	Port of new orleans	contiguous with St Andrew st wharf
265A	St Andrew st wharf	Port of new orleans	
275A	First st wharf	Port of new orleans	
283A	Washington ave wharf	Port of new orleans	
287A	Seventh st wharf	Port of new orleans	contiguous with Harmony st wharf
294A	Harmony st wharf	Port of new orleans	handels containers

Flows in 1000 tons/yr for	Canada & Mexico		1991 Flow Total Port	Port Capacity
Gen.cargo	43	1%	6,263	11,579
Dry bulk	720	5%	13,117	22,112
Bulk grain	439	4%	11,709	12,618
Liquid bulk	3091	27%	11,481	18,321
All Cargo	4293	10%	42,570	64,630

Port Remarks: Excluded terminals(not listed) are either: exclusively receiving domestic cargo or barges, inactive, or mooring terminals. Approximate flows for each cargo group are derived from MARAD 1991 4-digit Harmonized commodity census for the port, and may/may not represent corresponding terminal group. Total flow is for foreign commerce, domestic cargo is about 50% of the total commerce. Some of the listed terminals are active in both foreign and domestic commerce. About 168 acres are available for expansion for private operators on demand. Capacity and flow should be considered in combination with those for Port of Superior. The port is served by US-35 freeway and 6 major railroads (see attachment). Most of Duluth's excess capacity is in handling dry bulk and ores.

* all dimensions are in feet. Storage area: Inside:in 1000 ft2, Outside:in acres. Storage for Liquids is in 1000 bbls, and for bulk grain is in 1000 bushels

Port of New Orealns, Louisiana

Port of New Orleans	Code	15800	20055	20095	20500	Reg'n	Gulf of Mexico	List of Sheets				Sheet: 4 of 7
Code 2002	COE Depth	36	40	40	36	State	Louisiana	1	Dry Bulk	5,6	Liquid Bulk	
Coord 30 00 00 N 90 00 00 W	Channels T.basin					owner	Public & Private	2,3,4	General Cargo	7	Liq.Bulk & Bulk Grain	

Berthage Characteristics		Types of Terminal Use			Max.	Pier Face / Berth Group # 1					Pier Side 1/ Berth Group # 2					Pier Side 2/ Berth Group # 3					Term.cap	1991 flow
Code	Name	type 1	type 2	type 3	DWT	Access	length	depth	vsl's	width	Access	length	depth	vsl's	width	Access	length	depth	vsl's	width	1000 ton/yr	1000 ton/yr
308A	Louisiana wharves G,F,E	gen.cargo				truck	1590	35	3												540	•
322	Napoleon ave wharfs A,B,C	gen cargo	iron,steal,	mill		rail, truck	3241	35	5	46/108											540	•
353	Nashville/Henry Clay ave wharfs	gen cargo	RO-Ro			rail, truck	3601	35	6												3,548	•
778A	Perry st wharf	gen cargo	barges			rail, truck	1009	40	2	40											320	•
150A	Jourdan rd - 4,5	gen cargo	RO-Ro			rail, truck	1400	38	2												731	•
850A	Southern Scrap Metal wharf	scrap metal	gen cargo			rail, truck	451	32	1												140	•
860B	France rd container term #1	container	gen cargo			truck	830	35	1	147											320	•
860d,e	France rd terminals #4,5,6	gen cargo/RoRo	container	refrigrated		rail, truck	2285	35	3	120-0											1,234	•
913A	Florida ave wharf	gen cargo	RO-Ro			truck	482	30	1												140	•
930A	Galvez st wharf	gen cargo	mooring			rail, truck	2380	35	4		truck	265	20	0							1,234	6,263
																					8,747	6,263

Storage Area Characteristics				Total Storage		Storage Area number 1					Storage Area number 2					Storage Area number 3					
		Container	Reefer	Area	Capacity	Access	storage area		Capacity tons		Access	storage area		Capacity tons		Access	storage area		Capacity tons		Storage cap
Code	Name	Hold	storage	acres	tons		inside	outside	IN	OUT		inside	outside	IN	OUT		inside	outside	IN	OUT	1000 ton/yr
308A	Louisiana wharves G,F,E			15		rail, truck	750	4													420
322	Napoleon ave wharfs A,B,C			25		rail, truck	1550	8													700
353	Nashville/Henry Clay ave wharfs			30		rail, truck	1700	17													980
778A	Perry st wharf					rail, truck	750														140
150A	Jourdan rd - 4,5					rail, truck	500	10													420
850A	Southern Scrap Metal wharf					rail, truck		3													140
860B	France rd container term #1					rail, truck	850	35													420
860d,e	France rd terminals #4,5,6			30		rail, truck	1700	77													1,260
913A	Florida ave wharf					rail, truck	250	5													140
930A	Galvez st wharf					rail, truck	500														420
																				Rail	6,040

Load./ Unload.& Handling Equipment		Loading / Unloading Equipment				Handling Equipment # 1					Handling Equipment # 2					Handling Equipment # 3				Car	Capacity	
Code	Name	Type	load rate	unld rate	capacity	Type	Rate	Units	Cap	shared	Type	Rate	Units	Cap.	shared	Type	Rate	Units	Cap.	hold	1000 ton/yr	
308A	Louisiana wharves G,F,E					stevedoring															420	•
322	Napoleon ave wharfs A,B,C					stevedoring															540	•
353	Nashville/Henry Clay ave wharfs					mobile crane		1	300		mobile crane		2	90		bridge crane		1	50		980	•
778A	Perry st wharf					stevedoring															140	•
150A	Jourdan rd - 4,5					crawler crane		1	300		top/side lifter		2	25							420	•
850A	Southern Scrap Metal wharf					gantry crane		3	50		locomotive cran		7	40		yard crane/othr		2	25		140	•
860B	France rd container term.#1	container crane	2*25	2*25	2*40	fork lift/spreadr		1	40		mobile crane		1	40		stevedoring					320	•
860d,e	France rd terminals #4,5,6					stevedoring															234	•
913A	Florida ave wharf					stevedoring															140	•
930A	Galvez st wharf					stevedoring															420	6,263
																					6,764	6,263

Terminal General Remarks		Owner	
308A	Louisiana wharves G,F,E	Port of new orleans	Handles containers
322	Napoleon ave wharfs A,B,C	Port of new orleans	FTZ #2 located in rear area on 18.6 acres. Handles containers
353	Nashville/Henry Clay ave wharfs	Port of new orleans	Shared equipment for both wahrfs. Hanlde containers
778A	Perry st wharf	Port of new orleans	Handles containers
150A	Jourdan rd - 4,5	Port of new orleans	Handles containers, barge ramp avail. for Bow/Stern Ramp RO/RO vessels
850A	Soulhern Scrap Metal wharf	Southern Scrap Metal Co	All crane are equipped with magnets. Scrap material from ship-breaking and other sources
860B	France rd container term.#1	Port of new orleans	Handles containers
860d,e	France rd terminals #4,5,6	Port of new orleans	Cranes are shared RO-RO ramp located at #6, stern-ramp RO-RO vessels
913A	Florida ave wharf	Port of new orleans	Berth approach has drawbridges 94' horizontal clearance. Two RO-RO or 1 RO-RO and 1 break bulk ship
930A	Galvez st wharf	Port of new orleans	Handels containers

Flows in 1000 tons/yr for	Canada & Mexico		1991 Flow Total	Port Capacity
Gen.cargo	43	1%	6,263	11,579
Dry bulk	720	5%	13,117	22,112
Bulk grain	439	4%	11,709	12,818
Liquid bulk	3091	27%	11,481	18,321

Port Remarks: Excluded terminals(not listed) are either: exclusively receiving domestic cargo or barges, inactive, or mooring terminals. Approximate flows for each cargo group are derived from MARAD 1991 4-digit Harmonized commodity census for the port, and may/may not represent corresponding terminal group. Total flow is for foreign commerce, domestic cargo is about 50% of the total commerce. Some of the listed terminals are active in both foreign and domestic commerce. About 168 acres are available for expansion for private operators on demand. Capacity and flow should be considered in combination with those for Port of Superior.

Port of New Orealns, Louisiana

Port of New Orleans	Code	15800	20055	20095	20500	Reg'n	Gulf of Mexico
Code 2002	COE Depth	36	40	40	36	State	Louisiana
Coord 30 00 00 N 90 00 00 W	Channels T.basin					owner	Public & Private

List of Sheets

1	Dry Bulk	5,6	Liquid Bulk
2,3,4	General Cargo	7	Liq.Bulk & Bulk Grain

Sheet: 5 of 7

Berthage Characteristics

Code	Name	Types of Terminal Use type 1	type 2	type 3	Max. DWT	Pier Face / Berth Group # 1 Access	length	depth	vsl's	width	Pier Side 1/ Berth Group # 2 Access	length	depth	vsl's	width	Pier Side 2/ Berth Group # 3 Access	length	depth	vsl's	width	Term.cap 1000 ton/yr	1991 flow 1000 ton/yr
210A	Air Products/Chem -ammonia	Liq chemicals	tanker			pipeline	200	35	1												450	*
210B	Air Products/Chem -Hydrogen	Liq Chemicals	barges			pipeline	328	34	1												450	*
302A	Texas Pipeline Co	crude oil	tanker			pipeline	600	38	1												1,790	*
901A	Getty Oil - Venice terminal	crude oil	tanker			pipeline	785	40	1												450	*
702A	Gulf Oil - Butane	Liq propane gas				pipeline	180	20	1												450	*
702B	Gulf Oil - Super Wharf	crude oil	ref oil	tanker		pipeline	900	40	1												1,790	*
702C,D	Gulf Oil - barge & T2 wharf	crude oil	ref oil			pipeline	650	30	1												1,790	*
501A	Chevron Pipeline wharf	crude oil	tanker			pipeline	470	40	1												1,790	*
001A	Gulf Oil Tanker dock	ref,oil products	crude oil	liq propan		pipeline	500	40	1												450	*
901A	Red Star Yeast & Products Co					pipeline	240	25	1												450	*
																					9,860	

Storage Area Characteristics

Code	Name	Container Hold	Reefer storage	Total Storage Area acres	Capacity tons	Storage Area number 1 Access	storage area inside	outside	Capacity tons IN	OUT	Storage Area number 2 Access	storage area inside	outside	Capacity tons IN	OUT	Storage Area number 3 Access	storage area inside	outside	Capacity tons IN	OUT	Storage cap 1000 ton/yr
210A	Air Products/Chem.-ammonia					rail, truck			280												460
210B	Air Products/Chem -Hydrogen					rail, truck			250												460
302A	Texas Pipeline Co								800												1,860
901A	Getty Oil - Venice terminal					truck			700												460
702A	Gulf Oil - Butane					pipeline			20												460
702B	Gulf Oil - Super Wharf					truck, pipelline			272		truck,pipeline			355					78		1,860
702C,D	Gulf Oil - barge & T2 wharf					pipeline			531												1,860
501A	Chevron Pipeline wharf					pipeline			1000												1,860
001A	Gulf Oil Tanker dock					rail, truck			5014		rail, truck			90					300		460
901A	Red Star Yeast & Products Co					rail, truck			128												460
																				Rail	10,400

Load./ Unload.& Handling Equipment

Code	Name	Loading / Unloading Equipment Type	load rate	unld rate	capacity	Handling Equipment # 1 Type	Rate	Units	Cap	shared	Handling Equipment # 2 Type	Rate	Units	Cap.	shared	Handling Equipment # 3 Type	Rate	Units	Cap.	Car hold	Capacity 1000 ton/yr	
210A	Air Products/Chem -ammonia																				450	*
210B	Air Products/Chem.-Hydrogen																				450	*
302A	Texas Pipeline Co					cargo hoses	10	B													1,790	*
901A	Getty Oil - Venice terminal						332	B													450	*
702A	Gulf Oil - Butane																				450	*
702B	Gulf Oil - Super Wharf					cargo hoses	50	B													1,790	*
702C,D	Gulf Oil - barge & T2 wharf																				1,790	*
501A	Chevron Pipeline wharf																				1,790	*
001A	Gulf Oil Tanker dock					cargo hoses	60	B													450	*
901A	Red Star Yeast & Products Co																				450	*
																					9,860	

Terminal General Remarks

Code	Name	Owner	Remarks
210A	Air Products/Chem -ammonia	Air Products&Chemical Inc	Liquid storage. Annhydrous ammonia
210B	Air Products/Chem.-Hydrogen	Air Products&Chemical Inc	Barges berth stern to face. Total storage cascity 300 t
302A	Texas Pipeline Co	Texas Pipeline Co	
901A	Getty Oil - Venice terminal	Getty Oil Co	consists of 2 facilities
702A	Gulf Oil - Butane	Gulf Oil Corp	
702B	Gulf Oil - Super Wharf	Gulf Oil Corp	Liq. storage area: 1-crude 2-gasoline 3-diesel
702C,D	Gulf Oil - barge & T2 wharf	Gulf Oil Corp	Both facilities share storage with super wharf
501A	Chevron Pipeline wharf	Chevron Pipeline Co	consists of 2 facilities at miles 26.5 & 26.7
001A	Gulf Oil Tanker dock	Gulf Oil Corp	Liq storage area 1-product/crude 2-lpg 3-butane
901A	Red Star Yeast & Products Co	Universal Food Corp	

Flows in 1000 t tons/yr for	Canada & Mexico		1991 Flow Total	Port Capacity
Gen.cargo	43	1%	6,263	11,579
Dry bulk	720	5%	13,117	22,112
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All Cargo	4293	10%	42,570	64,630

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* all dimensions are in feet. Storage area: Inside:in 1000 ft2, Outside:in acres. Storage for Liquids is in 1000 bbls, and for bulk grain is in 1000 bushels

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Port of New Orleans	Code	15800	20055	20095	20500	Reg'n	Gulf of Mexico	List of Sheets			Sheet: 6 of 7
Code 2002	COE	Depth	36	40	40	36	State	Louisiana	1	Dry Bulk	5,6 Liquid Bulk
Coord 30 00 00 N 90 00 00 W	Channels	T.basin					owner	Public & Private	2,3,4	General Cargo	7 Liq.Bulk & Bulk Grain

Berthage Characteristics		Types of Terminal Use			Max.	Pier Face / Berth Group # 1					Pier Side 1/ Berth Group # 2					Pier Side 2/ Berth Group # 3					Term.cap	1991 flow
Code	Name	type 1	type 2	type 3	DWT	Access	length	depth	vsl's	width	Access	length	depth	vsl's	width	Access	length	depth	vsl's	width	1000 ton/yr	1000 ton/yr
602C	Amax Nickel Refining Dock	Ref oil products				pipeline	440	37	1												450	•
047A	Exxon - Chalmette	Ref oil products	crude oil	barges		pipeline	380	25	1												450	•
054A	Mobil Oil - Crude Terminal	crude oil	tanker			pipeline	580	35	1												450	•
054B	Mobil Oil - 1,3,4	crude oil	Ref oil	tanker		pipeline	390	42	1		pipeline	450	20	1	100						1,028	•
583A	Louisiana Power & Light Co	fuel oil	barges			pipeline	600	15	1												1,790	•
583B	Paktank - Westwego Terminal	Ref oil products	barges			pipeline	560	16	1												450	•
614A	Pacific Molasses Co	molasses	misc liq	tanker		pipeline	850	30	1	34											450	•
695A	Delta Commodities - 1,2,3	Ref oil products	misc liq	tanker		pipeline	700	42	1												450	•
695B	Amerada Hess - Wharves 1,2,3	crude oil	ref oil	tanker		pipeline	850	48	1												450	•
695C	Texaco - Marreno	Ref oil products				pipeline	746	34	1												450	•

Storage Area Characteristics				Total Storage		Storage Area number 1					Storage Area number 2					Storage Area number 3					6,418
Code	Name	Container Hold	Reefer storage	Area acres	Capacity tons	Access	storage area inside	storage area outside	Capacity tons IN	Capacity tons OUT	Access	storage area inside	storage area outside	Capacity tons IN	Capacity tons OUT	Access	storage area inside	storage area outside	Capacity tons IN	Capacity tons OUT	Storage cap 1000 ton/yr
602C	Amax Nickel Refining Dock					rail, truck			15		rail, truck			6							480
047A	Exxon - Chalmette								450					225					96		480
054A	Mobil Oil - Crude Terminal					rail, truck			1300												480
054B	Mobil Oil - 1,3,4					rail, truck			1937		rail, truck			361							480
583A	Louisiana Power & Light Co					rail, truck			450												1,680
583B	Paktank - Westwego Terminal								130					52							480
614A	Pacific Molasses Co					rail, truck			145					302					23		480
695A	Delta Commodities - 1,2,3					rail, truck			1500												480
695B	Amerada Hess - Wharves 1,2,3					rail, truck			376		rail, truck			2116							480
695C	Texaco - Marreno					rail, truck			642												480

Load./ Unload.& Handling Equipment		Loading / Unloading Equipment				Handling Equipment # 1					Handling Equipment # 2					Handling Equipment # 3					Rail	6,200
Code	Name	Type	load rate	unld rate	capacity	Type	Rate	Units	Cap.	shared	Type	Rate	Units	Cap.	shared	Type	Rate	Units	Cap.	Car hold	Capacity 1000 ton/yr	
602C	Amax Nickel Refining Dock					other mechanic	10	B													450	•
047A	Exxon - Chalmette																				450	•
054A	Mobil Oil - Crude Terminal					other mechanic	90	B													450	•
054B	Mobil Oil - 1,3,4					other mechanic	250	B													480	•
583A	Louisiana Power & Light Co																				790	•
583B	Paktank - Westwego Terminal																				450	•
614A	Pacific Molasses Co					cargo hoses	30	B													450	•
695A	Delta Commodities - 1,2,3					cargo hoses	30	B													450	•
695B	Amerada Hess - Wharves 1,2,3					cargo hoses	40	B													450	•
695C	Texaco - Marreno					cargo hoses	20	B													450	•
																					5,870	

Terminal General Remarks		Owner	
602C	Amax Nickel Refining Dock	Amax Nickel Refinig Co	Liq. storage area: 1-fuel oil 2-sulfuric acid
047A	Exxon - Chalmette	Exxon USA	2 separate facilities. Storage area: 1-petro-products 2/3/4-diesel oil
054A	Mobil Oil - Crude Terminal	Mobil Oil Corp	
054B	Mobil Oil - 1,3,4	Tenneco Oil Co	3 separate facilities - barge wharves handle petroleum/petro-chemicals. Additional storage at mobile oil terminal
583A	Louisiana Power & Light Co	System Fuels Inc	
583B	Paktank - Westwego Terminal	Paktank Corp	Storage area: 1-gasoline 2-diesel
614A	Pacific Molasses Co	Pacific Molasses Co	Other cargo: Liq. fats & oils. Storage area: 1-molasses 2-veg oil 3-various
695A	Delta Commodities - 1,2,3	Delta Commoditis	Public storage for liquid bulk
695B	Amerada Hess - Wharves 1,2,3	Amerada Hess Corp	Common storage for all three
695C	Texaco - Marreno	Texaco USA	

Flows in 1000 tons/yr for	Canada & Mexico		1991 Flow Total	Port Capacity
Gen.cargo	43	1%	6,263	11,579
Dry bulk	720	5%	13,117	22,112
Bulk grain	439	4%	11,709	12,618
Liquid bulk	3091	27%	11,481	18,321
All Cargo	4293	10%	42,570	64,630

Port Remarks: Excluded terminals(not listed) are either: exclusively receiving domestic cargo or barges, inactive, or mooring terminals. Approximate flows for each cargo group are derived from MARAD 1991 4-digit Harmonized commodity census for the port, and may/may not represent corresponding terminal group. Total flow is for foreign commerce, domestic cargo is about 50% of the total commerce. Some of the listed terminals are active in both foreign and domestic commerce. About 168 acres are available for expansion for private operators on demand. Capacity and flow should be considered in combination with those for Port of Superior. The port is served by US-35 freeway and 6 major railroads (see attachment). Most of Duluth's excess capacity is in handling dry bulk and ores.

Port of New Oreains, Louisiana

Port of New Orleans	Code	15600	20055	20095	20500	Reg'n	Gulf of Mexico	List of Sheets				Sheet: 7 of 7
Code 2002	COE	Depth	36	40	40	36	State	Louisiana	1	Dry Bulk	5,6	Liquid Bulk
Coord 30 00 00 N 90 00 00 W	Channels	T.basin					owner	Public & Private	2,3,4	General Cargo	7	Liq.Bulk & Bulk Grain

Berthage Characteristics		Types of Terminal Use			Max.	Pier Face / Berth Group # 1					Pier Side 1/ Berth Group # 2					Pier Side 2/ Berth Group # 3					Term.cap	1991 flow
Code	Name	type 1	type 2	type 3	DWT	Access	length	depth	vsl's	width	Access	length	depth	vsl's	width	Access	length	depth	vsl's	width	1000 ton/yr	1000 ton/yr
722A	Bp Oil Inc	Ref. oil products	tanker			pipeline	540	45	1		pipeline	460	25	1		pipeline	30	30			1,028	*
742A	John W stone - Sp dock	Molasses				pipeline	685	28	1												450	*
744A	Stone oil Dist - fuel	Ref.oil products	barges								pipeline	800	20	1		pipeline	390	20			450	*
001Z	Shell pipeline borp	barges	crude oil			pipeline	1020	17	1												450	*
200A	New Orleans Public Service	barges	fuel oil			pipeline	424	18	1												450	11,481
501A	Mississipi River Grain Elev	bulk grain	barges			conveyor	536	40	1		conveyor	536	20	1							8,617	*
583A	Continental Grain Co	bulk grain	barges			conveyor	1600	40	2		conveyor	720	17								8,617	11,709

Storage Area Characteristics				Total Storage		Storage Area number 1					Storage Area number 2					Storage Area number 3					20,002	23,190
Code	Name	Container Hold	Reefer storage	Area acres	Capacity tons	Access	storage area inside	storage area outside	Capacity tons IN	Capacity tons OUT	Access	storage area inside	storage area outside	Capacity tons IN	Capacity tons OUT	Access	storage area inside	storage area outside	Capacity tons IN	Capacity tons OUT	Storage cap 1000 ton/yr	
722A	Bp Oil Inc			1425		pipeline			1425												11,520	
742A	John W stone - Sp dock			200		truck			200												2,213	
744A	Stone oil Dist - fuel			8580		truck			8580												6,152	
001Z	Shell pipeline borp			495		pipeline			495												528	
200A	New Orleans Public Service			600		truck			600												640	
501A	Mississipi River Grain Elev			8000		rail, truck															6,560	
583A	Continental Grain Co			7388		rail, truck															6,058	

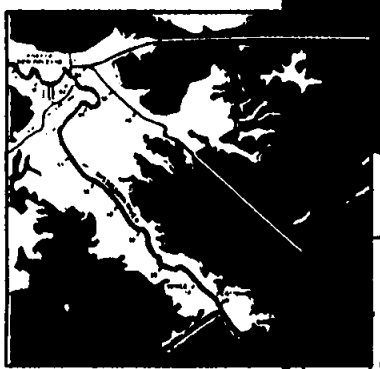
Load./ Unload.& Handling Equipment		Loading / Unloading Equipment				Handling Equipment # 1					Handling Equipment # 2					Handling Equipment # 3				Rail	24,671	
Code	Name	Type	load rate	unld rate	capacity	Type	Rate	Units	Cap	shared	Type	Rate	Units	Cap	shared	Type	Rate	Units	Cap.	Car hold	Capacity 1000 ton/yr	
722A	Bp Oil Inc																				1,028	*
742A	John W stone - Sp dock																				213	*
744A	Stone oil Dist - fuel																				450	*
001Z	Shell pipeline borp																				450	*
200A	New Orleans Public Service																				450	11,481
501A	Mississipi River Grain Elev.					shiploader	60	4			conveyor		1								6,560	*
583A	Continental Grain Co					shiploader	100	6			gantry +bucket	70	1			gantry+bucket	60	1		125	6,058	11,709
																					15,209	23,190

Terminal General Remarks	Owner.	
722A Bp Oil Inc	Bp Oil Inc	2 separate facilities
742A John W stone - Sp dock	Stone Oil Distributor Inc	
744A Stone oil Dist - fuel	Stone Oil Distributor Inc	adjacent facility shares common storage
001Z Shell pipeline borp	Shell Oil Co	located at mile 7.5 B H P
200A New Orleans Public Service	Port of New Orleans	
501A Mississipi River Grain Elev.	Mississipi River Grain Elev	barge operation-rear of face. Loading rate=combined rate
583A Continental Grain Co	Continental Grain Co	rate is per vessel

Port Remarks: Excluded terminals(not listed) are either: exclusively receiving domestic cargo or barges, inactive, or mooring terminals. Approximate flows for each cargo group are derived from MARAD 1991 4-digit Harmonized commodity census for the port, and may/may not represent corresponding terminal group. Total flow is for foreign commerce, domestic cargo is about 50% of the total commerce. Some of the listed terminals are active in both foreign and domestic commerce. About 168 acres are available for expansion for private operators on demand. Capacity and flow should be considered in combination with those for Port of Superior. The port is served by US-35 freeway and 6 major railroads (see attachment). Most of Duluth's excess capacity is in handling dry bulk and ores.

Flows in 1000 tons/yr for	Canada & Mexico		1991 Flow Total	Port Capacity
Gen.cargo	43	1%	6,263	11,579
Dry bulk	720	6%	13,117	22,112
Bulk grain	439	4%	11,709	12,618
Liquid bulk	3091	27%	11,481	18,321
All Cargo	4293	10%	42,570	64,630

* all dimensions are in feet. Storage area: Inside:in 1000 ft2, Outside:in acres. Storage for Liquids is in 1000 bbls, and for bulk grain is in 1000 bushels



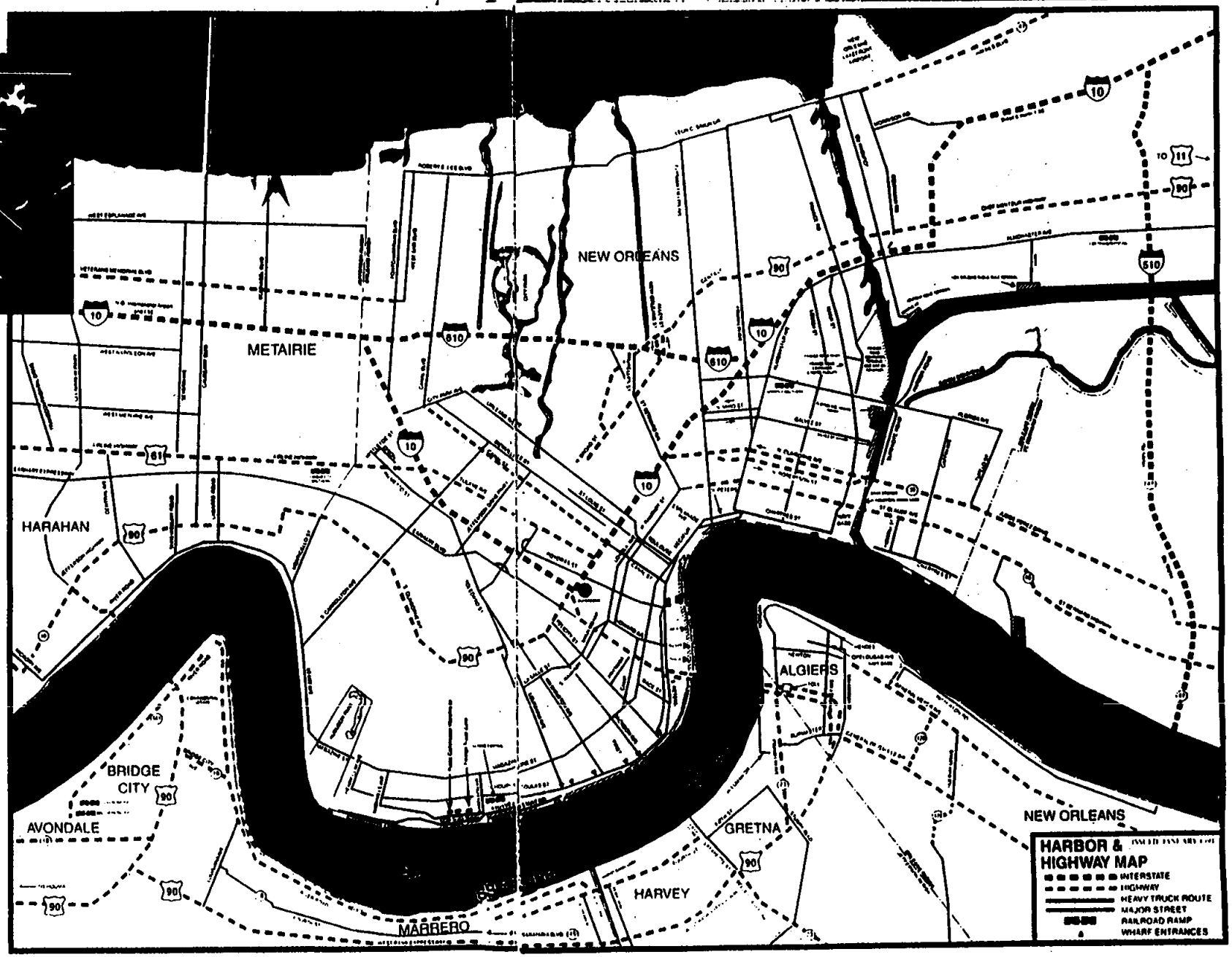
Port Entrances ▲

Highway & Harbor ►

The shaded areas indicate the location of the heaviest activity in the Port.

At the top is the France Road Container Terminal, situated just minutes from I-10 and the city on the Industrial Canal.

On the bottom is the stretch of upriver terminals along the Tchoupitoulas Corridor. Both the corridor and many of the Port's facilities are currently seeing construction as part of the Port's overall capital improvement program.



Port of Baton Rouge, LA

Port of Baton Rouge	Code	20160/8	20173	20187	2020	20210	20228	Reg'n	Gulf of Mexico
Code 2004	COE Depth	40	40	40	40	40	40	State	Louisiana
Coord 30 20 N 91 10 W	Channels T.basin	500						owner	Public & Private

List of Sheets
1 General Cargo, Dry Bulk
2 Dry Bulk, Grain, Liquid Bulk
3 Liquid Bulk Terminals

Sheet: 1 of 3

Berthage Characteristics

Code	Name	Types of Terminal Use type 1	type 2	type 3	Max. DWT	Pier Face / Berth Group # 1 Access	length	depth	vsl's	width	Pier Side 1/ Berth Group # 2 Access	length	depth	vsl's	width	Pier Side 2/ Berth Group # 3 Access	length	depth	vsl's	width	Term.cap 1000 ton/yr	1991 flow 1000 ton/yr
146A	Barge Terminal Pier	Gen cargo	liq bulk	dry bulk			90	12			rail, truck	399	12	1		rail, truck	490	12	1		731	•
950A	Dock - 1	Gen cargo	molasses	scrap mtl		rail, truck	1408	45	2	40	pipeline	400	40	1							3,548	•
950B	Dock - 2	Gen cargo	dry bulk			rail, truck	831	45	2	38											2,171	•
950E	Dock Connection	Gen cargo				rail, truck	770	45	1	60											320	5,526
402A	Freeport Chemical	Dry bulk	liq bulk	nonmetal	25	conveyor, pipe	625	40	1			625	30	1			360	20	1		3,664	•
901A	Agrico Chemical Co	Dry bulk, ores	liq bulk	fertilizers		conveyor, pipe	850	40	1		conveyor, pipe	790	12	1							2,171	•
601A	Missouri Portland Cement Co	Dry bulk	cement			pipeline	700	30	1			35					35				950	•
401A	Triad Chemical Wharf	Dry bulk	liq bulk	fertilizers		conveyor, pipe	1050	40	1	23											1,610	•
601A	C F Industries Inc	Dry bulk	liq bulk	fertilizers		conveyor, pipe	570	45	1	38											1,610	•
002A	Allied-Signal Wharf	Dry bulk	liq bulk	chemical		conveyor, pipe	805	45	2	57	conveyor, pipe	745	6	1	57						3,664	•
																					20,439	5,526

Storage Area Characteristics

Code	Name	Container Hold	Reefer storage	Total Storage Area acres	Capacity tons	Storage Area number 1 Access	storage area inside	outside	Capacity tons IN	OUT	Storage Area number 2 Access	storage area inside	outside	Capacity tons IN	OUT	Storage Area number 3 Access	storage area inside	outside	Capacity tons IN	OUT	Storage cap 1000 ton/yr
146A	Barge Terminal Pier			12		rail, truck	250	4			rail, truck	23 625									504
950A	Dock - 1			46		rail, truck	110					42				rail, truck	375				3,036
950B	Dock - 2			20		rail, truck	85				rail, truck	28				rail, truck		46			2,225
950E	Dock Connection					rail, truck															420
402A	Freeport Chemical			24		rail, truck		8		60					500						2,670
901A	Agrico Chemical Co			20					60	200				20		rail	819				2,225
601A	Missouri Portland Cement Co								16												890
401A	Triad Chemical Wharf			10		rail, truck			40												2,472
601A	C F Industries Inc			12		rail, truck			60												2,667
002A	Allied-Signal Wharf			30		rail, truck		4		40		642					330				3,338
																				Rail	20,746

Load./ Unload.& Handling Equipment

Code	Name	Loading / Unloading Equipment Type	load rate	unld rate	capacity	Handling Equipment # 1 Type	Rate	Units	Cap.	shared	Handling Equipment # 2 Type	Rate	Units	Cap	shared	Handling Equipment # 3 Type	Rate	Units	Cap.	Car hold	Capacity 1000 ton/yr	
146A	Barge Terminal Pier																				504	•
950A	Dock - 1					gantry crane		1	30		stevedore										3,036	•
950B	Dock - 2					conveyor	200	1													2,171	•
950E	Dock Connection					crawler crane		4	150		crawler		2	55		fork lifts		44			320	5,526
402A	Freeport Chemical					conveyor	1800				hoses/mech.co										2,670	•
901A	Agrico Chemical Co					ships gear	2000	1			shiploader	1000	1								2,171	•
601A	Missouri Portland Cement Co					pneumatic unldr	175	1													890	•
401A	Triad Chemical Wharf					shiploader	150	1			conveyor					cargo hoses					2,810	•
601A	C F Industries Inc					chute spout	300	1			conveyor		1								2,810	•
002A	Allied-Signal Wharf					gantry+bucket	1500	1			conveyor					cargo hoses					3,338	•
																					18,320	5,526

Terminal General Remarks

Code	Name	Owner	Remarks
146A	Barge Terminal Pier	Greater Baton R. Port Com	Cranes equipped with clamshell buckets.
950A	Dock - 1	Greater Baton R. Port Com	Molasses handled at barge facility. Contiguous with dock connection. See dock connection for additional equipment.
950B	Dock - 2	Greater Baton R. Port Com	Contiguous with dock connection and petroleum wharf. See dock connection for additional equipment. Includes 12 acre foreign trade zone.
950E	Dock Connection	Greater Baton R. Port Com	Contiguous with docks 1 and 2.
402A	Freeport Chemical	Freeport Minerals Co	Storage: 1-sulphur, 2-phosphoric acid, 3-sulphuric acid. Additional storage: 35,000 bbls of fuel oil. Self unloading barges: phosphate rock.
901A	Agrico Chemical Co	Agrico Chemical Co	Storage area: 1-sulphur, 2-ammonia, 3-misc chemicals. Other: barge unloader.
601A	Missouri Portland Cement Co	Missouri Portland Cement	Facility discharges and distributes cement from barges.
401A	Triad Chemical Wharf	Mississippi Chemical Corp	Cargo: urea and liquid amonia
601A	C F Industries Inc	C F Industries Inc	Liquid storage located at barge dock. Dock consists of 3 offshore platforms. Handles urea
002A	Allied-Signal Wharf	Allied Signal Inc	Liquid storage area: 1-4 Arcadian, 5-6 Union Texas

Port Remarks: Excluded terminals(not listed) are either: exclusively receiving domestic cargo or barges, inactive, or mooring terminals. Approximate flows for each cargo group are derived from MARAD 1991 4-digit Harmonized commodity census for the port, and may/may not represent corresponding terminal group. Total flow is for foreign commerce, domestic cargo is about 55% of the total commerce. Some of the listed terminals are active in both foreign and domestic commerce.

Flows in 1000 tons/yr for	Canada & Mexico		1991 Flow Total	Port Capacity
Gen.cargo	332	6%	5,526	6,185
Dry bulk	742	5%	13,657	18,776
Bulk grain	64	3%	2,338	6,378
Liquid bulk	1369	11%	12,790	24,340
All Cargo	2507	7%	34,211	55,679

Port of Baton Rouge, LA

Port of Baton Rouge	Code	20160/8	20173	20187	2020	20210	20228	Reg'n	Gulf of Mexico
Code 2004	COE Depth	40	40	40	40	40	40	State	Louisiana
Coord 30 20 N 91 10 W	Channels T.basin	500						owner	Public & Private

List of Sheets
1 General Cargo, Dry Bulk
2 Dry Bulk, Grain, Liquid Bulk
3 Liquid Bulk Terminals

Berthage Characteristics

Code	Name	Types of Terminal Use: type 1	type 2	type 3	Max. DWT	Pier Face / Berth Group # 1: Access	length	depth	vsl's	width	Pier Side 1/ Berth Group # 2: Access	length	depth	vsl's	width	Pier Side 2/ Berth Group # 3: Access	length	depth	vsl's	width	Term.cap 1000 ton/yr	1991 flow 1000 ton/yr
002A	Stauffer Chemical	Dry bulk	liq bulk	nonmetal		conveyor, pipe	575	55	1		conveyor, pipe	440	15	1							2,171	•
118A	Hall-Buck Marine - Coke	Dry bulk	coal/coke			conveyor	645	15	1	25											3,560	•
135A	Ingram Aggregates - Upper	Dry bulk	nonmetal			truck	600	30	1												2,950	18,776
801A	Zen-Noh Grain Wharf	Bulk grain				conveyor	516	50	1		conveyor	740	35	1							3,885	•
952A	Grain Wharf	Bulk grain				conveyor	600	40	1		conveyor	530	40	1							3,685	2,338
502A	Convent Chemical Wharf	Liquid bulk	Soda			pipeline	795	40	1												450	•
102A	Texaco Inc	Liquid bulk	crude oil	ref oil	70	pipeline	900	40	1		pipeline	820	40	1							4,091	•
601C	C F Industries Inc	Liquid bulk	fertilizer			pipeline	860	20	1	50											450	•
402A	Shell Chemical Co	Liquid bulk	ref oil	chemical		pipeline	940	38	1	35											1,700	•
																					21,252	21,114

Storage Area Characteristics

Code	Name	Container Hold	Reefer storage	Total Storage: Area acres	Capacity tons	Storage Area number 1: Access	storage area inside	outside	Capacity tons IN	OUT	Storage Area number 2: Access	storage area inside	outside	Capacity tons IN	OUT	Storage Area number 3: Access	storage area inside	outside	Capacity tons IN	OUT	Storage cap 1000 ton/yr
002A	Stauffer Chemical			20		rail, truck			66		rail, truck	100									2,225
118A	Hall-Buck Marine - Coke			18		rail, truck				60											3,100
135A	Ingram Aggregates - Upper					truck		5													800
801A	Zen-Noh Grain Wharf			4000		rail, truck	4000														2,493
952A	Grain Wharf			7500		rail, truck	7500														4,675
502A	Convent Chemical Wharf					pipeline					pipeline	180				pipeline	127.5				480
102A	Texaco Inc			3500		rail	2500				rail	1000									311
601C	C F Industries Inc					rail					rail										480
402A	Shell Chemical Co					rail, truck	217.75				rail, truck	638.93				rail, trcuk	69				1,600
																				Rail	25,630

Load./ Unload.& Handling Equipment

Code	Name	Loading / Unloading Equipment: Type	load rate	unld rate	capacity	Handling Equipment # 1: Type	Rate	Units	Cap.	shared	Handling Equipment # 2: Type	Rate	Units	Cap.	shared	Handling Equipment # 3: Type	Rate	Units	Cap.	Car hold	Capacity 1000 ton/yr	
002A	Stauffer Chemical					locomotive cran		1			conveyor	200	1							60	2,171	•
118A	Hall-Buck Marine - Coke					grvtychute spout	500	1													3,560	•
135A	Ingram Aggregates - Upper					clamshell bckt	430	1			recvng hopper		1								2,950	18,776
801A	Zen-Noh Grain Wharf					grvtychute spout	120	4			marine leg	100	1			conveyor		2			3,885	•
952A	Grain Wharf					grvtychute spout	60	5			marine leg	30	2			conveyor		1		220	3,685	2,338
502A	Convent Chemical Wharf																				450	•
102A	Texaco Inc					hoses/mech.co	50														4,091	•
601C	C F Industries Inc					other mech	6														450	•
402A	Shell Chemical Co					other mech.	14														1,700	•
																					19,800	21,114

Terminal General Remarks

Code	Name	Owner	
002A	Stauffer Chemical	Stauffer Chemical Co	Handles salt.
118A	Hall-Buck Marine - Coke	Exxon USA	
135A	Ingram Aggregates - Upper	Bill Cannon	
801A	Zen-Noh Grain Wharf	Zen-Noh Grain Corp	
952A	Grain Wharf	Greater Baton R. Port Com	Rates are combined rates.
502A	Convent Chemical Wharf	Convent Chemical Corp	Liquid storage area: 1-chlorine, 2-caustic soda, 3-ethylene dichloride
102A	Texaco Inc	Texaco Inx	Liquid storage area: 1-crude, 2-product Consists of 2 facilities miles 168.4 & 168.2
601C	C F Industries Inc	C F Industries Inc	Liquid storage area: 1-ammonia hydrate, 2-ammonia
402A	Shell Chemical Co	Shell Oil Co	

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Flows in 1000 tons/yr for	Canada & Mexico	%	1991 Flow Total	Port Capacity
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Dry bulk	742	5%	13,557	18,776
Bulk grain	64	3%	2,338	6,378
Liquid bulk	1369	11%	12,790	24,340
All Cargo	2507	7%	34,211	55,679

Port of Baton Rouge, LA

Port of Baton Rouge	Code	20160/8	20173	20187	2020	20210	20228	Reg'n	Gulf of Mexico
Code 2004	COE Depth	40	40	40	40	40	40	State	Louisiana
Coord 30 20 N 91 10 W	Channels T.basin	500						owner	Public & Private

List of Sheets 1 General Cargo, Dry Bulk
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3 Liquid Bulk Terminals

Sheet: 3 of 3

Berthage Characteristics		Types of Terminal Use			Max.	Pier Face / Berth Group # 1					Pier Side 1/ Berth Group # 2					Pier Side 2/ Berth Group # 3					Term.cap	1991 flow
Code	Name	type 1	type 2	type 3	DWT	Access	length	depth	vsl's	width	Access	length	depth	vsl's	width	Access	length	depth	vsl's	width	1000 ton/yr	1000 ton/yr
802A	BASF Corp	Liquid bulk	chemical	soda		pipeline	800	45	1	30											450	*
802A	Cos-Mar Plant	Liquid bulk	chemical			pipeline	800	30	1	35	pipeline	400	20	1	35						1,028	*
501A	Georgia Pacific - Ship	Liquid bulk	chemical	soda		pipeline	720	40	1	20	pipeline	450	40	1	20						4,091	*
801A	Allemania Chemical Co	Liquid bulk	chemical			pipeline	900	45	1		pipeline	485	40	1							4,091	*
001A	DOW Chemical #1	Liquid bulk	chemical	soda		pipeline	850	35	1		pipeline	500	35	1							1,028	*
029A	Intercontinental Terminals Co	Liquid bulk	chemical			pipeline	520	40	1	46											450	*
105A	EXXON USA	Liquid bulk	ref. oil			pipeline	2750	45	4		pipeline	1250	15	1							8,004	*
139A	Formosa Plastics Corp	Liquid bulk	chemical	soda		pipeline	763	40	1												450	*
925A	Placid Refining Co	Liquid bulk	crude oil	ref. oil		pipeline	820	45	1	42	pipeline	500	45	1	42						4,091	*
950C	Petroleum Terminal	Liquid bulk	ref. oil			pipeline	700	45	1		pipeline	550	45	1							1,028	12,790
																					23,611	12,790

Storage Area Characteristics				Total Storage		Storage Area number 1					Storage Area number 2					Storage Area number 3					
Code	Name	Container Hold	Reefer storage	Area acres	Capacity tons	Access	storage area inside	outside	Capacity IN	tons OUT	Access	storage area inside	outside	Capacity IN	tons OUT	Access	storage area inside	outside	Capacity IN	tons OUT	Storage cap 1000 ton/yr
802A	BASF Corp					rail, truck	77.5				rail, truck	30				rail, truck	142				480
802A	Cos-Mar Plant					rail, truck					rail, truck					rail, truck					480
501A	Georgia Pacific - Ship			965		rail, truck	965														12,016
801A	Allemania Chemical Co					rail, truck	375														1,880
001A	DOW Chemical #1					rail, truck															480
029A	Intercontinental Terminals Co						147														480
105A	EXXON USA			8000		rr, truck, pipe	3581				rr, truck	5449				rr, truck, pipe	1569				16,711
139A	Formosa Plastics Corp					rail, truck					rail, truck										480
925A	Placid Refining Co			1900		truck	1900														3,069
950C	Petroleum Terminal					rail, truck	1215														480
																				Rail	27,456

Load./ Unload.& Handling Equipment		Loading / Unloading Equipment				Handling Equipment # 1					Handling Equipment # 2					Handling Equipment # 3					Capacity	
Code	Name	Type	load rate	unld rate	capacity	Type	Rate	Units	Cap	shared	Type	Rate	Units	Cap.	shared	Type	Rate	Units	Cap.	Rail Car hold	1000 ton/yr	
802A	BASF Corp					hoses/mech.co	1														450	*
802A	Cos-Mar Plant					hoses/mech.co															480	*
501A	Georgia Pacific - Ship					cargo hoses	2				cargo hoses	5									2,016	*
801A	Allemania Chemical Co					cargo hoses	3														1,880	*
001A	DOW Chemical #1					cargo hoses															480	*
029A	Intercontinental Terminals Co					cargo hoses															480	*
105A	EXXON USA					hoses/mech.co	70				hoses/mech.co	300									16,711	*
139A	Formosa Plastics Corp					other mech.															480	*
925A	Placid Refining Co					other mech.															3,069	*
950C	Petroleum Terminal					cargo hoses															480	12,790
																					27,659	12,790

Terminal General Remarks		Owner	
802A	BASF Corp	Basf Corp	Liquid storae area: 1-3 Basf, 4-5 Vulcan.
802A	Cos-Mar Plant	Cos-Mar Co	
501A	Georgia Pacific - Ship	Georgia Pacific Corp	
801A	Allemania Chemical Co	Allemania Chemical Co	Cargo: methanol.
001A	DOW Chemical #1	Dow Chemical USA	
029A	Intercontinental Terminals Co	Exxon USA	
105A	EXXON USA	Exxon USA	
139A	Formosa Plastics Corp	Formosa Plastics Corp	
925A	Placid Refining Co	Placid Refining Co	Consists of 2 facilities with common storage. Storage includes petroleum product, crude, and chemicals
950C	Petroleum Terminal	Greater Baton R. Port Com	Contiguous with docks 1 & 2.

Port Remarks: Excluded terminals(not listed) are either: exclusively receiving domestic cargo or barges, inactive, or mooring terminals. Approximate flows for each cargo group are derived from MARAD 1991 4-digit Harmonized commodity census for the port, and may/may not represent corresponding terminal group. Total flow is for foreign commerce, domestic cargo is about 55% of the total commerce. Some of the listed terminals are active in both foreign and domestic commerce.

Flows in 1000 tons/yr for	Canada & Mexico		1991 Flow Total	Port Capacity
Gen.cargo	332	6%	5,526	6,185
Dry bulk	742	5%	13,557	18,776
Bulk grain	84	3%	2,338	6,378
Liquid bulk	1369	11%	12,790	24,340
All Cargo	2507	7%	34,211	55,679

* all dimensions are in feet. Storage area: Inside:in 1000 ft2, Outside:in acres, Storage for Liquids is in 1000 bbls, and for bulk grain is in 1000 bushels

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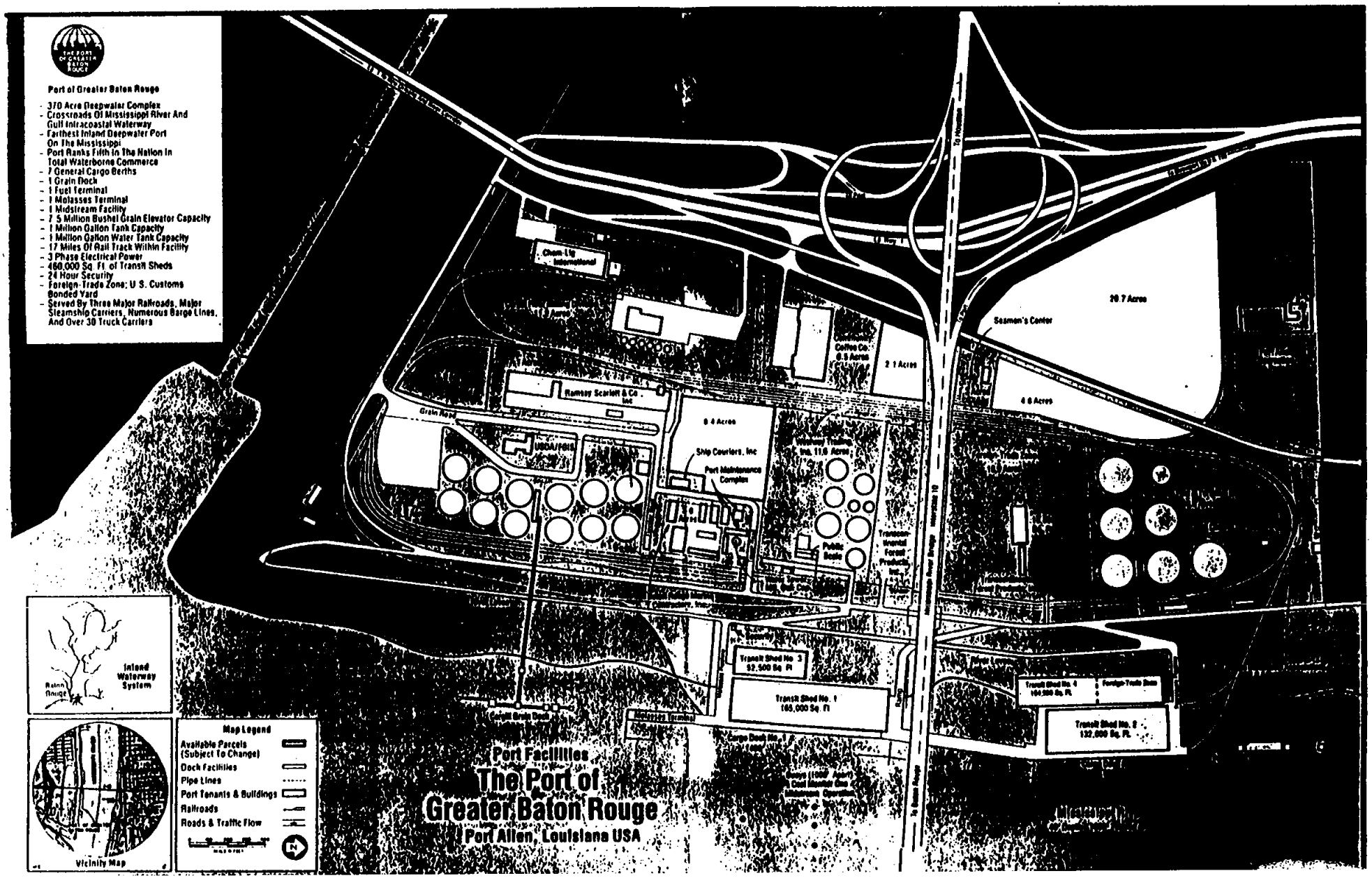

Port of Greater Baton Rouge
- 370 Acre Deepwater Complex
- Crossroads Of Mississippi River And Gulf Intracoastal Waterway
- Farthest Inland Deepwater Port On The Mississippi
- Port Ranks Fifth In The Nation In Total Waterborne Commerce
- 7 General Cargo Berths
- 1 Grain Dock
- 1 Fuel Terminal
- 1 Molasses Terminal
- 1 Midstream Facility
- 7.5 Million Bushel Grain Elevator Capacity
- 1 Million Gallon Tank Capacity
- 1 Million Gallon Water Tank Capacity
- 17 Miles Of Rail Track Within Facility
- 3 Phase Electrical Power
- 460,000 Sq. Ft. of Transit Sheds
- 24 Hour Security
- Foreign-Trade Zone; U.S. Customs Bonded Yard
- Served By Three Major Railroads, Major Steamship Carriers, Numerous Barge Lines, And Over 30 Truck Carriers
Chem-Lig International
Ramsey Scarlett & Co., Inc.
Grain Road
USDA/FGIS
8.4 Acres
Ship Couriers, Inc.
Port Maintenance Complex
Coffee Co.
8.5 Acres
2.1 Acres
Waterway Trading Inc. 11.6 Acres
Public Docks
Transcontinental Forest Products Inc.
20.7 Acres
Seamen's Center
4.6 Acres
Transit Shed No. 3
52,500 Sq. Ft.
Transit Shed No. 1
165,000 Sq. Ft.
Transit Shed No. 4
Foreign-Trade Zone
Transit Shed No. 2
132,000 Sq. Ft.
Inland Waterway System
Vicinity Map
Map Legend
Available Parcels (Subject To Change)
Dock Facilities
Pipe Lines
Port Tenants & Buildings
Railroads
Roads & Traffic Flow
Port Facilities
The Port of
Greater Baton Rouge
Port Allen, Louisiana USA

Port of Pascagoula, MS

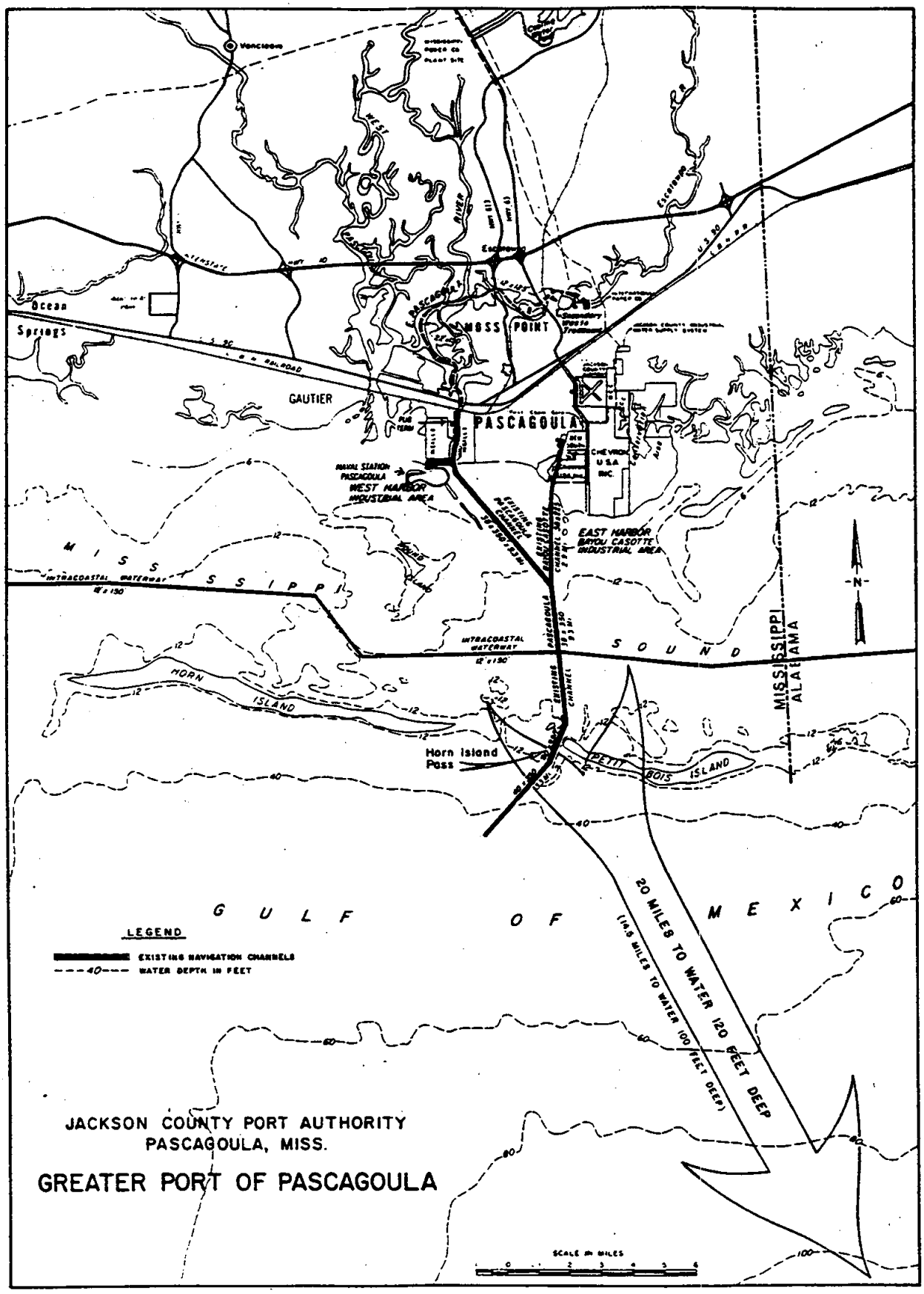
Port of Pascagoula		Code	15555	15556			Reg'n	Gulf of Mexico	Supplemental Sheets		Sheet: 1 of 1
Code 1903	COE	Depth	38	38			State	Mississipi	2		4
Coord 30 20 N 88 30 W	Channels	T.basin	950	940			owner	Public & Private	3		5

Berthage Characteristics		Types of Terminal Use			Max.	Pier Face / Berth Group # 1					Pier Side 1/ Berth Group # 2					Pier Side 2/ Berth Group # 3					Term. cap	1991 flow
Code	Name	type 1	type 2	type 3	DWT	Access	length	depth	vsl's	width	Access	length	depth	vsl's	width	Access	length	depth	vsl's	width	1000 ton/yr	1000 ton/yr
814.6Z	Terminal C&D	Gen cargo,othr	RO/RO	refrigrated		truck	1450	38	2	187											320	+
818/20	Terminal A&B	Gen cargo, wo	od prod's	grain		truck	1044	38	2	30											731	+
060A	Terminal G&H	Gen cargo, wo	od prod's	lash/seab		truck	556	38	1	34	truck	516	38	1	60	rail,truck	695	12		64	320	+
060C	Terminal E&F	Gen cargo	liq bulk	tanker		truck	517	38	1	37	truck	737	38	1	55						320	523
870A	Jackson Co Grain Elevator	Bulk grain	tanker	barges		conveyor	758	38	1		conveyor	545	12								1,700	159
065	Mississippi Chemical terminals	Dry bulk/fertilize	liq bulk	nonmetal		pipeline	415	34	1		conveyor/pipe	500	32	1		conveyor	500	12			2,171	+
053C	Chevron - Coke dock	Dry bulk	coal/coke	barges		conveyor	510	38	1												950	1,362
030B	Chevron - 7	crude oil	tanker			pipeline	765	38	1												7,030	+
053B	Chevron - 6	crude oil	tanker			pipeline	1020	38	2												4,091	+
053def	Chevron - 1,2,3,4,5	crude/ref oil	liq propan	cstc.soda		pipeline	1433	38	2		pipeline	1046	15	2							16,904	15,291
Storage Area Characteristics				Total Storage		Storage Area number 1					Storage Area number 2					Storage Area number 3					24,537	17,335
		Container	Reefer	Area	Capacity	Access	storage area		Capacity tons		Access	storage area		Capacity tons		Access	storage area		Capacity tons		Storage cap	
Code	Name	Hold	storage	acres	tons		inside	outside	IN	OUT		inside	outside	IN	OUT		inside	outside	IN	OUT	1000 ton/yr	
814.6Z	Terminal C&D			8		rail, truck	96	6													224	
818/20	Terminal A&B			8		rail, truck	80	3			rail, truck	145									336	
060A	Terminal G&H			13		rail, truck	175	10													384	
060C	Terminal E&F			4		rail, truck	174	1													112	
870A	Jackson Co Grain Elevator			3100		rail, truck			3100												1,932	
065	Mississippi Chemical terminals			81		rail, truck				81											9,011	
053C	Chevron - Coke dock			10		rail, truck				150											1,113	
030B	Chevron - 7			2500		pipeline			2500	bbls											7,510	
053B	Chevron - 6			3000		pipeline			3000	bbls											8,267	
053def	Chevron - 1,2,3,4,5			2350		pipeline			2000	bbls	pipeline			350	bbls						4,909	
Load./ Unload.& Handling Equipment																				Rail	31,776	
		Loading / Unloading Equipment				Handling Equipment # 1					Handling Equipment # 2					Handling Equipment # 3				Car	Capacity	
Code	Name	Type	load rate	unld rate	capacity	Type	Rate	Units	Cap.	shared	Type	Rate	Units	Cap.	shared	Type	Rate	Units	Cap.	hold	1000 ton/yr	
814.6Z	Terminal C&D					stevedoring															224	+
818/20	Terminal A&B					stevedoring															336	+
060A	Terminal G&H					stevedoring															320	+
060C	Terminal E&F					stevedoring															112	523
870A	Jackson Co Grain Elevator					chute spout	420	bu/hr			marine leg	17	1			marine leg	8	1		300	1,700	159
065	Mississippi Chemical terminals					chute spout	200	t/hr			marine leg	200				conveyor		3			2,171	+
053C	Chevron - Coke dock					shiploader	2000	t/hr			conveyor		1								950	1,362
030B	Chevron - 7					cargo hoses															7,030	+
053B	Chevron - 6					cargo hoses	300	bbls/hr													4,091	+
053def	Chevron - 1,2,3,4,5					hoses/mech co	100	bbls/hr													16,909	15,291
Terminal General Remarks		Owner																			21,843	17,335
814.6Z	Terminal C&D	Jackson Co Port Authority		Other cargo: rubber																		
818/20	Terminal A&B	Jackson Co Port Authority		Contiguous with C. Other cargo: bagged grain																		
060A	Terminal G&H	Jackson Co Port Authority		Other cargo: rubber & paper products. G ext. is a barge terminal																		
060C	Terminal E&F	Jackson Co Port Authority		Other cargo: rubber & paper products																		
870A	Jackson Co. Grain Elevator	Jackson Co Port Authority		Face & side are in line contiguously. Combined rate of spouts 60,000 bu/hr																		
065	Mississippi Chemical terminals	Mississippe Chem Corp		Storage areas for. 1-fertilizers 2-sulphur 3-sulfuric acid 4-ammnonia 5-phosphate																		
053C	Chevron - Coke dock	Chevron USA																				
030B	Chevron - 7	Chevron USA																				
053B	Chevron - 6	Chevron USA																				
053def	Chevron - 1,2,3,4,5	Chevron USA		Shared storage with berth . Liq.storage. 1-caustic soda 2-sulfuric acid 3-ammonia																		

Port Remarks: Excluded terminals(not listed) are either: exclusively receiving domestic cargo or barges, inactive, or mooring terminals. Approximate flows for each cargo group are derived from MARAD 1991 4-digit Harmonized commodity census for the port, and may/may not represent corresponding terminal group. Total flow is for foreign commerce, domestic cargo is about 40% of the total commerce. Some of the listed terminals are active in both foreign and domestic commerce. Improvements: planned to build a warehouse and transit shed on the Pascagoula river harbor, and repairs for the Batou Casotte harbor facilities.

Flows in 1000 tons/yr for	Canada & Mexico		1991 Flow Total	Port Capacity
Gen.cargo	28	5%	523	992
Dry bulk			1,362	3,121
Bulk grain	3	2%	159	1,700
Liquid bulk	5874	36%	15,291	16,030
All Cargo	5903	34%	17,335	21,843

* all transitions are in feet. Storage area, inside in 1000 ft2, Outside in acres. Storage for Liquids is in 1000 bbls, and for bulk grain is in 1000 bushels


Ocean Springs
GAUTIER
MOSS POINT
PASCAGOULA
NAVAL STATION PASCAGOULA
WEST HARBOR INDUSTRIAL AREA
EAST HARBOR BAYOU CASOTTE INDUSTRIAL AREA
CHEVRON U.S.A. INC.
MISSISSIPPI SOUND
INTRACOASTAL WATERWAY
HORN ISLAND
Horn Island Pass
PETIT BOIS ISLAND
MISSISSIPPI
ALABAMA
GULF OF MEXICO
20 MILES TO WATER 120 FEET DEEP
(14.5 MILES TO WATER 100 FEET DEEP)
LEGEND
EXISTING NAVIGATION CHANNELS
40 WATER DEPTH IN FEET
SCALE IN MILES
JACKSON COUNTY PORT AUTHORITY
PASCAGOULA, MISS.
GREATER PORT OF PASCAGOULA

Port of Tampa, Florida

Port of Tampa	Code	14790	14795			Reg'n	Gulf of Mexico	List of Sheets 1 General Cargo	Sheet: 1 of 4
Code 1801	COE Depth	34	35			State	Florida	2 Dry Bulk	
Coord 27 54 N 82 26 W	Channels T.basin					owner	Public & Private	3 Dry Bulk, Grain, Liquid 4 Liquid Bulk	

Berthage Characteristics		Types of Terminal Use			Max.	Pier Face / Berth Group # 1					Pier Side 1/ Berth Group # 2					Pier Side 2/ Berth Group # 3					Term.cap	1991 flow
Code	Name	type 1	type 2	type 3	DWT	Access	length	depth	vsl's	width	Access	length	depth	vsl's	width	Access	length	depth	vsl's	width	1000 ton/yr	1000 ton/yr
104A	Berth 1	Gral cargo	Dry bulk	scrap mtl		truck	530	34	1	25											320	+
138A	Holland Term Berths 201-202	Gral cargo	automobil			truck	1500	34	2	125											731	+
138D	Holland Terminal 209, 210, 211	Gral. cargo	RO/RO	refrigerate		truck	1800	34	3	100											234	+
142A	Berth 232 - Cattle Loading	Gral cargo				truck	130	22	1	25											140	+
166A	Berth 250	Gral cargo	scrap mtl			truck	700	26	1	300											140	+
168A	Berth 251, 252	Gral. cargo	Dry bulk			truck	1200	34	2	100											320	+
194A	Sel Maduro Wharf	Gral. cargo				rail, truck	1200	30	2	35											320	+
200A	Garrison 271, 272	Gral. cargo	Dry bulk			truck	500	34	1	125											140	+
001ab	Port Manatee Berths 8, 9, 10	Gral cargo	Dry bulk	Liq bulk		rr, truck, pipe	1670	35	3												640	+
001D	Porth Manatee Berth 6	Gral cargo	Liq bulk			truck, pipeline	415	35	1												140	1,753
																					4,025	1,753

Storage Area Characteristics				Total Storage		Storage Area number 1					Storage Area number 2					Storage Area number 3					
		Container	Reefer	Area	Capacity	Access	storage area		Capacity tons		Access	storage area		Capacity tons		Access	storage area		Capacity tons		Storage cap
Code	Name	Hold	storage	acres	tons		inside	outside	IN	OUT		inside	outside	IN	OUT		inside	outside	IN	OUT	1000 ton/yr
104A	Berth 1					rail, truck		2													420
138A	Holland Term Berths 201-202			15		truck	158	7 5													630
138D	Holland Terminal 209, 210, 211			30		rail, truck	99	10			rail, truck	37	20								260
142A	Berth 232 - Cattle Loading					truck															140
166A	Berth 250			6		rail, truck		6													168
168A	Berth 251, 252			12		truck	18	5				21					46				336
194A	Sel Maduro Wharf			15		rial, truck	51	10													420
200A	Garrison 271, 272					rail, truck	41					40									140
001ab	Port Manatee Berths 8, 9, 10			30		rail, truck, pipe	30	5					20								640
001D	Porth Manatee Berth 6					rail, truck	112														140
																					4,494

Load./ Unload.& Handling Equipment		Loading / Unloading Equipment				Handling Equipment # 1					Handling Equipment # 2					Handling Equipment # 3					Rail	Capacity	
Code	Name	Type	load rate	unld rate	capacity	Type	Rate	Units	Cap.	shared	Type	Rate	Units	Cap.	shared	Type	Rate	Units	Cap.	Car hold	1000 ton/yr	
104A	Berth 1					crawler crane		4	25		front end loader		2	8							320	+
138A	Holland Term Berths 201-202					stevedore															630	+
138D	Holland Terminal 209, 210, 211					stevedore															234	+
142A	Berth 232 - Cattle Loading																				140	+
166A	Berth 250					crane w/magnet		2	40												140	+
168A	Berth 251, 252					mobile crane		3	45		fork lift		40	40							320	+
194A	Sel Maduro Wharf					fork lift					mobile crane		1	25							320	+
200A	Garrison 271, 272					stevedore															140	+
001ab	Port Manatee Berths 8, 9, 10					straddle carrier		2	40		stevedore					top/side lifter			2		640	+
001D	Porth Manatee Berth 6					stevedore															140	1,753
																					3,924	1,753

Terminal General Remarks		Owner	
104A	Berth 1	Tampa Port Authority	Cranes equipped with magnets
138A	Holland Term Berths 201-202	Tampa Port Authority	Facility includes 35,000 sq ft passenger terminal. Electrical service for 52 refrigerated containers. Berths share open storage.
138D	Holland Terminal 209, 210, 211	Tampa Port Authority	Berth depths: 209, 210 - 34 ft, 211 - 43 ft. 3 million cubic ft of frezer/cooler space
142A	Berth 232 - Cattle Loading	Tampa Port Authority	Facility contains loading chutes, squeeze chutes watering troughs Cargo livestock Holding pens for 800 cattle
166A	Berth 250	Tampa Port Authority	Facility handles scrap iron.
168A	Berth 251, 252	Tampa Port Authority	
194A	Sel Maduro Wharf	Sel Maduro Florida Inc	Lift trucks up to 55,000 lbs. Terminal specializing in newsprint
200A	Garrison 271, 272	Tampa Port Authority	Terminal specializing in steel & lumber. Equipped to handle dry bulk
001ab	Port Manatee Berths 8, 9, 10	Manatee Co. Port Auth.	Liquid storage: 1-Belcher, 2-Florida Power & Light
001D	Porth Manatee Berth 6	Manatee Co. Port Auth.	See berths 9, 10 for storage data.

Flows in 1000 tons/yr. for	Canada & Mexico		1991 Flow Total %	Port Capacity
Gen.cargo	213	12%	1,753	3,924
Dry bulk	2389	14%	17,008	21,663
Bulk grain			33	1,700
Liquid bulk			247	6,810
All Cargo	2602	14%	19,041	34,297

Port Remarks: Excluded terminals(not listed) are either: exclusively receiving domestic cargo or barges, inactive, or mooring terminals. Approximate flows for each cargo group are derived from MARAD 1991 4-digit Harmonized commodity census for the port, and may/may not represent corresponding terminal group. Total flow is for foreign commerce, domestic cargo is about 53% of the total commerce. Some of the listed terminals are active in both foreign and domestic commerce.

Port of Tampa, Florida

Port of Tampa	Code	14790	14795			Reg'n	Gulf of Mexico
Code 1801	COE Depth	34	35			State	Florida
Coord 27 54 N 82 26 W	Channels T.basin					owner	Public & Private

List of Sheets 1 General Cargo 2 Dry Bulk 3 Dry Bulk, Grain, Liquid 4 Liquid Bulk

Sheet: 2 of 4

Berthage Characteristics		Types of Terminal Use			Max.	Pier Face / Berth Group # 1					Pier Side 1/ Berth Group # 2					Pier Side 2/ Berth Group # 3					Term.cap	1991 flow
Code	Name	type 1	type 2	type 3	DWT	Access	length	depth	vsl's	width	Access	length	depth	vsl's	width	Access	length	depth	vsl's	width	1000 ton/yr	1000 ton/yr
066A	Tampa Electric-Big Bend Station	Dry bulk	Liq bulk	coal,coke		conveyor	788	34	1		pipeline	180	15	1							3,680	•
066B	Agrico Chemical Co	Dry bulk	Liq bulk	ores		conveyor, pipe	1500	35	1												1,610	•
083B	Gardinier Wharf	Dry bulk	ores			conveyor	500	30	1		conveyor	448	20	1		conveyor	448	20	1		3,664	•
104F	International Minerals & Chem	Dry bulk	ores			conveyor	700	34	1	33											1,610	•
104L	Berth 31	Dry bulk				pipeline	800	43	1												950	•
104M	Tampa Electric - Gannon Station	Dry bulk	coal,coke			conveyor	450	34	1												1,610	•
110A	Rockport Terminal Dock	Dry bulk	ores			conveyor	1460	34	1												950	•
112A	Eastern Associated Terminals	Dry bulk	ores			conveyor	555	34	1												950	•
138B	Holland Terminal 204 - 205	Dry bulk	Liq bulk	fertilizer		conveyor	920	34	1	60	pipeline	580	34	1							3,680	•
139D	Kreher Terminal - 223, 224	Dry bulk	Liq bulk	soda		truck, pipeline	1120	24	2	125											2,171	17,008
																					20,875	17,008

Storage Area Characteristics				Total Storage		Storage Area number 1					Storage Area number 2					Storage Area number 3					
Code	Name	Container Hold	Reefer storage	Area acres	Capacity tons	Access	storage area inside	storage area outside	Capacity tons IN	Capacity tons OUT	Access	storage area inside	storage area outside	Capacity tons IN	Capacity tons OUT	Access	storage area inside	storage area outside	Capacity tons IN	Capacity tons OUT	Storage cap 1000 ton/yr
066A	Tampa Electric-Big Bend Station			25		rail, truck				50											8,181
066B	Agrico Chemical Co					rail, truck			32	175											1,780
083B	Gardinier Wharf								120												890
104F	International Minerals & Chem					rail, truck			60	200				40					45		1,780
104L	Berth 31					rail, pipeline															890
104M	Tampa Electric - Gannon Station					rail, truck				400											1,780
110A	Rockport Terminal Dock					rail, truck			148												890
112A	Eastern Associated Terminals					rail, truck			165	135											890
138B	Holland Terminal 204 - 205			15		rail, truck			75												3,708
139D	Kreher Terminal - 223, 224			10		truck															1,113
																				Rail	19,901

Load,/ Unload,& Handling Equipment		Loading / Unloading Equipment				Handling Equipment # 1					Handling Equipment # 2					Handling Equipment # 3					Car	Capacity
Code	Name	Type	load rate	unld rate	capacity	Type	Rate	Units	Cap.	shared	Type	Rate	Units	Cap.	shared	Type	Rate	Units	Cap.	hold	1000 ton/yr	
066A	Tampa Electric-Big Bend Station					load/unld tower	3000	1			load/unld tower	2000	2			conveyor		2			3,680	•
066B	Agrico Chemical Co					load/unld tower	3000	1			conveyor		1								1,610	•
083B	Gardinier Wharf					shiploader	800	1			conveyor		1								890	•
104F	International Minerals & Chem					load/unld tower	2200	1			conveyor		1								1,610	•
104L	Berth 31					conveyor	1000	1													890	•
104M	Tampa Electric - Gannon Station					load/unld tower	800	2			conveyor		1								1,610	•
110A	Rockport Terminal Dock					load/unld tower	3000	1			conveyor		1								890	•
112A	Eastern Associated Terminals					load/unld tower	3000	1			conveyor		1								890	•
138B	Holland Terminal 204 - 205					load/unld tower	300	1			conveyor		1								890	•
139D	Kreher Terminal - 223, 224					stevedore															1,113	17,008
																					19,901	17,008

Terminal General Remarks		Owner	
066A	Tampa Electric-Big Bend Station	Tampa Electric Co,	
066B	Agrico Chemical Co	Agrico Chemical Co.	Cargo: phosphate products & phosphoric acid.
083B	Gardinier Wharf	Gardinier Inc	Face is contiguous to liquid wharf. Allows vessels of 900 ft. Cargo: phosphate rock. 5 storage buildings.
104F	International Minerals & Chem	Int'l Minerals & Chem.	Cargo: phosphate products.
104L	Berth 31	Tampa Port Authority	
104M	Tampa Electric - Gannon Station	Tampa Electric Co	
110A	Rockport Terminal Dock	Seaboard System RR Co	Cargo: phosphate products.
112A	Eastern Associated Terminals	Eastern Assoc. Terminals	Cargo: phosphate products
138B	Holland Terminal 204 - 205	Tampa Port Authority	Specialized berth handles imports of bulk frozen juice concentrate and alcohol
139D	Kreher Terminal - 223, 224	Tampa Port Authority	Liquid storage: 1-petrochemicals, 2-phosphoric acid, 3-caustic soda. Depth at berth 224: 14 ft.

Flows in 1000 tons/yr for	Canada & Mexico		1991 Flow Total	Port Capacity
Gen.cargo	213	12%	1753	3,924
Dry bulk	2389	14%	17008	21,663
Bulk grain			33	1,700
Liquid bulk			247	6,810
All Cargo	2602	14%	19,041	34,297

Port Remarks: Excluded terminals(not listed) are either: exclusively receiving domestic cargo or barges, inactive, or mooring terminals. Approximate flows for each cargo group are derived from MARAD 1991 4-digit Harmonized commodity census for the port, and may/may not represent corresponding terminal group. Total flow is for foreign commerce, domestic cargo is about 53% of the total commerce. Some of the listed terminals are active in both foreign and domestic commerce.

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Port of Tampa, Florida

Port of Tampa	Code	14790	14795			Reg'n	Gulf of Mexico	List of Sheets 1 General Cargo	Sheet: 3 of 4
Code 1601	COE	Depth	34	35		State	Florida	2 Dry Bulk	
Coord 27 54 N 82 26 W	Channels	T.basin				owner	Public & Private	3 Dry Bulk, Grain, Liquid 4 Liquid Bulk	

Berthage Characteristics

Code	Name	Types of Terminal Use: type 1	type 2	type 3	Max. DWT	Pier Face / Berth Group # 1: Access	length	depth	vsl's	width	Pier Side 1/ Berth Group # 2: Access	length	depth	vsl's	width	Pier Side 2/ Berth Group # 3: Access	length	depth	vsl's	width	Term.cap 1000 ton/yr	1991 flow 1000 ton/yr
187A	Detsco Terminals	Dry bulk	Liq. bulk	ores		conveyor, pipe	600	32	1												950	*
842A	Gold Bond Building Products	Dry bulk	ores			conveyor	850	34	1												950	*
875A	I S Joseph Co	Dry bulk	cement	ref oil		conveyor	730	34	1	35											1,610	*
001C	Port Manatee Berth 7	Dry bulk	Liq. bulk			cnvyr,hwy,pipe	850	35	1												1,610	17,008
176A	Berth 256	Bulk grain	dry bulk			conveyor	700	34	1	50											1,700	33
083A	Gardinier Liquid	Liquid bulk	chemical			pipeline	450	30	1												450	*
104B	Berth 2	Liquid bulk	ores			truck, pipeline	600	34	1	25											450	*
104E	W R Grace & Co	Liquid bulk				pipeline	500	34	1												450	*
104hj	Berths 22, 24	Liquid bulk	fertilizer			pipeline	1150	34	2	1											1,028	*
139C	R E King Terminal 226, 227	Liquid bulk					40	41			pipeline	880	34	1		pipeline	880	34	1		1,028	*
				Total Storage																	10,226	17,041

Storage Area Characteristics

Code	Name	Container Hold	Reefer storage	Total Storage Area acres	Capacity tons	Storage Area number 1: Access	storage area inside	outside	Capacity tons IN	OUT	Storage Area number 2: Access	storage area inside	outside	Capacity tons IN	OUT	Storage Area number 3: Access	storage area inside	outside	Capacity tons IN	OUT	Storage cap 1000 ton/yr	
187A	Detsco Terminals					truck			20					13							890	
842A	Gold Bond Building Products					rail, truck				200											890	
875A	I S Joseph Co					rail, truck			25					10					10		1,780	
001C	Port Manatee Berth 7					rail, truck			130					45							1,780	
176A	Berth 256					rr,hwy,convey	1000					701									1,870	
083A	Gardinier Liquid					rail, truck															480	
104B	Berth 2					truck, pipeline															480	
104E	W R Grace & Co					rail, truck															480	
104hj	Berths 22, 24					rail, truck, pipe	620														480	
139C	R E King Terminal 226, 227					pipeline	325				pipeline	75				pipeline	484				480	
																				Rail	10,610	

Load./ Unload.& Handling Equipment

Code	Name	Loading / Unloading Equipment: Type	load rate	unld rate	capacity	Handling Equipment # 1: Type	Rate	Units	Cap.	shared	Handling Equipment # 2: Type	Rate	Units	Cap.	shared	Handling Equipment # 3: Type	Rate	Units	Cap.	Car hold	Capacity 1000 ton/yr	
187A	Detsco Terminals					shiploader	1200	1			conveyor		1								890	*
842A	Gold Bond Building Products					conveyor	250	1													890	*
875A	I S Joseph Co					chute spout	1000	1			conveyor		1								1,610	*
001C	Port Manatee Berth 7					ship gear					conveyor	1000	1			ld/unld tower	1250	1			1,610	17,008
176A	Berth 256					chute spout	24	1			marine leg	30	1			conveyor		1			1,700	33
083A	Gardinier Liquid					cargo hoses															450	*
104B	Berth 2																				450	*
104E	W R Grace & Co					cargo hoses															450	*
104hj	Berths 22, 24					other mech.															480	*
139C	R E King Terminal 226, 227					cargo hoses															480	*
																					9,010	17,041

Terminal General Remarks

Code	Name	Owner	Remarks
187A	Detsco Terminals	Detsco Terminals	Ships phosphate products, receives liquid sulphur & caustic soda.
842A	Gold Bond Building Products	Gold Bond Building Prod	Cargo: gypsum rock.
875A	I S Joseph Co	I S Joseph Co	Cargo: animal feed & citrus pellets.
001C	Port Manatee Berth 7	Manatee County Port Auth	See berths 9, 10 for storage data.
176A	Berth 256	Tampa Port Authority	Storage area: 1-grain, 2-feed ingredients.
083A	Gardinier Liquid	Gardinier Inc	Wharf is contiguous with phosphoric wharf. Allows vessels of 900 ft. Liquid storage areas: 1-liquid sulphur, 2-phosphoric acid, 3-sulphuric acid.
104B	Berth 2	Tampa Port Authority	Cargo: liquid sulphur.
104E	W R Grace & Co	W R Grace & Co	Cargo: anhydrous ammonia.
104hj	Berths 22, 24	Tampa Port Authority	Cargo: fertilizer, sulphuric acid.
139C	R E King Terminal 226, 227	Tampa Port Authority	Liquid storage: 1-Murphy, 2-Petroleum Packers, 3-Union, 4-Petrol Storage.

Port Remarks: Excluded terminals(not listed) are either: exclusively receiving domestic cargo or barges, inactive, or mooring terminals. Approximate flows for each cargo group are derived from MARAD 1991 4-digit Harmonized commodity census for the port, and may/may not represent corresponding terminal group. Total flow is for foreign commerce, domestic cargo is about 53% of the total commerce. Some of the listed terminals are active in both foreign and domestic commerce.

Flows in 1000 tons/yr for	Canada & Mexico		1991 Flow Total	Port Capacity
Gen.cargo	213	12%	1753	3,924
Dry bulk	2389	14%	17008	21,863
Bulk grain			33	1,700
Liquid bulk			247	6,810
All Cargo	2602	14%	19,041	34,297

* all dimensions are in feet. Storage area: Inside:in 1000 ft2, Outside:in acres. Storage for Liquids is in 1000 bbls, and for bulk grain is in 1000 bushels

Port of Tampa, Florida

Port of Tampa	Code	14790	14795			Reg'n	Gulf of Mexico
Code 1801	COE Depth	34	35			State	Florida
Coord 27 54 N 82 26 W	Channels T.basin					owner	Public & Private

List of Sheets 1 General Cargo 2 Dry Bulk 3 Dry Bulk, Grain, Liquid 4 Liquid Bulk

Sheet: 4 of 4

Berthage Characteristics		Types of Terminal Use			Max.	Pier Face / Berth Group # 1					Pier Side 1/ Berth Group # 2					Pier Side 2/ Berth Group # 3					Term.cap	1991 flow
Code	Name	type 1	type 2	type 3	DWT	Access	length	depth	vsl's	width	Access	length	depth	vsl's	width	Access	length	depth	vsl's	width	1000 ton/yr	1000 ton/yr
150A	Sulphur Terminals Co	Liquid bulk	ores			pipeline	650	34	1	20											450	+
154A	Amoco Oil Co	Liquid bulk				pipeline	500	32	1	100											450	+
157A	American Petrofina	Liquid bulk	ref oil			pipeline	550	31	1	30											450	+
163A	Tampa Electric Co	Liquid bulk	ref oil			pipeline	570	28	1												450	+
174B	Texaco Inc	Liquid bulk	ref oil			pipeline	700	34	1	70											450	+
178A	Chevron USA	Liquid bulk	asphalt			pipeline	410	24	1												450	+
180A	Phillips Petroleum	Liquid bulk	ref oil			pipeline	800	34	1	60											450	+
843A	Chevron	Liquid bulk	ref oil			pipeline	880	32	1												450	+
849A	Shell Oil Wharf	Liquid bulk	ref oil			pipeline	650	34	1	80											450	247
857A	Union Chemical Co	Liquid bulk	ref oil			pipeline	880	32	1	100											4,500	247

Storage Area Characteristics				Total Storage		Storage Area number 1					Storage Area number 2					Storage Area number 3					Storage cap
Code	Name	Container Hold	Reefer storage	Area acres	Capacity tons	Access	storage area inside	storage area outside	Capacity tons IN	Capacity tons OUT	Access	storage area inside	storage area outside	Capacity tons IN	Capacity tons OUT	Access	storage area inside	storage area outside	Capacity tons IN	Capacity tons OUT	1000 ton/yr
150A	Sulphur Terminals Co					rail, truck															480
154A	Amoco Oil Co					rail, truck	600														480
157A	American Petrofina					rail, truck	323														480
163A	Tampa Electric Co					rail, truck	270					266									480
174B	Texaco Inc					rail, truck	525					800									480
178A	Chevron USA					rail, truck	87														480
180A	Phillips Petroleum					rail, truck	383														480
843A	Chevron					rr, truck, pipe	337					880									480
849A	Shell Oil Wharf					rr, truck, pipe	638				rr, truck, pipe	565									480
857A	Union Chemical Co					rail, truck	76														4,800

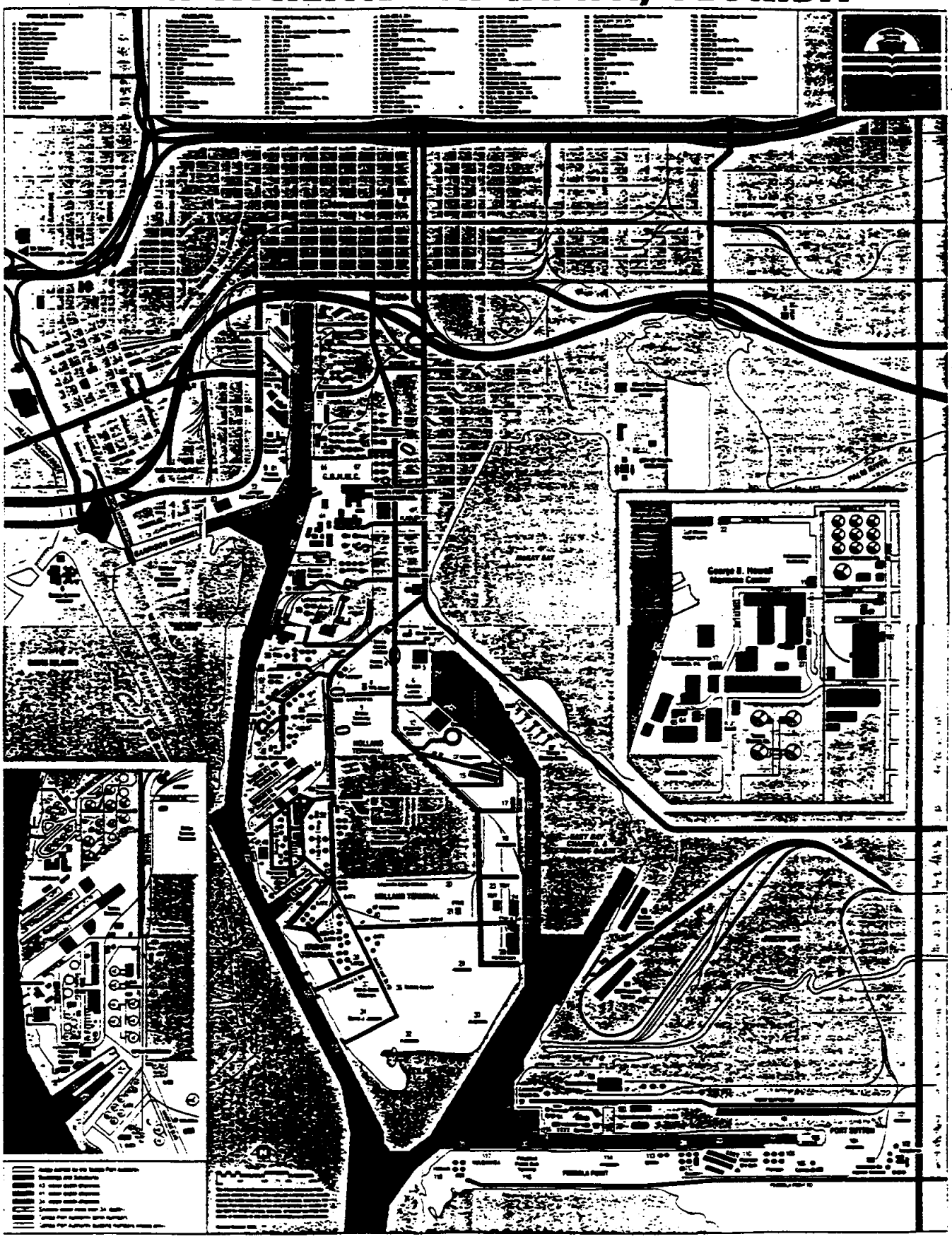
Load./ Unload.& Handling Equipment		Loading / Unloading Equipment				Handling Equipment # 1					Handling Equipment # 2					Handling Equipment # 3					Rail Car hold	Capacity 1000 ton/yr	
Code	Name	Type	load rate	unld rate	capacity	Type	Rate	Units	Cap	shared	Type	Rate	Units	Cap.	shared	Type	Rate	Units	Cap.				
150A	Sulphur Terminals Co					cargo hoses																450	+
154A	Amoco Oil Co					cargo hoses																450	+
157A	American Petrofina					cargo hoses																450	+
163A	Tampa Electric Co					cargo hoses																450	+
174B	Texaco Inc					cargo hoses																450	+
178A	Chevron USA																					450	+
180A	Phillips Petroleum					cargo hoses																450	+
843A	Chevron					cargo hoses																450	+
849A	Shell Oil Wharf					cargo hoses																450	247
857A	Union Chemical Co																					4,500	247

Terminal General Remarks		Owner	
150A	Sulphur Terminals Co	Freeport Sulphur Co	Cargo: liquid sulphur.
154A	Amoco Oil Co	Amoco Oil Co	Liquid storage: 1-petroleum, 2-asphalt.
157A	American Petrofina	American Petrofina of Texa	
163A	Tampa Electric Co	Tampa Electric Co	Liquid storage: 1-Teco, 2-Citgo.
174B	Texaco Inc	Texaco Inc	Liquid storage: 1-Texaco, 2-Marathon.
178A	Chevron USA	Chevron USA	
180A	Phillips Petroleum	Phillips Petroleum Co	
843A	Chevron	Chevron USA	Liquid storage: 1-Dla, 2-Chevron.
849A	Shell Oil Wharf	Shell Oil Co	Liquid storage: 1-Shell, 2-Gulf
857A	Union Chemical Co		Seaboard System Railroad

Flows in 1000 tons/yr for	Canada & Mexico		1991 Flow Total	Port Capacity
Gen.cargo	213	12%	1753	3,924
Dry bulk	2389	14%	17008	21,883
Bulk grain			33	1,700
Liquid bulk			247	6,810
All Cargo	2602	14%	19,041	

Port Remarks: Excluded terminals(not listed) are either: exclusively receiving domestic cargo or barges, inactive, or mooring terminals. Approximate flows for each cargo group are derived from MARAD 1991 4-digit Harmonized commodity census for the port, and may/may not represent corresponding terminal group. Total flow is for foreign commerce, domestic cargo is about 53% of the total commerce. Some of the listed terminals are active in both foreign and domestic commerce.

PORT FACILITIES AT TAMPA, FLORIDA



Port of Mobile	Code	15495	15496	15497		Reg'n	Gulf of Mexico
Code 1901	COE Depth	40	45	25		State	Alabama
Coord 30 42 N 88 02 W	Channels T.basin					owner	Public & Private

List of Sheets
1 General Cargo
2 Gen.Cargo, Dry Bulk
3 Grain, Liquid Terminals

Code	Name	Types of Terminal Use type 1	type 2	type 3	Max. DWT	Pier Face / Berth Group # 1 Access	length	depth	vsl's	width	Pier Side 1/ Berth Group # 2 Access	length	depth	vsl's	width	Pier Side 2/ Berth Group # 3 Access	length	depth	vsl's	width	Term.cap 1000 ton/yr	1991 flow 1000 ton/yr
246A	Trailer Marine Transport	Gen. cargo	Ro/Ro			truck	135	15	1												140	•
289Z	Blakley Island Dock	Gen. cargo					508	40	1												320	•
620A	Pier C	Gen. cargo	dry bulk			truck	896	38	1	70	rail, truck	1532	38	2	42	rail, truck	1411	38	2	42	1,234	•
632A	Pier B	Gen. cargo				truck	650	38	1	30	rail, truck	1532	38	2	42	rail, truck	1625	38	3	42	1,234	•
640A	Pier A North	Gen. cargo				rail, truck	1502	38	2	42		457	38	1							1,234	•
643A	Pier A South	Gen. cargo	liq. bulk			rr, truck, pipe	570	38	1		rr, truck, pipe	120	38	1							731	•
652A	Berths 6, 7, 8	Gen. cargo	Ro/Ro			rail, truck	1138	38	2	31	rail, truck	584	38	1							1,234	•
673A	Berths 3, 4, 5	Gen. cargo				rail, truck	1505	38	3												840	•
680A	Berth 2	Gen. cargo	container			rail, truck	898	38	1												1,920	•
690A	Banana Wharf	Gen. cargo	refrig			truck	562	25	1	48											320	•
																					7,907	

Storage Area Characteristics Code	Name	Container Hold	Reefer storage	Total Storage Area acres	Capacity tons	Storage Area number 1 Access	storage area inside	outside	Capacity tons IN	OUT	Storage Area number 2 Access	storage area inside	outside	Capacity tons IN	OUT	Storage Area number 3 Access	storage area inside	outside	Capacity tons IN	OUT	Storage cap 1000 ton/yr
246A	Trailer Marine Transport					rail, truck		6													140
289Z	Blakley Island Dock			8		rail, truck	152	4													336
620A	Pier C			20		rail, truck	188	10			rail, truck	80									840
632A	Pier B			15		rail, truck	172	4			rail, truck	166									630
640A	Pier A North			11		rail, truck	102	7													462
643A	Pier A South					rail, truck	74	1													420
652A	Berths 6, 7, 8			15		rail, truck	227	3				46									630
673A	Berths 3, 4, 5			12		rail, truck	135	3													336
680A	Berth 2			22				22													452
690A	Banana Wharf					truck	54	1													420
																				Rail	6,666

Load./ Unload.& Handling Equipment Code	Name	Loading / Unloading Equipment Type	load rate	unld rate	capacity	Handling Equipment # 1 Type	Rate	Units	Cap	shared	Handling Equipment # 2 Type	Rate	Units	Cap.	shared	Handling Equipment # 3 Type	Rate	Units	Cap.	Car hold	Capacity 1000 ton/yr
246A	Trailer Marine Transport					fork lifts		2	11		fork lifts		2	6		fork lifts		2	4		140 •
289Z	Blakley Island Dock					stevedore															320 •
620A	Pier C					yard crane/other		1	75		gantry crane		1	50							840 •
632A	Pier B					stevedore															630 •
640A	Pier A North					stevedore															462 •
643A	Pier A South					stevedore															420 •
652A	Berths 6, 7, 8																				630 •
673A	Berths 3, 4, 5					locomotive cran		3	40		mobile crane		1			fork lifts		112			336 •
680A	Berth 2					container crane		1	45												920 •
690A	Banana Wharf																				320 •
																					6,016

Terminal General Remarks		Owner	
246A	Trailer Marine Transport	Marvin Mostellar	Ro/Ro ocean going barges.
289Z	Blakley Island Dock	Alabama State Docks Dpt	
620A	Pier C	Alabama State Docks Dpt	Inner 400 ft upper side is open area for dry bulk and military Ro/Ro. Improved facilities. Rail mounted fifty-ton crane and several 300-ton capacity mobile cranes in development.
632A	Pier B	Alabama State Docks Dpt	See berths 3-5 for equipment.
640A	Pier A North	Alabama State Docks Dpt	See berths 3-5 for equipment.
643A	Pier A South	Alabama State Docks Dpt	Liquid cargo includes vegetable oil, tung oil, latex. See berths 3-5 for equipment.
652A	Berths 6, 7, 8	Alabama State Docks Dpt	See berths 3-5 for equipment. Ro/Ro ramp (76x54). Location at head of slip. Stern loading vessels.
673A	Berths 3, 4, 5	Alabama State Docks Dpt	Equipment shared with other port own facilities. Fork lift capacities: 1 5-31 tons
680A	Berth 2	Alabama State Docks Dpt	Has use of equipment located at berths 3-5 and pier A
690A	Banana Wharf	City of Mobile	

Flows in 1000 tons/yr for	Canada & Mexico		1991 Flow Total	Port Capacity
Gen.cargo	39	1%	3,006	6,348
Dry bulk	1200	9%	13,242	16,676
Bulk grain	14	5%	257	3,362
Liquid bulk	313	16%	1,911	5,098
All Cargo	1566	9%	18,416	[illegible]

Port Remarks: Excluded terminals(not listed) are either: exclusively receiving domestic cargo or barges, inactive, or mooring terminals. Approximate flows for each cargo group are derived from MARAD 1991 4-digit Harmonized commodity census for the port, and may/may not represent corresponding terminal group. Total flow is for foreign commerce, domestic cargo is about 50% of the total commerce. Some of the listed terminals are active in both foreign and domestic commerce. [illegible] Grain Elevator and Pier C are currently under improvement to increase handling capacity.

Port of Mobile, Alabama

Port of Mobile	Code	15495	15496	15497		Reg'n	Gulf of Mexico	List of Sheets	1 General Cargo	Sheet: 2 of 3
Code 1901	COE Depth	40	45	25		State	Alabama		2 Gen.Cargo, Dry Bulk	
Coord 30 42 N 88 02 W	Channels T.basin					owner	Public & Private		3 Grain, Liquid Terminals	

Berthage Characteristics		Types of Terminal Use			Max.	Pier Face / Berth Group # 1					Pier Side 1/ Berth Group # 2					Pier Side 2/ Berth Group # 3					Term.cap	1991 flow
Code	Name	type 1	type 2	type 3	DWT	Access	length	depth	vsl's	width	Access	length	depth	vsl's	width	Access	length	depth	vsl's	width	1000 ton/yr	1000 ton/yr
404A	Mobile-Chickasaw Port - Pier A	Gen cargo,wood	d prod's	dry bulk			55	27				550	27	1			1040	27	2		1,234	•
407A	Delta Hardwoods Corp	Gen.cargo,wood	d prod's			truck	1010	35	2			240	35								731	•
409A	Gilbert Imported Hardwood Wha	Gen cargo,wood	d prod's			truck	458	19	1	90											140	•
416A	Chickasaw Terminal Wharf	Gen cargo				truck	890	23	1												140	3,008
289A	Energy Resources Inc	Dry bulk				conveyor	680	40	1												950	•
768A	Mobile River Terminal	Dry bulk	ore,oil				85	42			conveyor	1000	42	1			255	12			1,610	•
815A	McDuffie Coal Handling Facility	Dry bulk				conveyor	600	40	1		conveyor	840	40	1							3,680	•
855A	McDuffie Terminal - Barge	Dry bulk				conveyor	622	12	1		conveyor	575	12	1		conveyor	575	12	1		6,210	•
946A	Ideal Basic Industries	Dry bulk				conveyor	1761	27	2												3,680	•
565A	State Docks Bulk Plant	Dry bulk				conveyor	1544	40	2	80	conveyor	25	30	1							3,664	13,242

Storage Area Characteristics				Total Storage		Storage Area number 1					Storage Area number 2					Storage Area number 3					22,039	16,250
Code	Name	Container Hold	Reefer storage	Area acres	Capacity tons	Access	storage area inside	storage area outside	Capacity tons IN	Capacity tons OUT	Access	storage area inside	storage area outside	Capacity tons IN	Capacity tons OUT	Access	storage area inside	storage area outside	Capacity tons IN	Capacity tons OUT	Storage cap 1000 ton/yr	
404A	Mobile-Chickasaw Port - Pier A			10		rail, truck															420	
407A	Delta Hardwoods Corp			15		rail, truck	45	42													630	
409A	Gilbert Imported Hardwood Wha			7		rail, truck	29	3													100	
416A	Chickasaw Terminal Wharf			7		rail, truck	22	3													100	
289A	Energy Resources Inc			15			150	15													1,000	
768A	Mobile River Terminal					rail		2		25											1,760	
815A	McDuffie Coal Handling Facility			20		convey,rr,truck				2000											4,044	
855A	McDuffie Terminal - Barge			30		rail, truck		30													7,417	
946A	Ideal Basic Industries					rail, truck			60	520				30					30		1,780	
565A	State Docks Bulk Plant			22		convey,rr,truck			155	800											2,448	

Load./ Unload.& Handling Equipment		Loading / Unloading Equipment				Handling Equipment # 1					Handling Equipment # 2					Handling Equipment # 3				Rail	21,479	
Code	Name	Type	load rate	unld rate	capacity	Type	Rate	Units	Cap.	shared	Type	Rate	Units	Cap.	shared	Type	Rate	Units	Cap.	Car hold	Capacity 1000 ton/yr	
404A	Mobile-Chickasaw Port - Pier A					stevedore															420	•
407A	Delta Hardwoods Corp					fork lifts		2	6												630	•
409A	Gilbert Imported Hardwood Wha					stevedore															140	•
416A	Chickasaw Terminal Wharf					mobile crane		1	140		mobile crane		1	90		fork lifts		14			140	3,008
289A	Energy Resources Inc					load/unld tower	800	1			clam shell buck	150	1			conveyor		1			950	•
768A	Mobile River Terminal					gantry unldr+bu	1100	1			conveyor		1								1,610	•
815A	McDuffie Coal Handling Facility					shiploader	3200	1			shiploader	4500	2			conveyor		2			3,680	•
855A	McDuffie Terminal - Barge					load/unld tower	2000	3			rotry rail car du	3000	2			conveyor		3		671	6,210	•
946A	Ideal Basic Industries					gr/tychute spout	500	6			gantry crane	1000	2			conveyor					1,780	•
565A	State Docks Bulk Plant					gantry unldr+bu	1500	2	10		shiploader	1800	1			load/unld tower	3000	1			2,448	13,242
																					18,008	16,250

Terminal General Remarks		Owner	
404A	Mobile-Chickasaw Port - Pier A	Mobile Chickasaw Port Fa	
407A	Delta Hardwoods Corp	Delta Hardwoods Corp	
409A	Gilbert Imported Hardwood Wha	Gilbert Imported Hardwood	
416A	Chickasaw Terminal Wharf	Buchanan Lumber Mobile I	
289A	Energy Resources Inc	Energy Resources Inc	
768A	Mobile River Terminal	Warrior & Gulf Nav. Co	
815A	McDuffie Coal Handling Facility	Alabama State Docks Dpt	Loading rates are maximum rates. Annual throughput capacity 23 million tons. Holding area: over 2 million tons coal.
855A	McDuffie Terminal - Barge	Alabama State Docks Dpt	See ship dock for storage data. Maximum discharge rates: 2 at 6,000 tons/hr, 1 at 5,000 tons/hr. Annual throughput capacity: 23 million tons. Holding area: over 2 million tons of coal.
946A	Ideal Basic Industries	Ideal Basic Industries	Outside storage limestone. Inside cement, coal, gypsum. Troughs storage capacity- 54,000 LT and 96,000 LT. Spouts used for cement.
565A	State Docks Bulk Plant	Alabama State Docks Dpt	

Port Remarks: Excluded terminals(not listed) are either: exclusively receiving domestic cargo or barges, inactive, or mooring terminals. Approximate flows for each cargo group are derived from MARAD 1991 4-digit Harmonized commodity census for the port, and may/may not represent corresponding terminal group. Total flow is for foreign commerce, domestic cargo is about 50% of the total commerce. Some of the listed terminals are active in both foreign and domestic commerce. The State Docks Grain Elevator and Pier C are currently under improvement to increase handling capacity.

Flows in 1000 tons/yr for	Canada & Mexico		1991 Flow Total	Port Capacity
Gen.cargo	39	1%	3008	6,346
Dry bulk	1200	9%	13242	16,678
Bulk grain	14	5%	257	3,362
Liquid bulk	313	16%	1911	5,098
All Cargo	1566	9%	18,418	31,486

Storage for Liquids is in 1000 bbls, and for bulk grain is in 1000 bushels.

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Port of Mobile, Alabama

Port of Mobile	Code	15495	15496	15497		Reg'n	Gulf of Mexico
Code 1901	COE Depth	40	45	25		State	Alabama
Coord 30 42 N 88 02 W	Channels T.basin					owner	Public & Private

List of Sheets 1 General Cargo
2 Gen.Cargo, Dry Bulk
3 Grain, Liquid Terminals

Sheet: 3 of 3

Code	Name	Types of Terminal Use type 1	type 2	type 3	Max. DWT	Pier Face / Berth Group # 1 Access	length	depth	vsl's	width	Pier Side 1/ Berth Group # 2 Access	length	depth	vsl's	width	Pier Side 2/ Berth Group # 3 Access	length	depth	vsl's	width	Term.cap 1000 ton/yr	1991 flow 1000 ton/yr
190A	Lapeyrouse Grain Corp	Bulk grain				conveyor	200	12	1												3,770	•
613A	State Docks Grain Elevator	Bulk grain				conveyor	800	40	1		conveyor	1405	38	3		conveyor	540	12	1		14,541	257
215A	Mobile Bulk Terminal	Liquid bulk	crude oil	ref. oul		pipeline	142	36	1												450	•
260A	Chevron Asphalt Wharf	Liquid bulk	crude oil	asphalt		pipeline	106	20	1												450	•
284A	Louisiana Land and Exploration	Liquid bulk	crude oil	ref. oul		pipeline	120	36	1		pipeline	70	21	1							1,028	•
287A	Belcher Company of Alabama	Liquid bulk	fuel oil			pipeline	58	32	1												450	•
478A	Amerada Hess Corp	Liquid bulk	crude oil	ref. oul		pipeline	74	40	1		pipeline	24	20	1							1,028	•
777A	Texaco Marine Terminal	Liquid bulk	ref. oil				22	32			pipeline	630	15	1		pipeline	630	35	1		1,028	•
787A	Pier 4	Liquid bulk	ref oil	molassse			30	24			pipeline	475	24	2		pipeline	495	24	1		1,735	•
406A	Ven-Oil Pier	Liquid bulk	crude oil				350	36	1		pipeline	1010	36	1		pipeline	1085	36	1		1,735	1,011
																					26,215	2,168

Storage Area Characteristics

Code	Name	Container-Hold	Reefer storage	Total Storage Area acres	Capacity tons	Storage Area number 1 Access	storage area inside	outside	Capacity tons IN	OUT	Storage Area number 2 Access	storage area inside	outside	Capacity tons IN	OUT	Storage Area number 3 Access	storage area inside	outside	Capacity tons IN	OUT	Storage cap 1000 ton/yr
190A	Lapeyrouse Grain Corp			1000		rail, truck	1000														820
613A	State Docks Grain Elevator			3100		rail, truck	3100														2,542
215A	Mobile Bulk Terminal					rail, truck	1085					125					75				460
260A	Chevron Asphalt Wharf					rail, truck	338					40					20				460
284A	Louisiana Land and Exploration						660					370									460
287A	Belcher Company of Alabama					truck, pipeline	530					600									460
478A	Amerada Hess Corp			1095		rail, truck	1095					430									1,168
777A	Texaco Marine Terminal					rail, truck	414														460
787A	Pier 4			1200		rail, truck	125					100					2713				1,260
406A	Ven-Oil Pier					pipeline	250					70									460

Load./ Unload.& Handling Equipment

Code	Name	Loading / Unloading Equipment Type	load rate	unld rate	capacity	Handling Equipment # 1 Type	Rate	Units	Cap.	shared	Handling Equipment # 2 Type	Rate	Units	Cap.	shared	Handling Equipment # 3 Type	Rate	Units	Cap.	Rail Car hold	Capacity 1000 ton/yr	
190A	Lapeyrouse Grain Corp					gr/ychute spout	6	1													820	•
613A	State Docks Grain Elevator					shiploader	80	2			marine leg	24	1			conveyor		2			2,542	257
215A	Mobile Bulk Terminal																				460	•
260A	Chevron Asphalt Wharf					cargo hoses	20													32	460	•
284A	Louisiana Land and Exploration																				460	•
287A	Belcher Company of Alabama																				460	•
478A	Amerada Hess Corp																				1,028	•
777A	Texaco Marine Terminal					hoses/mech.co	15													28	460	•
787A	Pier 4																				1,260	•
406A	Ven-Oil Pier																				460	1,011
																					18,460	2,168

Terminal General Remarks

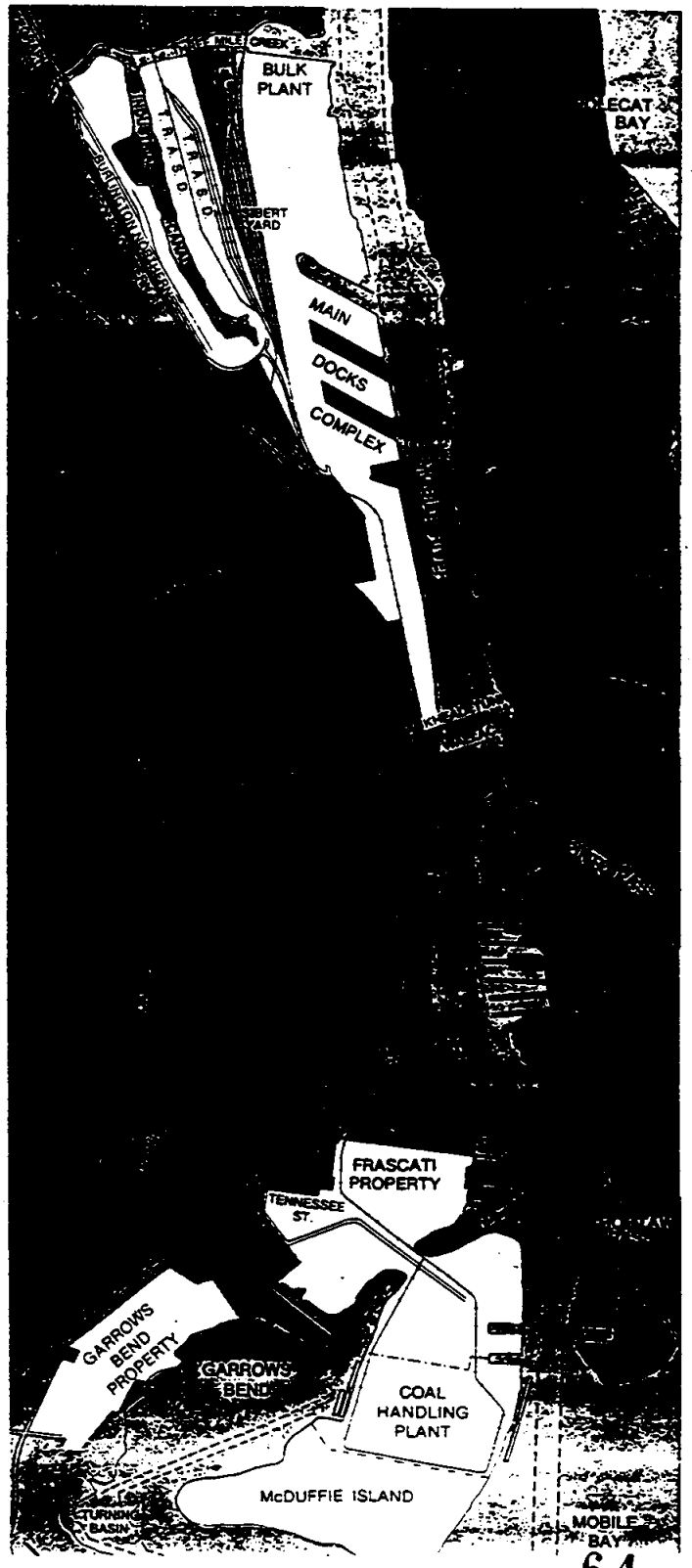
Code	Name	Owner	
190A	Lapeyrouse Grain Corp	Lapeyrouse Grain Corp	
613A	State Docks Grain Elevator	Alabama State Docks Dpt	Maximum loading rate: 160,000 bu/hrs.
215A	Mobile Bulk Terminal	Argon Inc	Liquid storage: 1-crude, 2-asphalt, 3-chemical.
260A	Chevron Asphalt Wharf	Chevron Asphalt Co	Liquid storage: 1-asphalt, 2-diesel fuel, 3-kerosene.
284A	Louisiana Land and Exploration	Louisiana Land and Explor	Liquid storage: 1-crude, 2-petroleum. Pipeline connects terminal on Black bayou.
287A	Belcher Company of Alabama	Becher Company of Alaba	Other cargo: alcohol. Liquid storage: 1-fuel oil, 2-alcohol.
478A	Amerada Hess Corp	Amerada Hess Corp	Liquid storage: 1-crude, 2-refined.
777A	Texaco Marine Terminal	Texaco Inc	25,596 sq ft warehouse for storage of packaged products.
787A	Pier 4	Alabama State Docks Dpt	Liquid storage: 1-chemicals, 2-petroleum, 3-molasses.
406A	Ven-Oil Pier	Mobile-Chickasaw Por Fac	Liquid storage: 1-crude, 2-refined.

Flows in 1000 tons/yr for	Canada & Mexico		1991 Flow Total	Port Capacity
Gen.cargo	39	1%	3008	6,348
Dry bulk	1200	9%	13242	16,676
Bulk grain	14	5%	257	3,362
Liquid bulk	313	16%	1911	5,099
All Cargo	1566	9%	18,418	

Port Remarks: Excluded terminals(not listed) are either: exclusively receiving domestic cargo or barges, inactive, or mooring terminals. Approximate flows for each cargo group are derived from MARAD 1991 4-digit Harmonized commodity census for the port, and may/may not represent corresponding terminal group. Total flow is for foreign commerce, domestic cargo is about 50% of the total commerce. Some of the listed terminals are active in both foreign and domestic commerce. The State Docks Grain Elevator and Pier C are currently under improvement to increase handling capacity.

ALABAMA STATE DOCKS

Overall Layout of Facilities



Detail of Main Docks Complex

Port of Port Arthur	Code	66288				Reg'n	Gulf of Mexico
Code 2101	COE	Depth	40			State	Texas
Coord 29 51 N 93 56 12 W	Channels	T.basin	900			owner	Public & Private

Berthage Characteristics

Code	Name	Types of Terminal Use type 1	type 2	type 3	Max. DWT	Pier Face / Berth Group # 1 Access	length	depth	vsl's	width	Pier Side 1/ Berth Group # 2 Access	length	depth	vsl's	width	Pier Side 2/ Berth Group # 3 Access	length	depth	vsl's	width	Term. cap 1000 ton/yr	1991 flow 1000 ton/yr
769B	Pub Ocean Terminal Warf	Gen Cargo			50	Truck, Rail	1200	40	2	100											731	642
677A	Atlantic Shippers of Texas Inc	Dry Bulk	Fish Meal		18	Conveyor	500	36	1												950	+
639B	KCS Coke Dock	Dry Bulk	Coal/Cok		28	Conveyor	980	36	1												1,610	+
683A	Texas Oklahoma Port Co	Dry Bulk	Coal/Cok	Ore, Oil	40	Conveyor	750	40	1												1,610	1,454
831B	Cargill Inc (KCS Docks)	Bulk Grain	Barges		35	Conveyor	730	36	1												1,700	+
831A	KCS Grain Elevator Fac	Bulk Grain			35	Pipeline	575	34	1												1,700	569
825A	Texaco Wharf #2	Liq Bulk, Ref Oil	Tankers		40	Pipeline	750	43	1		Pipeline	750	45	1							16,068	15,650
																					24,309	18,315

Storage Area Characteristics

Code	Name	Container Hold	Reefer storage	Total Storage Area acres	Capacity tons	Storage Area number 1 Access	storage area inside	outside	Capacity tons IN	OUT	Storage Area number 2 Access	storage area inside	outside	Capacity tons IN	OUT	Storage Area number 3 Access	storage area inside	outside	Capacity tons IN	OUT	Storage cap 1000 ton/yr
769B	Pub Ocean Terminal Warf		20	23		Rail,Truck	194	20	800												986
677A	Atlantic Shippers of Texas Inc			8		Rail,Truck	120		20												890
639B	KCS Coke Dock					Rail,Truck	25	2	8900												1,760
683A	Texas Oklahoma Port Co			14		Rail,Truck		20		100											3,461
831B	Cargill Inc (KCS Docks)			3700		Rail,Truck	3700	bushels													2,308
831A	KCS Grain Elevator Fac																				1,870
825A	Texaco Wharf #2			7900		Rail,Truck	7900	bbls													23,732
																					35,005

Load./ Unload,& Handling Equipment

Code	Name	Loading / Unloading Equipment Type	load rate	unld rate	capacity	Handling Equipment # 1 Type	Rate	Units	Cap.	shared	Handling Equipment # 2 Type	Rate	Units	Cap.	shared	Handling Equipment # 3 Type	Rate	Units	Cap.	Rail Car hold	Capacity 1000 ton/yr	
769B	Pub Ocean Terminal Warf	Gantry Crane	17	17	75	Forklifts					stevedoring									85	731	642
677A	Atlantic Shippers of Texas Inc	Crawler Crane	100	100	70	Conveyor															950	+
639B	KCS Coke Dock	Shiploader	720																		1,610	+
683A	Texas Oklahoma Port Co	ShipLoader	3000																		1,610	1,454
831B	Cargill Inc (KCS Docks)	Marine leg	8																		1,700	+
831A	KCS Grain Elevator Fac	chute spout	160			Conveyor		4													1,700	569
825A	Texaco Wharf #2																				16,068	15,650
																					24,309	18,315

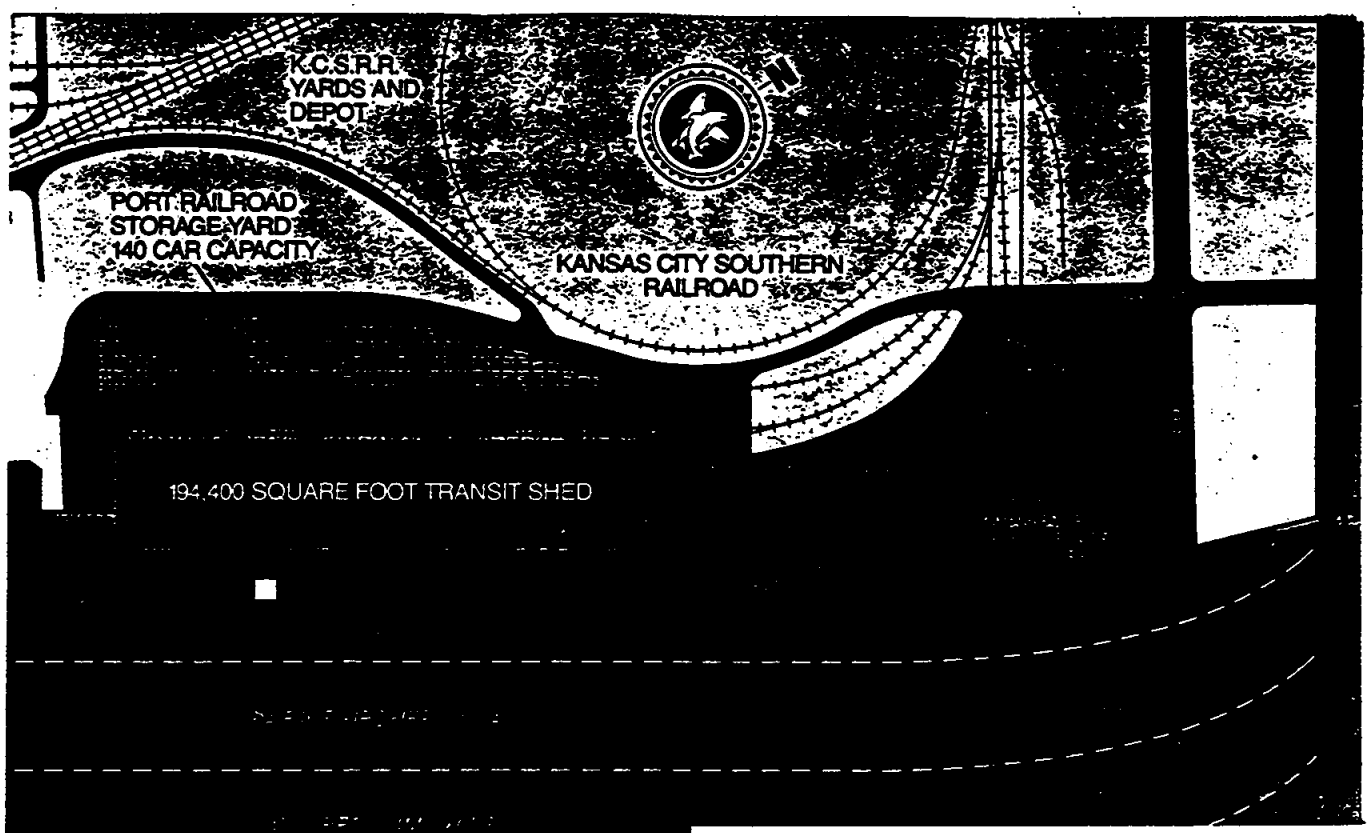
Terminal General Remarks

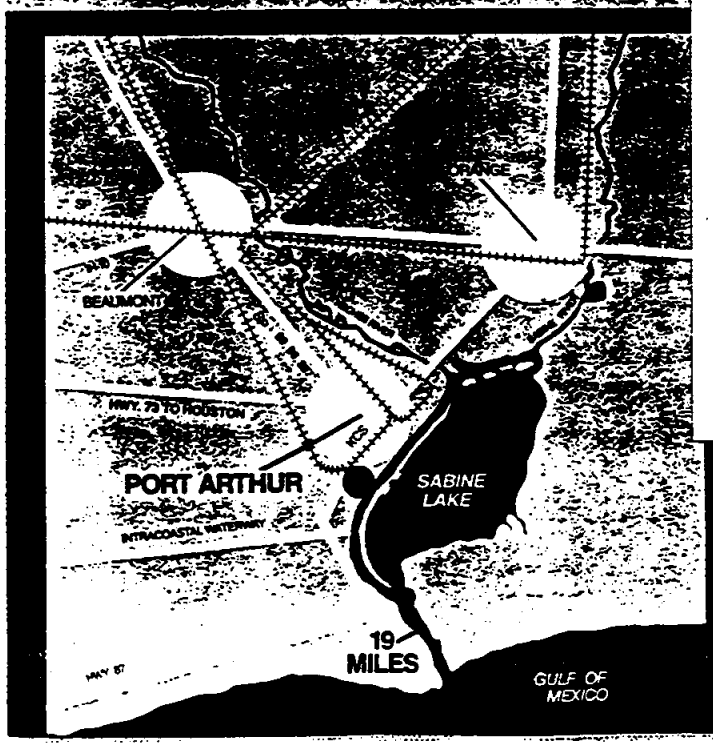
Code	Name	Owner			
769B	Pub Ocean Terminal Warf	Port Arthur Nav District	Railroads: KCS, South Pacific	Handles forest products & gen.cargo	Public facility with planned expansion (see port remarks)
677A	Atlantic Shippers of Texas Inc	Int'l Protein Inc	Cargo- fish meal		
639B	KCS Coke Dock	Rice-Carden Corp	Calcite coke storage		
683A	Texas Oklahoma Port Co	Texas Oklahoma Port Co	Rail Car dumper avail.		
831B	Cargill Inc (KCS Docks)	Kansas City Southern (KC	Grain receiving wharf		
831A	KCS Grain Elevator Fac	Kansas City Southern (KC	Combined loading rate - 40,000 Bu/Hr		
825A	Texaco Wharf #2	Texaco Inc	Storage capcity is for all 142 tanks. Refinery for imported oil		

Other cargo handeled by the dry bulk private terminals include soda ash, chelcals, and fertilizers.

Flows in 1000 tons/yr for	Canada & Mexico		1991 Flow Total	Port Capacity
Gen.cargo	57	9%	642	731
Dry bulk	226.3	16%	1,454	6,080
Bulk grain	23.2	4%	569	3,400
Liquid bulk	1462	9%	15,650	16,068
All Cargo	1768	10%	18,315	

Port Remarks: Excluded terminals(not listed) are either: exclusively receiving domestic cargo or barges, inactive, or mooring terminals. Approximate flows for each cargo group are derived from MARAD 1991 4-digit Harmonized commodity census for the port, and may/may not represent corresponding terminal group. Total flow is for foreign commerce, domestic cargo is about 42% of the total commerce. Some of the listed terminals are active in both foreign and domestic commerce. Expansion for the public terminal is planned to double its capacity. Plans call for 5 berths of 3,000' length, 400,000 ft2 transit shed, 100,000 ft2 open dock,





PORT ARTHUR
INTERNATIONAL
PUBLIC PORT

B- The Atlantic Coast Region

Ports in the Atlantic Coast region have about 24 million tons of trade with Canada and Mexico combined. Commodities traded are more diversified when compared to the Gulf region and the Great Lakes region, and include: iron ores, coal and coke, crude oil and petroleum products, sulfur, gypsum, calcium, phosphates, forest/paper products, chemicals and containerized cargo. Compared to the other two regions, ports on the Atlantic Coast have the smallest ratio (9.6%) of Canadian and Mexican trade to total foreign trade of these ports.

Port of Baltimore, Maryland:

The port of Baltimore is served by Conrail and CSX railroads, and in close vicinity to I-95, one of the major North-South routes in the U.S. The new container facility at the Seagirt Marine terminal opened in 1990 is built over 265 acres and has a computerized container tracking system, computerized 7 high speed cranes, and computerized gate facility consolidating all the TIR paperwork. The facility can handle more than 150,000 TUE's annually. Dundalk Marine terminal handles general cargo, neo-bulk, RO/RO, and containerized cargo, and extends over a 570 acre area. Additional improvements are planned. North and South Locust Point terminals are multi-use facilities similar to Dundalk with additional capability for heavy-lift of steel products, and both have recently expanded in size (total of 169 acres) and equipment (heavy-lift and container cranes). Two major grain elevators operate in the port: Indiana Grain (7.5 acres, up to 13 million bushels/month) and Mississippi River Grain (6.7 acres, up to 2 million bushels/month), and are located at Locust Point and Canton. Other terminals includes the Pennwood Wharf (steel and iron), Fairfield (automobiles), Rukert (dry bulk and break bulk), Consolidation Coal (Coal and coke), CSX and Curtis Bay terminals (bulk ores and coal)

Adjacent to the Seagirt terminal is the 70 acre Intermodal Container Transfer Facility capable of handling more than 200,000 transfers/year, with 4.5 miles of rail tracks.

Major commodities handled by the port district include: coal/coke, grain, iron ores, iron and steel products, automobiles and machinery, petroleum products, and gypsum.

Major commodities traded with Canada and Mexico are about 12% of the total foreign trade tonnage and include: crude oil and petroleum products (117,000 tons), other dry bulk cargos (2.5 million tons of iron ores, concentrates, coke, coal, gypsum, salt and ash).

Port of Jacksonville, Florida:

The 30 year old Jacksonville Port Authority (JAXPORT) had developed and expanded the Talleyrand Docks and Terminals, and the Blount Island Terminals. In 1991 and early 1993, JAXPORT acquired and developed additional 1,600 acres of deep water facilities (600 acres at Dams Point and 1,000 acres at Talleyrand). Construction at the Dames point site is scheduled for 1994, following the completion of the master plan currently underway.

Two new container cranes are to be received in 1993 for the Talleyrand Terminals. River Channel deepening is underway to increase the water draft from 38 feet to 42 feet. The container wharf at Blount Island was recently upgraded by a 550 feet extension, 8-lane gate facility, and RO/RO ramps.

A stable funding mechanism was established through a "telecommunication tax" fund. Additionally, $55 million in capital improvements in Blount Island was completed. Blount Island facilities currently handles containers and autos (300 acres for auto export/import storage). Private developers (Maxwell House plant) established a load center in Jacksonville for containerized and break-bulk coffee from South America.

Major railroads serving the port includes CSX, Norfolk Southern, and Florida East Coast railroads.

The size of trade was doubled in the past ten years for the public facilities at JAXPORT which handled 5 million tons of cargo in 1992, including containerized general cargo, automobiles, steel, lumber, dry and liquid bulk commodities, and frozen cargo. Major cargo traded with Mexico and Canada include: Crude oil (277,000 tons) and other dry bulk cargo (1 million tons of gypsum, sulfur, calcium, phosphates, and forest products).

Port of Newport News, Virginia:

The port is one of the Ports of the Virginia Hampton Roads area, which is ranked among the fastest growing in the country and is collectively operated by the Virginia Port Authority. From their central location on the Atlantic Coast, the Ports of Hampton Roads provide easy access by truck or rail to two-thirds of the U.S. population. Newport News Marine Terminals has heavy-lift capability for direct rail-to-ship loading and unloading.

Major Railroads serving the port include: CSX, Norfolk Southern, and Eastern Shore Railroad. Major truck lines serve the port with access to the I-95 and the I-85.

Major planned improvements include improvements for highway access and rail track upgrade to handle high cube double-stack rail cars.

Newport News public terminals handle break-bulk cargo for General Electric Corp. and the Department of Defense. Major cargo handled by the port district include: coal/coke, crude oil and petroleum products, aluminum and steel products, machinery and parts, and forest/paper products. The port had no trade with Canada in 1991, and most of the port's trade with Mexico is imported crude oil (578,000 tons).

Port of Baltimore, Maryland

Port of Baltimore	Code	5550	6001			Reg'n	Atlantic	List of Sheets 1 General Cargo	Sheet: 4 of 5
Code 1303	COE	Depth	50	38		State	Baltimore	2 Gen.Cargo, Dry Bulk	4 Bulk Grain, Liquid Bulk
Coord 39 15 N 76 34 W	Channels	T.basin				owner	Public & Private	3 Dry Bulk	5 Liquid Bulk

Berthage Characteristics		Types of Terminal Use			Max.	Pier Face / Berth Group # 1					Pier Side 1/ Berth Group # 2					Pier Side 2/ Berth Group # 3					Term.cap	1991 flow
Code	Name	type 1	type 2	type 3	DWT	Access	length	depth	vsl's	width	Access	length	depth	vsl's	width	Access	length	depth	vsl's	width	1000 ton/yr	1000 ton/yr
200A	Canton Grain - Pier 3	Bulk Grain					88	32			conveyor	690	39	1		conveyor	1418	28	1		3,685	+
615A	Indiana Grain - Pier 7	Bulk grain					67	40			conveyor	1000	38	1		conveyor	820	32	1		3,685	1,990
024A	Bethlehem Steel Piers	Liquid bulk	fuel oil	chemical			100	38			pipeline	1080	38	3		pipeline	700	25	1		1,735	+
126A	Baltimore Gas & Elect - Oil Dock	Liquid bulk	fuel oil				60	16			pipeline	420	16	1		pipeline	455	16	1		1,028	+
243A	Lebanon Chemical Corp	Liquid bulk	fertilizers			pipeline	360	13	1												450	+
315A	Petroleum Fuel & Terminal	Liquid bulk	fuel oil	ref oil		pipeline	60	42	1		pipeline	453	42	1		pipeline	453	42	1		135	+
326A	EXXON USA Piers 1 & 3	Liquid bulk	ref oil				85				pipeline	915	27	2		pipeline	915	27	2		135	+
593A	Proctor & Gamble Dock	Liquid bulk	soda	misc. liq.		pipeline	415	25	1												450	+
601A	Locust Point - Pier 10	Liquid bulk	molasses	asphalt		truck	75	35		7	truck	610	30	1	11	truck	165	27	23		1,735	+
809A	S T Services Pier	Liquid bulk	misc				13	35			pipeline	900	35	1		pipeline	900	35	1		1,028	+
																					17,666	1,990

Storage Area Characteristics		Container Hold	Reefer storage	Total Storage Area acres	Total Storage Capacity tons	Storage Area number 1 Access	storage area inside	storage area outside	Capacity tons IN	Capacity tons OUT	Storage Area number 2 Access	storage area inside	storage area outside	Capacity tons IN	Capacity tons OUT	Storage Area number 3 Access	storage area inside	storage area outside	Capacity tons IN	Capacity tons OUT	Storage cap 1000 ton/yr
200A	Canton Grain - Pier 3					rail, truck	3700														4,670
615A	Indiana Grain - Pier 7					rail, truck	3200														570
024A	Bethlehem Steel Piers					truck	3240														460
126A	Baltimore Gas & Elect - Oil Dock					pipeline	818														460
243A	Lebanon Chemical Corp						59														460
315A	Petroleum Fuel & Terminal					truck, pipeline	2290														460
326A	EXXON USA Piers 1 & 3					RR, truck, pipe	1970														460
593A	Proctor & Gamble Dock					rail, truck	63														460
601A	Locust Point - Pier 10					rail, truck	283														460
809A	S T Services Pier					pipeline	4														460
																					7,560

Load./ Unload.& Handling Equipment		Loading / Unloading Equipment Type	load rate	unld rate	capacity	Handling Equipment # 1 Type	Rate	Units	Cap	shared	Handling Equipment # 2 Type	Rate	Units	Cap	shared	Handling Equipment # 3 Type	Rate	Units	Cap.	Rail Car hold	Capacity 1000 ton/yr	
200A	Canton Grain - Pier 3					chute spout	60	9			conveyor	100	5			load/unld tower		2		400	670	+
615A	Indiana Grain - Pier 7					chute spout	75	4			pneumatic loadr	6	1			chute spout		3		540	570	1,990
024A	Bethlehem Steel Piers																				460	+
126A	Baltimore Gas & Elect - Oil Dock																				460	+
243A	Lebanon Chemical Corp																				460	+
315A	Petroleum Fuel & Terminal					cargo hoses															460	+
326A	EXXON USA Piers 1 & 3					cargo hoses					other mechanic										460	+
593A	Proctor & Gamble Dock																				460	+
601A	Locust Point - Pier 10																				460	+
809A	S T Services Pier					cargo hoses															7,520	1,990

Terminal General Remarks		Owner	
200A	Canton Grain - Pier 3	Mississippi River Grain Co	Gallery: east side. Loading towers: west side.
615A	Indiana Grain - Pier 7	Indiana Grain	
024A	Bethlehem Steel Piers	Bethlehem Steel Corp	Cargo: sulfuric acid & crude tar. Storage area: 1-tar, 2-sulfuric acid
126A	Baltimore Gas & Elect - Oil Dock	Baltimore Gas & Elec Co	Liquid storage: 1-fuel oil, 2-naphtha, 3-kerosene.
243A	Lebanon Chemical Corp	Lebanon Chemical Corp	
315A	Petroleum Fuel & Terminal	Petroleum Fuel&Terminal	Area 2 storage located 2 miles north of south terminal.
326A	EXXON USA Piers 1 & 3	EXXON USA	Pier 1 depth alongside ranges from 37-39 ft.
593A	Proctor & Gamble Dock	Proctor & Gamble	Liquid storage: 1-coconut oil, 2-glycerine, 3-caustic soda.
601A	Locust Point - Pier 10	Maryland Port Admin.	Other cargo: latex. Liquid storage: 1-molasses, 2-asphalt, 3-latex
809A	S T Services Pier	T T Services Inc.	

Flows in 1000 tons/yr for:	Canada & Mexico		1991 Flow Total	Port Capacity
Gen.cargo	44	1%	4,371	7,352
Dry bulk	2458	20%	12,027	21,418
Bulk grain	24	1%	1,990	3,740
Liquid bulk	117	4%	2,927	11,160
All Cargo	2643	12%	21,315	

Port Remarks: Excluded terminals(not listed) are either: exclusively receiving domestic cargo or barges, inactive, or mooring terminals. Approximate flows for each cargo group are derived from MARAD 1991 4-digit Harmonized commodity census for the port, and may/may not represent corresponding terminal group. Total flow is for foreign commerce, domestic cargo is about 32% of the total commerce. Some of the listed terminals are active in both foreign and domestic commerce. Some of the liquid bulk terminals are active in shipping other chemicals and other dry bulk cargo for both domestic and foreign commerce.

Port of Baltimore	Code	5550	6001			Reg'n	Atlantic	List of Sheets 1 General Cargo	Sheet: 5 of 5
Code 1303	COE	Depth	50	38		State	Baltimore	2 Gen.Cargo, Dry Bulk	4 Bulk Grain, Liquid Bulk
Coord 39 15 N 76 34 W	Channels	T.basin				owner	Public & Private	3 Dry Bulk	5 Liquid Bulk

Berthage Characteristics		Types of Terminal Use			Max.	Pier Face / Berth Group # 1					Pier Side 1/ Berth Group # 2					Pier Side 2/ Berth Group # 3					Term.cap	1991 flow
Code	Name	type 1	type 2	type 3	DWT	Access	length	depth	vsl's	width	Access	length	depth	vsl's	width	Access	length	depth	vsl's	width	1000 ton/yr	1000 ton/yr
838abc	CONOCO	Liquid bulk	ref oil	asphalt		pipeline	950	32	3												1,735	*
839A	Shell Oil - Wagners Point	Liquid bulk	ref oil				20	28			pipeline	840	21	1		pipeline	840	26	1		1,028	*
849A	AMOCO Dock 1	Liquid bulk	asphalt			pipeline	65	28	1												450	*
852A	BP Oil / Star Pier	Liquid bulk	ref oil				22	33			pipeline	339	12	1		pipeline	339	33	1		1,028	*
877A	Fertilizer Industries Inc	Liquid bulk	fertilizers			pipeline	125	19	1	12											450	*
886A	Essex Inductrial Chem Wharf	Liquid bulk	Dry bulk			truck, pipeline	600	28	1												450	*
900A	Amerada Hess Pier	Liquid bulk	ref oil				50	27			pipeline	90	37	1		pipeline	40	37	1		1,028	*
904A	AMOCO Oil - Baltimore Term	Liquid bulk	ref oil			pipeline	25	32	1												450	*
967A	Davison Chemical Div	Liquid bulk	soda	fuel oil			30	30			pipeline	345	28	1		pipeline	350	25	1		1,028	*
044A	Steuart Petroleum Terminal	Liquid bulk	ref oil			pipeline	684	35	1												450	2,927
				Total Storage																	8,097	2,927

Storage Area Characteristics						Storage Area number 1					Storage Area number 2					Storage Area number 3					
Code	Name	Container Hold	Reefer storage	Area acres	Capacity tons	Access	storage area inside	outside	Capacity tons IN	OUT	Access	storage area inside	outside	Capacity tons IN	OUT	Access	storage area inside	outside	Capacity tons IN	OUT	Storage cap 1000 ton/yr
838abc	CONOCO			1200		truck, pipeline	4813														1,260
839A	Shell Oil - Wagners Point			800		pipeline	1058														833
849A	AMOCO Dock 1					rail, truck	266														450
852A	BP Oil / Star Pier			950		pipeline	950														1,013
877A	Fertilizer Industries Inc					pipeline	75														450
886A	Essex Inductrial Chem Wharf					truck, pipeline	25														450
900A	Amerada Hess Pier			1000		rail, truck	3709														1,067
904A	AMOCO Oil - Baltimore Term					pipeline															450
967A	Davison Chemical Div			896		rail, truck, pipe	896														956
044A	Steuart Petroleum Terminal					pipeline	67														450
																				Rail	7,569

Load./ Unload.& Handling Equipment		Loading / Unloading Equipment				Handling Equipment # 1					Handling Equipment # 2					Handling Equipment # 3					Car	Capacity	
Code	Name	Type	load rate	unld rate	capacity	Type	Rate	Units	Cap.	shared	Type	Rate	Units	Cap.	shared	Type	Rate	Units	Cap.	hold	1000 ton/yr	
838abc	CONOCO					cargo hoses															1,260	*
839A	Shell Oil - Wagners Point					cargo hoses															833	*
849A	AMOCO Dock 1					cargo hoses															450	*
852A	BP Oil / Star Pier					cargo hoses															1,013	*
877A	Fertilizer Industries Inc																				450	*
886A	Essex Inductrial Chem. Wharf																				450	*
900A	Amerada Hess Pier					cargo hoses															1,028	*
904A	AMOCO Oil - Baltimore Term																				450	*
967A	Davison Chemical Div																				956	*
044A	Steuart Petroleum Terminal																				450	2,927
																					7,380	2,927

Terminal General Remarks	Owner	
838abc CONOCO	CONOCO Inc	Facilities include: barge dock, wharf and pier. Storage area 1: Chevron. Storage area 2. Drefus Energy Corp. Pipelines connect pier to two adjacent Conoco facilities.
839A Shell Oil - Wagners Point	Shell Oil Co	North side: barge dock. South side: vessel dock.
849A AMOCO Dock 1	AMOCO Co	
852A BP Oil / Star Pier	BP Oil Co	East side: barge dock. West side: tanker dock. Liquid storage: 1-Bp Oil, 2-Star.
877A Fertilizer Industries Inc	Fertilizer Industries Inc	
886A Essex Inductrial Chem. Wharf	Olin Corp	Receipt of Potash (dry), sulfuric acid (liq).
900A Amerada Hess Pier	Amerada Hess Corp	Hess: 32 tanks. Crown: 5 tanks.
904A AMOCO Oil - Baltimore Term	AMOCO Oil Co	
967A Davison Chemical Div	W R Grace & Co	
044A Steuart Petroleum Terminal	Steuart Petroleum Co	Four 12-, one 16-, and one 18-inch pipelines extend from pier to storage tanks.

Port Remarks: Excluded terminals(not listed) are either: exclusively receiving domestic cargo or barges, inactive, or mooring terminals. Approximate flows for each cargo group are derived from MARAD 1991 4-digit Harmonized commodity census for the port, and may/may not represent corresponding terminal group. Total flow is for foreign commerce, domestic cargo is about 32% of the total commerce. Some of the listed terminals are active in both foreign and domestic commerce. Some of the liquid bulk terminals are active in shipping other chemicals and other dry bulk cargo for both domestic and foreign commerce.

Flows in 1000 tons/yr for	Canada & Mexico		1991 Flow Total	Port Capacity
Gen.cargo	44	1%	4,371	7,352
Dry bulk	2456	20%	12,027	21,416
Bulk grain	24	1%	1,990	3,740
Liquid bulk	117	4%	2,927	11,160
All Cargo	2643	12%	21,315	43,671

* all dimensions are in feet. Storage area: Inside:in 1000 ft2, Outside:in acres. Storage for Liquids is in 1000 bbls, and for bulk grain is in 1000 bushels

Facilities Index BY CARGO TYPE

MAP KEY

A
World Trade Center

B
Clinton St. Marine Terminal

C
Rukert Terminals Corp

D
Consolidation Coal Sales Co

E
ICTF

F
Seagirt Marine Terminal

G
Dundalk Marine Terminal

H
Chesapeake Bulk Stevedores

I
Hawkins Point Terminal

J
CSX Coal & Ore Piers/ Curtis Bay Company

K
Hobelmann Port Services

L
Support Terminals Services

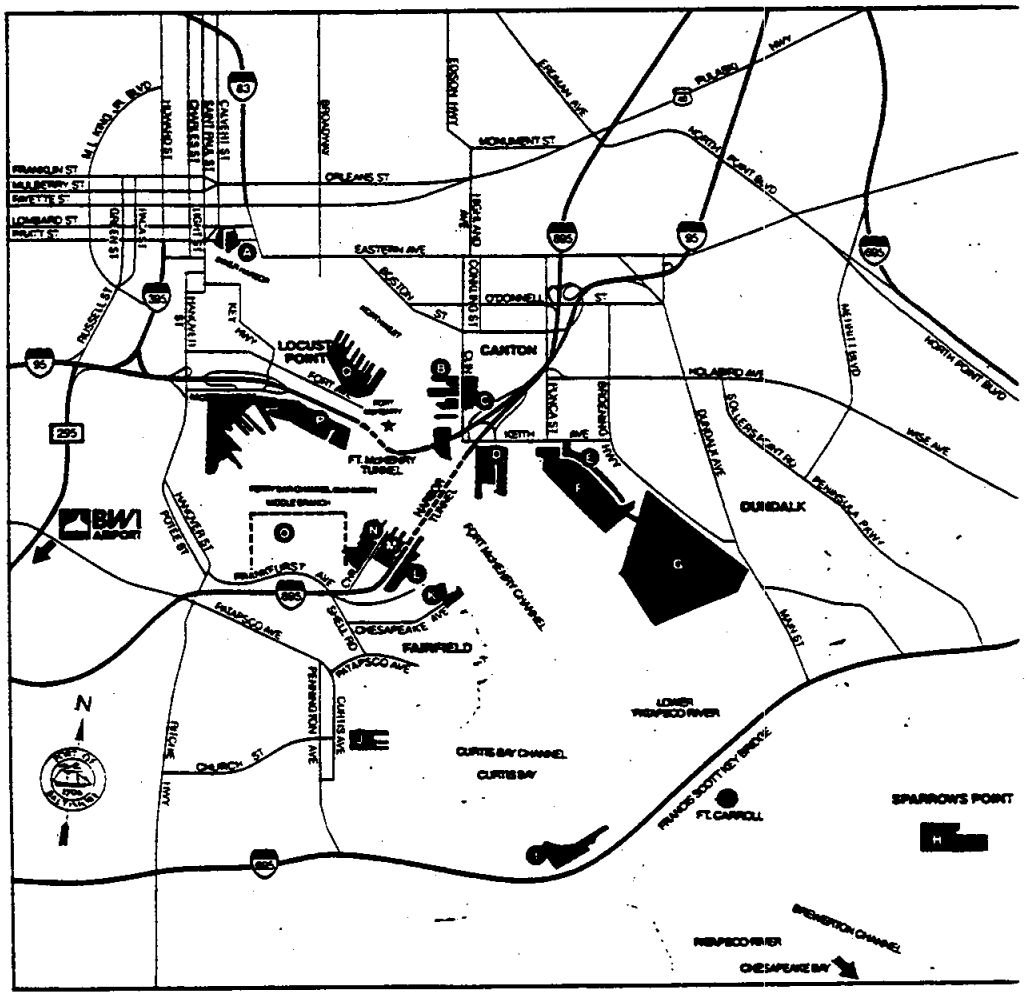
M
Hobelmann Port Services

N
Fairfield Auto Terminal

O
Masonville (Future)

P
South Locust Point

Q
North Locust Point



Automobiles/Trucks	PAGE
Dundalk Marine Terminal	20
Fairfield Auto Terminal	32
Hobelmann Port Services	34
Break Bulk	
Bethlehem Steel	28
Cambridge Marine Terminal	46
Clinton St. Marine Terminal	37
Dundalk Marine Terminal	20
North Locust Point	26
Rukert Terminals Corp	36
South Locust Point	24
Bulk/Coal/Ore	
Consolidation Coal Sales Co	39
CSX Coal & Ore Pie	40
Curtis Bay Company	42
Rukert Terminals Corp	36
Containers	
Dundalk Marine Terminal	20
North Locust Point	26
Seagirt Marine Terminal	17
South Locust Point	24
Grain	
Indiana Grain	44
Mississippi River Grain	45
Liquid Bulk	
Dundalk Marine Terminal	20
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Roll On/Roll Off	
Dundalk Marine Terminal	20
Rukert Terminals Corp	36
North Locust Point	26
Seagirt Marine Terminal	17
South Locust Point	24
Steel	
Pennwood Wharf	28
Dundalk Marine Terminal	20
North Locust Point	26
Rukert Terminals Corp	36
South Locust Point	24

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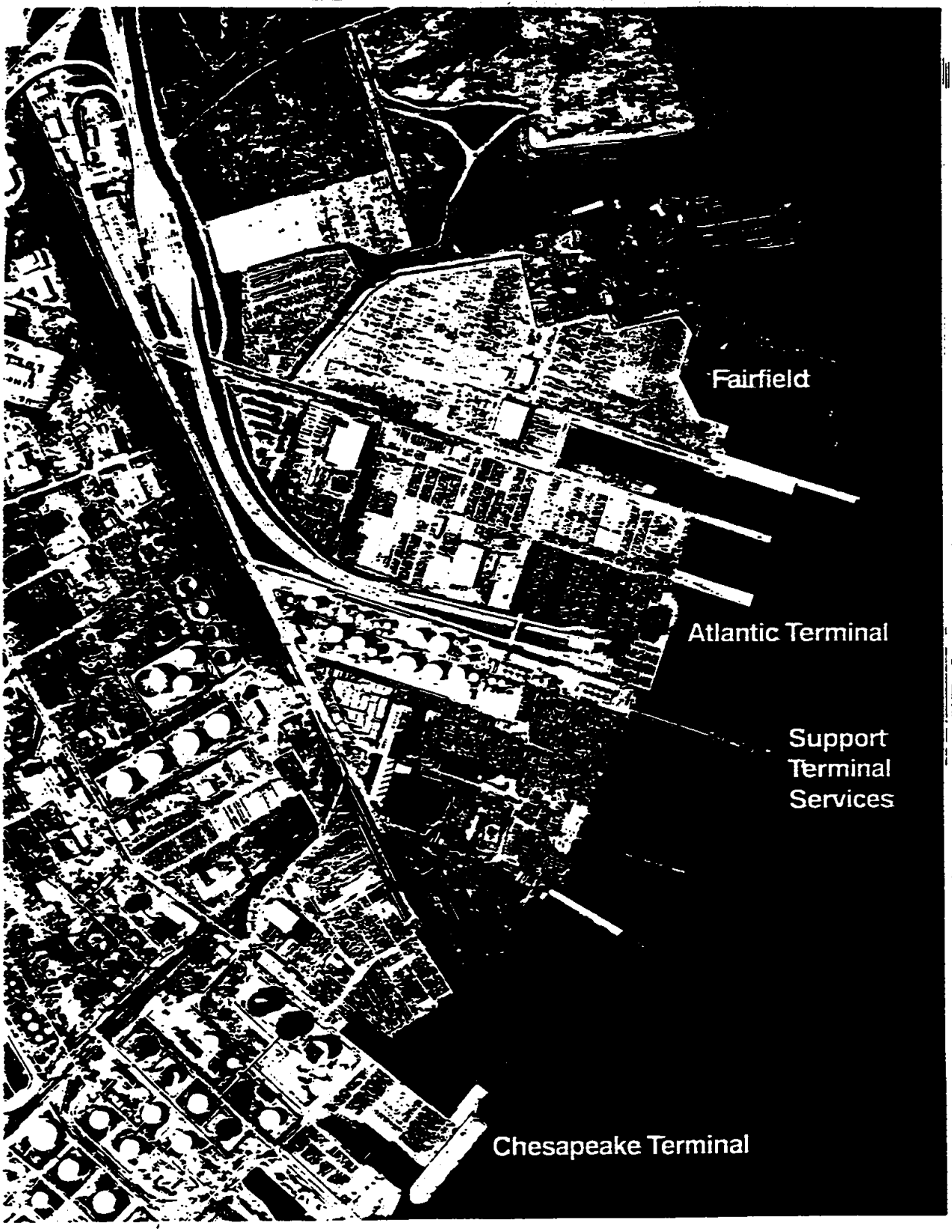
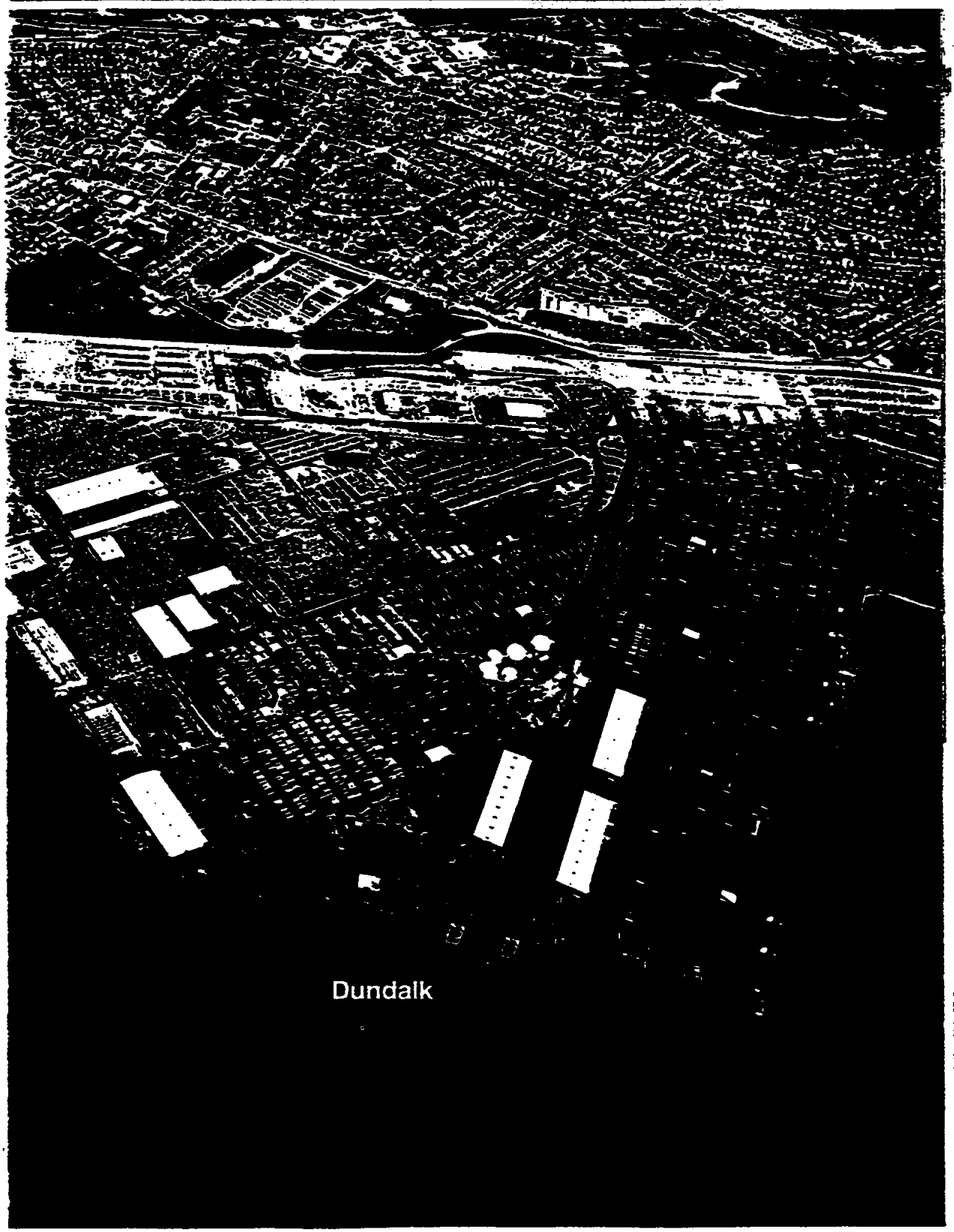
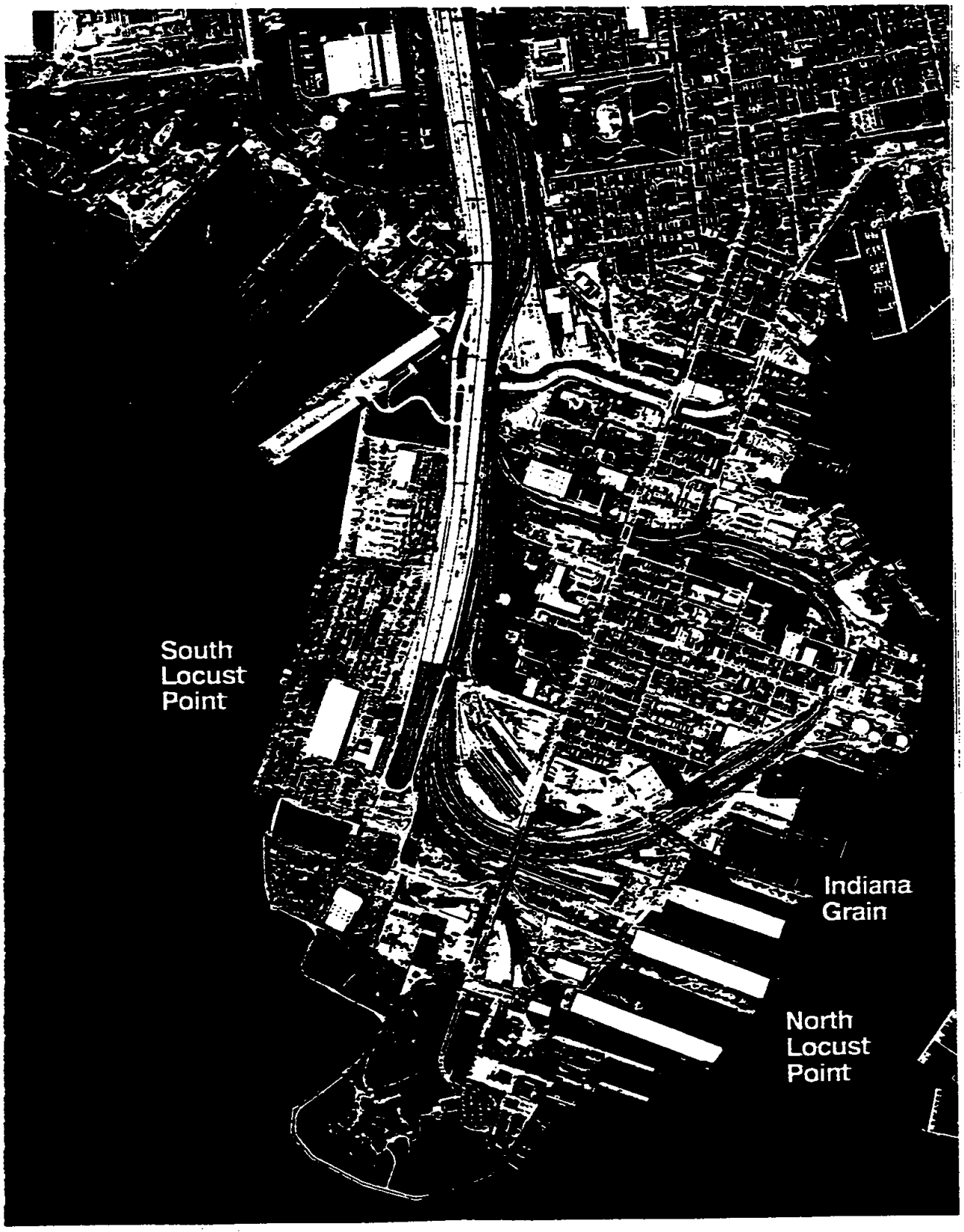

Fairfield
Atlantic Terminal
Support
Terminal
Services
Chesapeake Terminal


Dundalk

[redacted]



Port of Jacksonville, Forida

Port of Jacksonville [illegible]	Code 14016 [illegible]	Rgn Atlantic [illegible]	List of Sheets 1 General Cargo, Dry Bulk; 2 Liquid Bulk Terminals	Sheet: 1 of 2
Code [illegible] 1803 [illegible]	COE [illegible] Depth [illegible]	State Florida [illegible]		
Coord 30 22 N 81 37 W [illegible]	Channel [illegible] basin [illegible]	Owner Public & Private [illegible]		

Berthage Characteristics

Code	Name	Types of Terminal Use: type 1	type 2	type 3	Max. DWT	Pier Face / Berth Group # 1: Access	length	depth	vsl's	width	Pier Side 1/ Berth Group # 2: Access	length	depth	vsl's	width	Pier Side 2/ Berth Group # 3: Access	length	depth	vsl's	width	Term.cap 1000 ton/yr	1991 flow 1000 ton/yr
018abc	Blount Island Terminals 7-12	Gen. cargo	automobil	iron,steel		rail, truck	6300	38	7	80											[illegible]	+
018D	Blount Island Westerly Wharf	Gen. cargo	automobil			truck	600	30	1												[illegible]	+
166A	JPA Tallyrand Docks 1-6	Gen. cargo	liq. bulk	Soda		rail, truck	4100	38	6	80											[illegible]	+
169B	JPA 8th St Terminal	Gen. cargo	automobil			truck	700	34	1												[illegible]	+
206A	TMT - Terminal Operators Dock	Gen. cargo	RO/RO			truck	500	27	1												[illegible]	+
215A	TMT - McGiggen & Barge Docks	Gen. cargo	RO/RO	asphalt		truck, pipeline	1470	15	2												[illegible]	+
251A	Commodores Point Terminal Co	Gen. cargo	dry bulk	liq. bulk		RR, truck, pipe	700	24	1	60											[illegible]	2,529
020A	Celotex Corp	Dry bulk	nonmetal			conveyor	536	32	1												[illegible]	+
064A	U S Gysum Pier	Dry bulk	nonmetal				42	28				590				conveyor	596	28	1		[illegible]	+
097A	Jacksonville Bulk Terminal	Dry bulk	nonmetal	fertilizers		conveyor	800	38	1												[illegible]	
																					[illegible]	1,255
																					[illegible]	3,784

Storage Area Characteristics

Code	Name	Container Hold	Reefer storage	Total Storage: Area acres	Capacity tons	Storage Area number 1: Access	storage area inside	outside	Capacity tons IN	OUT	Storage Area number 2: Access	storage area inside	outside	Capacity tons IN	OUT	Storage Area number 3: Access	storage area inside	outside	Capacity tons IN	OUT	Storage cap 1000 ton/yr
018abc	Blount Island Terminals 7-12					rail, truck	240	357				120									[illegible]
018D	Blount Island Westerly Wharf					truck															[illegible]
166A	JPA Tallyrand Docks 1-6					rail, truck	120	173			pipeline	7.5									[illegible]
169B	JPA 8th St Terminal					rail, truck															[illegible]
206A	TMT - Terminal Operators Dock					truck															[illegible]
215A	TMT - McGiggen & Barge Docks					rail, truck	37	62			rail, truck	239									[illegible]
251A	Commodores Point Terminal Co					rail, truck	31					31				rail, truck			70		[illegible]
020A	Celotex Corp					rail, truck				150											[illegible]
064A	U S Gysum Pier					rail, truck			13												[illegible]
097A	Jacksonville Bulk Terminal					rail, truck			27												[illegible]
																					[illegible] 4,770

Load./ Unload.& Handling Equipment

Code	Name	Loading / Unloading Equipment: Type	load rate	unld rate	capacity	Handling Equipment # 1: Type	Rate	Units	Cap.	shared	Handling Equipment # 2: Type	Rate	Units	Cap.	shared	Handling Equipment # 3: Type	Rate	Units	Cap.	Rail Car hold	Capacity 1000 ton/yr	
018abc	Blount Island Terminals 7-12					gantry crane	70	1	100		container crane	32	5	40		gantry crane	40	1	50		[illegible]	+
018D	Blount Island Westerly Wharf					stevedore															[illegible]	+
166A	JPA Tallyrand Docks 1-6					gantry crane	30	1	100		container crane	30	2	40		container stack		3	40		[illegible]	+
169B	JPA 8th St Terminal					ships gear															[illegible]	+
206A	TMT - Terminal Operators Dock					crawler crane		1	225												[illegible]	+
215A	TMT - McGiggen & Barge Docks					crawler crane		1	350		fork lifts		20			shoreside ro/ro r		1			[illegible]	+
251A	Commodores Point Terminal Co					stevedore															[illegible]	2,529
020A	Celotex Corp					conveyor	1100	1													[illegible]	+
064A	U S Gysum Pier					conveyor	1000	1													[illegible]	+
097A	Jacksonville Bulk Terminal					shiploader	3000	2			conveyor		1								[illegible]	1,255
																					[illegible] 3707	3,784

Terminal General Remarks

Code	Name	Owner	Remarks
018abc	Blount Island Terminals 7-12	Jacksonville Port Authority	Stem ramp Ro/Ro platform 153x66 ft. 390 reefer outlet.
018D	Blount Island Westerly Wharf	Jacksonville Port Authority	Shares storage identified for berths 10-12
166A	JPA Tallyrand Docks 1-6	Jacksonville Port Authority	Liquid storage: 1-caustic soda, 2-molasses, 3-chemicals. Open storage for lumber. 410 reefer.
169B	JPA 8th St Terminal	Jacksonville Port Authority	Storage capacity for 10,000 vehicles
206A	TMT - Terminal Operators Dock	Trailer Marine Transport	See additional equipment and storage listed at adjacent Tmt docks.
215A	TMT - McGiggen & Barge Docks	Trailer Marine Transport	324' concrete ramp at upper end and parallel to face. Reefer storage actually 1200 units. Additional storage for 2000 trailers.
251A	Commodores Point Terminal Co	Commodores Point T. Cor	Liquid storage: 1-petroleum, 2-chemicals. Cement storage: 1-Lehigh, 2-Blue Circle.
020A	Celotex Corp	Celotex Corp	Receipt of Gypsum rock by self-unloading vessels. Other: receiving hopper.
064A	U S Gysum Pier	U S Gypsum Co	Gypsum rock. Receiving hopper.
097A	Jacksonville Bulk Terminal	Jacksonville Port Authority	Cargo: phosphate rock, phosphoric acid.

Port Remarks: Excluded terminals(not listed) are either: exclusively receiving domestic cargo or barges, inactive, or mooring terminals. Approximate flows for each cargo group are derived from MARAD 1991 4-digit Harmonized commodity census for the port, and may/may not represent corresponding terminal group. Total flow is for foreign commerce, domestic cargo is about 30% of the total commerce. Some of the listed terminals are active in both foreign and domestic commerce.

Flows in 1000 tons/yr for	Canada & Mexico		1991 [illegible] Total	Port [illegible] Capacity
Gen.cargo	45	2%	2,629	1,900
Dry bulk	277	22%	1,255	2,670
Bulk grain				
Liquid bulk	950	28%	3,448	
All Cargo	[illegible]	[illegible]	[illegible]	

Port of Jacksonville, Florida

Port of Jacksonville		Code	14016		Reg'n	Atlantic
Code	1803	COE	Depth	38	State	Florida
Coord	30 22 N 81 37 W	Channels	T.basin:		owner	Public & Private

List of Sheets 1 General Cargo, Dry Bulk
2 Liquid Bulk Terminals

Sheet: 2 of 2

Code	Name	Types of Terminal Use type 1	type 2	type 3	Max. DWT	Pier Face / Berth Group # 1 Access	length	depth	vsl's	width	Pier Side 1/ Berth Group # 2 Access	length	depth	vsl's	width	Pier Side 2/ Berth Group # 3 Access	length	depth	vsl's	width	Term.cap 1000 ton/yr	1991 flow 1000 ton/yr
018E	Jacksonville Electric Authority	Liquid bulk				pipeline	700	26	1												[illegible]	♦
025A	Amerada Hess Corp	Liquid bulk				pipeline	300	36	1												[illegible]	♦
026A	Gulf Products Div.	Liquid bulk				pipeline	143	36	1												[illegible]	♦
074ab	East Seaboard Petroleum Co	Liquid bulk				pipeline	1340	22	1												[illegible]	♦
090A	Shell Oil Terminal	Liquid bulk				pipeline	810	38	1												[illegible]	♦
124B	Alton Packaging - Fuel Dock	Liquid bulk				pipeline	250	24	1												[illegible]	♦
134A	Jacksonville Electric Auth.	Liquid bulk				pipeline	101	36	1												[illegible]	♦
146A	Belcher Oil Co	Liquid bulk				pipeline	140	32	1												[illegible]	♦
151A	Chevron USA	Liquid bulk				pipeline	280	31	1												[illegible]	♦
725A	Jacksonville Electric Auth	Liquid bulk				pipeline	100	30	1												[illegible]	3,448
																					[illegible]	3,448

Code	Name	Container Hold	Reefer storage	Total Storage Area acres	Capacity tons	Storage Area number 1 Access	storage area inside	outside	Capacity tons IN	OUT	Storage Area number 2 Access	storage area inside	outside	Capacity tons IN	OUT	Storage Area number 3 Access	storage area inside	outside	Capacity tons IN	OUT	Storage cap 1000 ton/yr
018E	Jacksonville Electric Authority					rail, truck	1636														[illegible]
025A	Amerada Hess Corp					truck	654														[illegible]
026A	Gulf Products Div.					rail, truck	900				rail, truck	268									[illegible]
074ab	East Seaboard Petroleum Co					rail, truck	2043														[illegible]
090A	Shell Oil Terminal					truck	505														[illegible]
124B	Alton Packaging - Fuel Dock					rail, truck	105														[illegible]
134A	Jacksonville Electric Auth.					rail, truck	298														[illegible]
146A	Belcher Oil Co					rail, truck	330														[illegible]
151A	Chevron USA					rail, truck	600				rail, truck	216									[illegible]
725A	Jacksonville Electric Auth					rail, truck	306														[illegible]
																					[illegible]

Code	Name	Loading / Unloading Equipment Type	load rate	unld rate	capacity	Handling Equipment # 1 Type	Rate	Units	Cap.	shared	Handling Equipment # 2 Type	Rate	Units	Cap.	shared	Handling Equipment # 3 Type	Rate	Units	Cap.	Rail Car hold	Capacity 1000 ton/yr
018E	Jacksonville Electric Authority																				[illegible] ♦
025A	Amerada Hess Corp					cargo hoses															[illegible] ♦
026A	Gulf Products Div.					cargo hoses															[illegible] ♦
074ab	East Seaboard Petroleum Co					cargo hoses															[illegible] ♦
090A	Shell Oil Terminal					cargo hoses															[illegible] ♦
124B	Alton Packaging - Fuel Dock																				[illegible] ♦
134A	Jacksonville Electric Auth.																				[illegible] ♦
146A	Belcher Oil Co					cargo hoses															[illegible] ♦
151A	Chevron USA					hoses/mech.co															[illegible] ♦
725A	Jacksonville Electric Auth					cargo hoses															[illegible] 3,448
																					[illegible] 3,448

Code	Name	Owner	
018E	Jacksonville Electric Authority	City of Jacksonville	Fuel oil for plant consumption.
025A	Amerada Hess Corp	Amerada Hess Corp	
026A	Gulf Products Div.	Gulf Oil Corp	Liquid storage: 1-Gulf, 2-Amoco.
074ab	East Seaboard Petroleum Co	E. Seaboard Petroleum Co	
090A	Shell Oil Terminal	Shell Oil Co	
124B	Alton Packaging - Fuel Dock	Alton Packaging Corp	
134A	Jacksonville Electric Auth.	City Of Jacksonville	Receipt of fuel oil for plant comsumption. One 12-inch pipeline extend to storage tanks.
146A	Belcher Oil Co	Belcher Oil Co	Liquid storage: Belcher 1-refined, 2-asphalt, Independent - refined.
151A	Chevron USA	Chevron USA	Liquid storage: 1-Chevron, 2-Witco.
725A	Jacksonville Electric Auth	City of Jacksonville	Receipt of fuel oil for plant consumption.

Port Remarks:

Flows in 1000 tons/yr for	Canada Mexico		1991 Flow Total	Port Capacity
Gen.cargo	45	2%	2,629	1,900
Dry bulk	277	22%	1,255	2,670
Bulk grain				
Liquid bulk	950	28%	3,448	4,500
All Cargo	1272	18%	7,232	9,070

* all dimensions are in feet. Storage area: Inside:in 1000 ft2, Outside:in acres. Storage for Liquids is in 1000 bbls, and for bulk grain is in 1000 bushels

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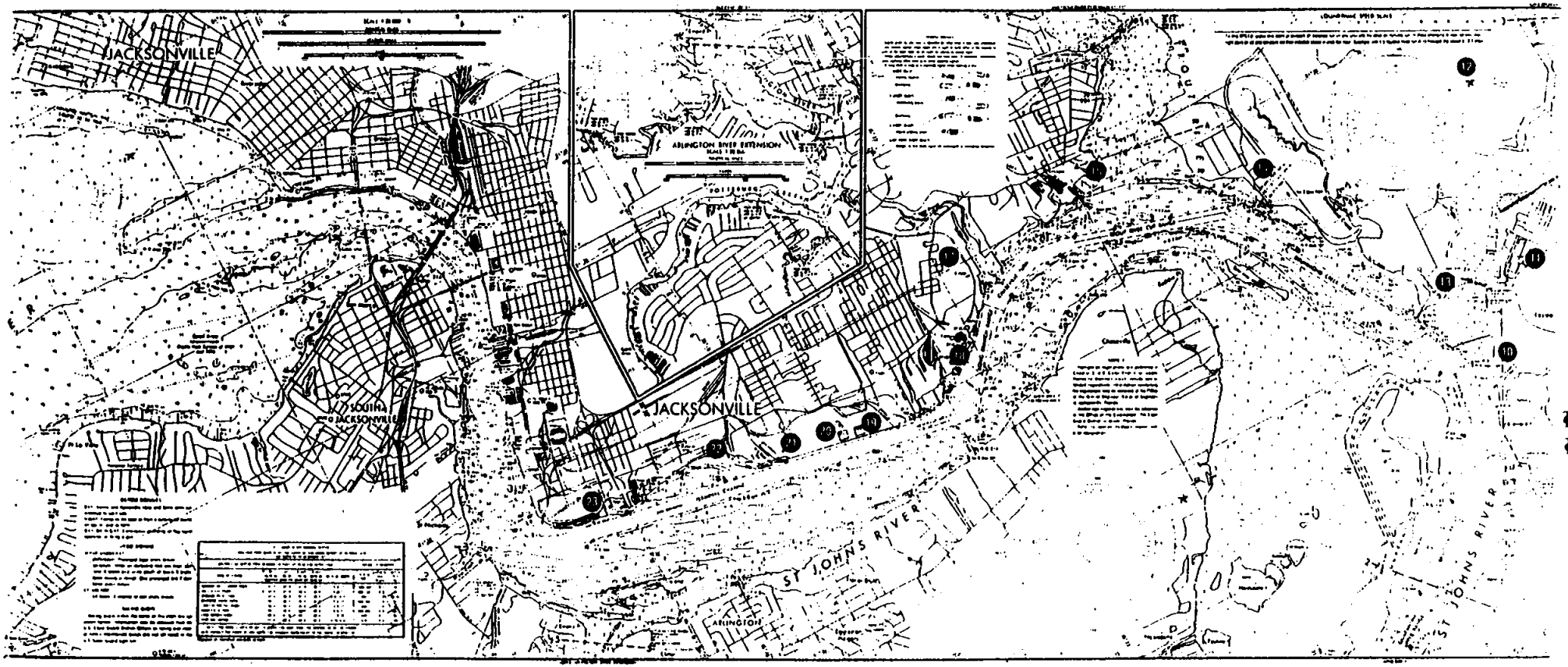

JACKSONVILLE
SOUTH JACKSONVILLE
JACKSONVILLE
ARLINGTON RIVER EXTENSION
ST JOHNS RIVER
ARLINGTON
ST JOHNS RIVER

MOUNT
ISLAND
MAIN SCHOOL
ST JOHNS RIVER
LAKE CREEK
COVE

Port of Newport News, VA	Code	10343	10270			Reg'n	Atalntic Ocean	List of Sheets	Sheet: 1 of 1
Code 1402	COE Depth	45	40			State	Virginia	1 Liquid Bulk, Dry Bulk, General Cargo	
Coord 37 01 N 76 20 W	Channels T.basin					owner	Public & Private		

Berthage Characteristics

Code	Name	Types of Terminal Use: type 1	type 2	type 3	Max. DWT	Pier Face / Berth Group # 1: Access	length	depth	vsl's	width	Pier Side 1/ Berth Group # 2: Access	length	depth	vsl's	width	Pier Side 2/ Berth Group # 3: Access	length	depth	vsl's	width	Term. cap 1000 ton/yr	1991 flow 1000 ton/yr
085A	C&O Pier-14 Coal Pier	dry bulk	coal/coke		150		76				conveyor	1090	45	1		conveyor	1090	45	1		8,182	+
113A	Pier IX terminal	dry bulk	coal/coke				88	46			conveyor	1200	46	2							8,182	+
123A	Dominion Terminal	dry bulk	coal/coke			conveyor	1221	46	2												8,182	22,018
132A	Pier C	Gen. cargo	container	Ro/Ro		truck		35		41	rail, truck	930	35	1	68	rail, truck	930	35	1	178	731	+
134B	Pier B	Gen. cargo				truck		35	1	32	rail, truck	620	35	1	26	rail, truck	620	35	1	32	1,234	628
990A	Amoco Yorktown Refinery	liquid bulk				pipeline	2283	38	2	50											4,091	+
078A	Koch Fuels Terminal	liquid bulk				pipeline	80	35	1		pipeline	30	19	1		pipeline	30	19			4,091	2,677
																					34,693	25,323

Storage Area Characteristics

Code	Name	Container Hold	Reefer storage	Total Storage: Area acres	Capacity tons	Storage Area number 1: Access	storage area inside	outside	Capacity IN	tons OUT	Storage Area number 2: Access	storage area inside	outside	Capacity IN	tons OUT	Storage Area number 3: Access	storage area inside	outside	Capacity IN	tons OUT	Storage cap 1000 ton/yr
085A	C&O Pier-14 Coal Pier			25		rail					rail										7,217
113A	Pier IX terminal			28		rail															8,063
123A	Dominion Terminal			30		rail															8,660
132A	Pier C			33		rail, truck	124														1,366
134B	Pier B					rail, truck	268														420
990A	Amoco Yorktown Refinery					pipeline															1,880
078A	Koch Fuels Terminal					pipeline															1,880
																				Rail	29,525

Load / Unload & Handling Equipment

Code	Name	Loading / Unloading Equipment: Type	load rate	unld rate	capacity	Handling Equipment # 1: Type	Rate	Units	Cap.	shared	Handling Equipment # 2: Type	Rate	Units	Cap.	shared	Handling Equipment # 3: Type	Rate	Units	Cap.	Car hold	Capacity 1000 ton/yr	
085A	C&O Pier-14 Coal Pier					shiploader	4500	1			shiploader	4500	1			conveyor belt		4			7,217	+
113A	Pier IX terminal					shiploader	8000	1													8,063	+
123A	Dominion Terminal					shiploader	5900	1													8,182	22,018
132A	Pier C					container crane	25	2	40		container crane		2	30		container crane		1	50		731	+
134B	Pier B					stevedore															420	628
990A	Amoco Yorktown Refinery																				1,880	+
078A	Koch Fuels Terminal																				1,880	2,677
																					28,392	25,323

Terminal General Remarks

Code	Name	Owner	Remarks
085A	C&O Pier-14 Coal Pier	Chessie System	Adjacent Rail Yard Has Stor For 8000 Cars-Split 50/50 With #14. Dumper at coal loading tower on east side. Rotary Car Dumper.
113A	Pier IX terminal	A T Massey Coal Co.	4 Rotary Car Dumpers 2 Cars Coupled Can Be Dumped Simultaneously
123A	Dominion Terminal	Dominion Terminal Associ	Annual Capacity - 12,000,000 Tons. Car dumper unloads at rate of 5,000 tons/hr.
132A	Pier C	Virginia Port Authority	Chassis Storage Capacity - 1210
134B	Pier B	Virginia Port Authority	Handles Containers
990A	Amoco Yorktown Refinery	Amoco Oil Co.	Refinery processes 50,000 bbls of crude per day. Additional storage. 8Lpg tanks, 3 butane tanks shipped by ra
078A	Koch Fuels Terminal	Koch Fuels Inc.	Barge berths - deph ranges from 19'-27'

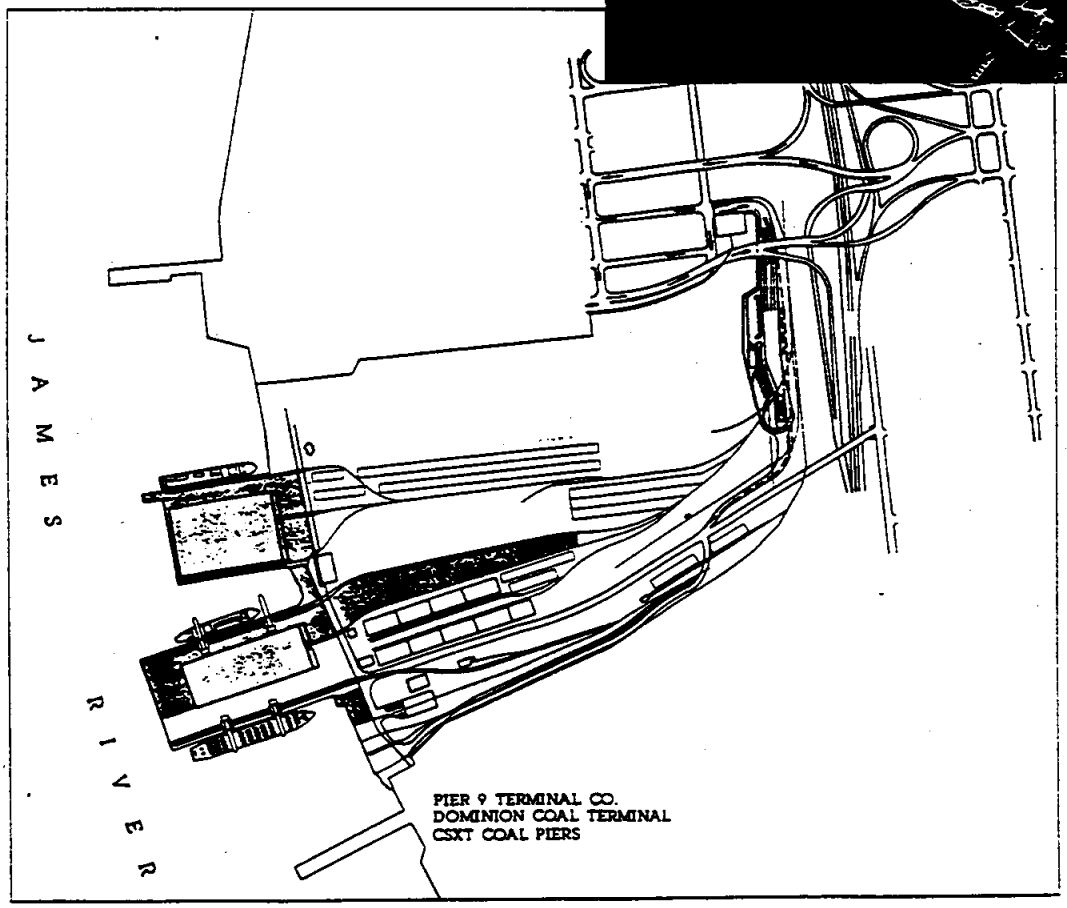
Flows in 1000 tons/yr for:	Canada & Mexico		1991 Flow Total	Port Capacity
Gen.cargo			628	1,151
Dry bulk			22,018	23,461
Bulk grain				
Liquid bulk	578	22%	2,677	
All Cargo	578	2%	25,323	

Port Remarks: Excluded terminals(not listed) are either: exclusively receiving domestic cargo or barges, inactive, or mooring terminals. Approximate flows for each cargo group are derived from MARAD 1991 4-digit Harmonized commodity census for the port, and may/may not represent corresponding terminal group. Total flow is for foreign commerce, domestic cargo is about 13% of the total commerce. Some of the listed terminals are active in both foreign and domestic commerce. Current improvements: extending length of north berth of Pier C to 1000', transit shed improvements, expanding paved open storage by 35 acres.

Newport News Marine Terminals (NNMT)

Water Depth: 35 ft. (10.7 m)
Crane Boom Heights: 100 ft. (30.5 m)
Direct Rail Access/Rail Track Footage: 42,720 ft.

NNMT has gained a reputation for being the premier steel handling port on the U.S. East Coast, as well as handling project cargo. NNMT boasts various heavy-lift crane capabilities, warehouse space, and container cranes. Our skilled Virginia labor force is exceptional at handling even the most complex project shipments.



C- The Great Lakes Region

Most of the ports in the region are dominated by private facilities and the domestic commerce represent their largest share. This is due to fact that these ports had evolved before the opening of the St. Lawrence Seaway, and that a deep water vessel had to pass consecutive series of locks in order to reach the Atlantic Ocean. Major commodities fort the region include: grains, coke and coal, iron ores and other minerals, as well as iron and steel products.

Port of Cleveland, Ohio:

Located on the lakefront adjacent to the city of Cleveland, OH, the port of Cleveland is the largest U.S. public port on the Great Lakes. The port district includes other private terminals where most of the dry bulk cargo is serviced. Most of the foreign cargo is in Canadian imports of iron ore and other dry bulk ores. Exports are mainly steel and neo-bulk steel products.

The port authority, formed 25 years ago, currently operates 11 berths with 27 feet depth and about half a million square feet of warehouse storage and 60 acres of open storage. Three major railroads serve the port district: Conrail, Norfolk Southern and CSX.

The 1989-1991 port statistics shows a continuing increase by an average of 9% annually. Public facilities handled 900,000 tons in 1991. The major cargo for public terminals is steel products and machinery (export), iron ore and other mineral ores for the private terminals (import). The port's major commodities include: neo-bulk machinery, iron ores, coal/coke, fertilizers, and grain. The Canadian trade is about 43% of the foreign trade tonnage and includes: iron ores, coal/coke, dolomite, oil products and cement.

Port of Toledo, Ohio:

The port is located at the mouth of the Maumee River on the western end of Lake Erie, mainly serving exports from the Midwest to other Lake ports and international destinations via the St. Lawrence Seaway to the Atlantic Ocean.

The port is served by five major railroads: CSX, Conrail, Norfolk Southern, Ann Arbor Railroad, and Grand Trunk Western railroad. All railroads can easily interchange through direct and trunk connections and double railroad tracks serve the port terminals. Three major interstate highways serve Toledo: the I-75 (north-south), the I-80 and I-280 (east-west), connecting the port to the agricultural and industrial centers in the Midwest. Toledo is the third largest rail hub in the United States with a considerable potential for multi-modal opportunities.

Currently there are no expansions or plans for improvements for port facilities which are already under-utilized.

The statistics for Toledo show a continuing 5% annual decrease of total cargo handled from 14.8 million tons in 1989 to 12.4 million tons in 1992, which is mainly attributed to the recession and the increased rail-switching fees as a result of the deregulation.Major commodities handled by the port includes: coal and coke, grain, and iron ore. Domestic cargo is about 60%, and most of the foreign cargos are exports to Canada including: iron ores, coal/coke, fertilizers, and grain.

Ports of Duluth, MN and Superior, WI:

Located at the western tip of the Great Lakes, the ports of Duluth and Superior are served by six major railroads, and is less than mile from the I-35 North-South freeway.

The port's 6 grain elevators are served by 10 berths and have a total storage capacity of 65 million bushels. The 12 dry bulk facilities handle basically iron ore and coal as the major exports, and limestone as the major import. The general cargo terminal has 7 berths, 37 acres for storage, 1.8 million tank for liquids, and is equipped for heavy lift of neo-bulk cargo. Other terminal facilities are used primarily as shipyards and for additional storage.

The Duluth-Superior port comprises the largest Great Lakes bulk cargo port with annual activity around 35 million tons of dry bulk and packaged general cargo, of which a 25% is international. The major commodities handled are: iron ore (52%), grain (11%) and coal (28%) representing about 91% of the total commerce. Canadian trade comprises of 202 thousand tons of general cargo, 1.25 million tons of grains, and 3 million tons od other dry bulk cargos.

Port of Ashtabula, Ohio:

The port is served by Conrail railroad and is connected by state highway 10 (north-south) to the interstate highway system (I-90). The port is located at the east tip of the Ohio coastline on Lake Erie at the mouth of the Ashtabula River.

The port district includes the outer harbor and Ashtabula River, City of Ashtabula Dock. The water depth for the harbor and the Ashtabula river terminals varies between 22 feet and 29 feet. The seven commercial terminals in the port are all private terminals and handle primarily dry bulk cargo including: coal/coke, ores, concentrates, and non-metal ores. Smaller terminals on the Ashtabula River were excluded, since they serve domestic inland barges only.

About 4 million tons of foreign cargo are handled annually; the domestic share is about 45% of the total commerce handled by the port. Almost all of the foreign trade is in coal/coke exports to Canada, and almost all of the domestic cargo is comprised of shipments of iron ore.

Port of Duluth, Minnesota

Port of Duluth	Code	79286	79297			Reg'n	Great Lakes
Code 3601	COE Depth	28	28			State	Minnesota
Coord 46 45 N 92 06 W	Channels T.basin					owner	Public & Private

List of Sheets 1 Dry Bulk, Liquid Bulk
2 Gen.Cargo, Grain Terminals

Sheet: 1 of 2

Berthage Characteristics		Types of Terminal Use			Max.	Pier Face / Berth Group # 1					Pier Side 1/ Berth Group # 2					Pier Side 2/ Berth Group # 3					Term. cap 1991 flow	
Code	Name	type 1	type 2	type 3	DWT	Access	length	depth	vsl's	width	Access	length	depth	vsl's	width	Access	length	depth	vsl's	width	1000 ton/yr	1000 ton/yr
368A	St Lawrence Cement	Dry bulk	Cement		25	pipeline	600	27	1												950	•
378A	Cutler-Magner Co	Dry bulk	NonMetal	Salt	25	rail, truck	1000	26	1												1,610	•
364A	Burlington Northern No 5	Dry bulk	Taconite		25	rail, truck	1470	28	1												1,610	•
700C	DM & IR No 6	Dry bulk-ores	concentra		25		72	28			rail, truck	2300	28	2							3,680	•
710A	Hallet Dock Co - # 5	Dry bulk misc	coal/coke	fertilizer	27	rail , truck	2400	27	2												2,171	•
812A	C Reiss Coal Co	Dry bulk misc	coal/coke	Stone	23	rail, truck	2854	23	2	100											3,680	•
825A	Hallet Dock Co - # 7	Dry bulk misc			36		492	20		15	rail, truck	2000	24	2							2,171	•
830A	Hallet Dock Co - # 6	Dry bulk misc	liq bulk -	coal/coke	25	rail, truck	2060	23	2												3,680	1,956
493D	Clure Public Terminal - 3	Petrol producrs	liq bulk			pipeline	1050	27	1												450	7
																					20,002	1,963

Storage Area Characteristics		Container Hold	Reefer storage	Total Storage Area acres	Total Storage Capacity tons	Storage Area number 1 Access	storage area inside	storage area outside	Capacity tons IN	Capacity tons OUT	Storage Area number 2 Access	storage area inside	storage area outside	Capacity tons IN	Capacity tons OUT	Storage Area number 3 Access	storage area inside	storage area outside	Capacity tons IN	Capacity tons OUT	Storage cap 1000 ton/yr
368A	St Lawrence Cement				43000	rail, truck															1,160
378A	Cutler-Magner Co				200000	rail, truck		4	55	300											6,304
364A	Burlington Northern No 5				72000	rail, truck															1,842
700C	DM & IR No 6				110000	rail, truck															2,967
710A	Hallet Dock Co - # 5				300000	rail, truck															8,091
812A	C Reiss Coal Co				450000	rail, truck															12,136
825A	Hallet Dock Co - # 7				300000	rail, truck															8,091
830A	Hallet Dock Co - # 6				450000	rail, truck					rail, truck	3 3Mga									12,136
																					11
493D	Clure Public Terminal - 3			2000		rail, truck															2,133
																				Rail	54,050

Load./ Unload,& Handling Equipment		Loading / Unloading Equipment Type	load rate	unld rate	capacity	Handling Equipment # 1 Type	Rate	Units	Cap	shared	Handling Equipment # 2 Type	Rate	Units	Cap	shared	Handling Equipment # 3 Type	Rate	Units	Cap.	Car hold	Capacity 1000 ton/yr	
368A	St Lawrence Cement					ship gear					other										950	•
378A	Cutler-Magner Co					ship gear					bridge crane		1			conveyor		1			1,610	•
364A	Burlington Northern No 5					gantry crane		1	50		gantry crane		1	40		gantry crane	30	1			1,610	•
700C	DM & IR No 6					shiploader			10k		chute spout	6000	2								2,967	•
710A	Hallet Dock Co - # 5					stevedore	600		19k		front loader		2			conveyor		2			2,171	•
812A	C Reiss Coal Co					conveyor	1500	2			crawl-crane		1			front loader		4			3,680	•
825A	Hallet Dock Co - # 7																				2,171	•
830A	Hallet Dock Co - # 6					shell buckt		2			cargo hoses										3,680	1,956
493D	Clure Public Terminal - 3					Cargo Hoses															450	7
																					19,289	1,963

Terminal General Remarks		Owner	
368A	St Lawrence Cement	St. Lawrence Cement Co	
378A	Cutler-Magner Co	Cutler-Magner Co	Covered storage: 1-rock salt, 2-salt, 3-calcium chloride. Open storage: rock salt
364A	Burlington Northern No 5	Burlington Northern Co	Fcil.breaks up ships & ships ferrous scrap metal — Other equip.:2 crawler cranes (50ft)
700C	DM & IR No 6	Duluth Missabe&Iron Rnge	Cargo loaded via ore pockets
710A	Hallet Dock Co - # 5	Hallet Dock Co	Depth alongside - 27' for 600', remainder 22'-27' — Inside storage: fertilizers
812A	C Reiss Coal Co	C Reiss Coal Co	
825A	Hallet Dock Co - # 7	Hallet Dock Co	
830A	Hallet Dock Co - # 6	Hallet Dock Co	operates as a public use terminal for both Dry bulk and Liquid bulk
493D	Clure Public Terminal - 3	Seaway Port Auth.	

Flows in 1000 tons/yr for	Canada & Mexico		1991 Flow Total	Port Capacity
Gen.cargo			40	980
Dry bulk	1929	99%	1,956	18,839
Bulk grain	344	60%	573	[illegible]
Liquid bulk	7	100%	7	

Port Remarks: Excluded terminals(not listed) are either: exclusively receiving domestic cargo or barges, inactive, or mooring terminals. Approximate flows for each cargo group are derived from MARAD 1991 4-digit Harmonized commodity census for the port, and may/may not represent corresponding terminal group. Total flow is for foreign commerce, domestic cargo is about 75% of the total commerce. Some of the listed terminals are active in both foreign and domestic commerce. [illegible] on demand. Capacity and flow should be considered in combination with those for Port of Superior.

Port of Duluth, Minnesota

Port of Duluth		Code	79286	79297			Reg'n	Great Lakes	List of Sheets 1 Dry Bulk, Liquid Bulk	Sheet: 2 of 2
Code 3601	COE	Depth	27	28			State	Minnesota	2 Gen.Cargo, Grain Terminals	
Coord 46 45 N 92 06 W	Channels	T.basin					owner	Public & Private		

Berthage Characteristics		Types of Terminal Use			Max.	Pier Face / Berth Group # 1					Pier Side 1/ Berth Group # 2					Pier Side 2/ Berth Group # 3					Term. cap 1991 flow	
Code	Name	type 1	type 2	type 3	DWT	Access	length	depth	vsl's	width	Access	length	depth	vsl's	width	Access	length	depth	vsl's	width	1000 ton/yr	1000 ton/yr
493A	Clure Public Marine Terminal - 1	Gen Cargo			30	rail, truck	1615	27	2	42											320	*
493B	Clure Public Marine Terminal - 2	Gen Cargo			30	rail, truck	808	27	1	35											140	*
493E	Clure Public Marine Terminal - 4	Gen Cargo	refrigrated		30	rail, truck	1050	27	1												140	*
493F	Clure Public Marine Term 5,6,7	Gen Cargo	container	dry bulk	30	RR,truck,convey	2364	27	3												640	*
482A	Hyman Michaels (Azcon)	Gen.Cargo	scrap	dry bulk	25	rail, truck	500	21			rail, truck	1586	26	2							320	40
441A	General Mils Elevator A	Bulk grain			25	conveyor	1982	27	1												3,770	*
454A	Cargill Elevator B	Bulk grain			25	conveyor	1000	27	1												1,700	*
454B	Cargill Commodities	Bulk grain	seeds		25	conveyor	1000	27	1												3,770	*
475A	AGP Grain (Capitol)	Bulk grain			25	conveyor	930	27	1	10											3,770	573

Storage Area Characteristics				Total Storage		Storage Area number 1					Storage Area number 2					Storage Area number 3					14,470	613
Code	Name	Container Hold	Reefer storage	Area acres	Capacity tons	Access	storage area inside	storage area outside	Capacity tons IN	Capacity tons OUT	Access	storage area inside	storage area outside	Capacity tons IN	Capacity tons OUT	Access	storage area inside	storage area outside	Capacity tons IN	Capacity tons OUT	Storage cap 1000 ton/yr	
493A	Clure Public Marine Terminal - 1			10		rail, truck															280	
493B	Clure Public Marine Terminal - 2			10		rail, truck															280	
493E	Clure Public Marine Terminal - 4			7		rail, truck															196	
493F	Clure Public Marine Term 5,6,7			10		rail, truck															280	
482A	Hyman Michaels (Azcon)					rail, truck	75														140	
441A	General Mils Elevator A			3800		rail, truck			3800												3,116	
454A	Cargill Elevator B			2000		rail, truck			2000												1,247	
454B	Cargill Commodities			7800		rail, truck			7800												3,366	
475A	AGP Grain (Capitol)			4500		rail, truck			4500												3,660	

Load./ Unload.& Handling Equipment		Loading / Unloading Equipment				Handling Equipment # 1					Handling Equipment # 2					Handling Equipment # 3					Rail	15,626	
Code	Name	Type	load rate	unld rate	capacity	Type	Rate	Units	Cap.	shared	Type	Rate	Units	Cap.	shared	Type	Rate	Units	Cap.	Car hold	Capacity 1000 ton/yr	
493A	Clure Public Marine Terminal - 1					Gantry crane		1	90												280	*
493B	Clure Public Marine Terminal - 2					Gantry crane		1	90		forklift		1	30							140	*
493E	Clure Public Marine Terminal - 4					Gantry crane		1	35												140	*
493F	Clure Public Marine Term. 5,6,7					container crane		1	30												280	*
482A	Hyman Michaels (Azcon)					Gantry crane		4	40		crawler crane		2	50							140	40
441A	General Mils Elevator A					chute spout	60	2			conveyor		1							224	116	*
454A	Cargill Elevator B					chute spout	40	4			conveyor		2							200	247	*
454B	Cargill Commodities					chute spout	60	2			conveyor		1							250	770	*
475A	AGP Grain (Capitol)					chute spout	60	1			conveyor		2							70	3,660	573
																					12,803	613

Terminal General Remarks		Owner	
493A	Clure Public Marine Terminal - 1	Seaway Port Authority	
493B	Clure Public Marine Terminal - 2	Seaway Port Authority	
493E	Clure Public Marine Terminal - 4	Seaway Port Authority	
493F	Clure Public Marine Term. 5,6,7	Seaway Port Authority	
482A	Hyman Michaels (Azcon)	Azcon Corp	
441A	General Mils Elevator A	Burlington Northern Inc	Grain bagging facility has cap of 25,000 tons
454A	Cargill Elevator B	Cargill Inc	
454B	Cargill Commodities	Cargill Inc	Cargo: pellets, seeds, soybeans. Conveyor extends from elevator to wharf - 40,000 bu/hr.
475A	AGP Grain (Capitol)	AGP Grain Co	

Flows in 1000 tons/yr for	Canada & Mexico		1991 Flow Total	Port Capacity
Gen.cargo			40	980
Dry bulk	1929	99%	1,958	16,839
Bulk grain	344	60%	573	14,449
Liquid bulk	7	100%	7	2,133
All Cargo	2280	89%	2,578	36,401

Port Remarks: Excluded terminals(not listed) are either: exclusively receiving domestic cargo or barges, inactive, or mooring terminals. Approximate flows for each cargo group are derived from MARAD 1991 4-digit Harmonized commodity census for the port, and may/may not represent corresponding terminal group. Total flow is for foreign commerce, domestic cargo is about 75% of the total commerce. Some of the listed terminals are active in both foreign and domestic commerce. About 168 acres are available for expansion for private operators on demand. Capacity and flow should be considered in combination with those for Port of Superior. The port is served by US-35 freeway and 6 major railroads (see attachment). Most of Duluth's excess capacity is in handling dry bulk and ores.

* all dimensions are in feet. Storage area: Inside:in 1000 ft2, Outside:in acres. Storage for Liquids is in 1000 bbls, and for bulk grain is in 1000 bushels

Port of Superior, WI

Port of Superior	Code	79283				Reg'n	Great Lakes	List of Sheets 1 General Cargo, Dry Bulk	Sheet: 1 of 2
Code 3608	COE	Depth	27			State	Wisconsin	2 Grain, Liquid Terminals	
Coord 46 43 N 92 04 W	Channels	T.basin				owner	Public & Private		

Code	Name	Types of Terminal Use: type 1	type 2	type 3	Max. DWT	Pier Face / Berth Group # 1: Access	length	depth	vsl's	width	Pier Side 1/ Berth Group # 2: Access	length	depth	vsl's	width	Pier Side 2/ Berth Group # 3: Access	length	depth	vsl's	width	Term. cap 1000 ton/yr	1991 flow 1000 ton/yr
610A	Incan Railcar Transfer Dock	Gen cargo				rail, truck	800	18	1												320	281
165A	Burlington Northern Ore Dock 1	Dry bulk	ores/ccntr				67	27			rail	2317	27	1		rail	2317	27	1		2,171	+
165B	Burlington Northern Ore Dock 2	Dry bulk	ores/ccntr	coal/coke			67	27			rail	2197	27	1		rail	2197	27	1		3,680	+
165C	Burlington Northern Ore Dock 5	Dry bulk	ores/ccntr			rail	2675	27	2												3,680	+
331A	Lafarge Corp	Dry bulk	cement			conveyor	900	21	1		conveyor	400	26	1						20	2,171	+
335A	CLM Corp Dock	Dry bulk	nonmetal	coal/coke		rail, truck	570	24	1												950	+
575A	Superior Midwest Energy Term	Dry bulk	coal/coke			conveyor	1215	27	1												1,610	+
600A	C Reiss Coal Co - Berwin Dock	Dry bulk	nonmetal			truck	2818	27	1												950	1,108
																					15,532	1,389

Code	Name	Storage Area Characteristics: Container Hold	Reefer storage	Total Storage Area acres	Capacity tons	Storage Area number 1: Access	storage area inside	outside	Capacity tons IN	OUT	Storage Area number 2: Access	storage area inside	outside	Capacity tons IN	OUT	Storage Area number 3: Access	storage area inside	outside	Capacity tons IN	OUT	Storage cap 1000 ton/yr
610A	Incan Railcar Transfer Dock					rail, truck		30													420
165A	Burlington Northern Ore Dock 1					rail				2200											890
165B	Burlington Northern Ore Dock 2					rail															1,780
165C	Burlington Northern Ore Dock 5					rail, truck				3500											1,780
331A	Lafarge Corp					rail, truck			8	150											890
335A	CLM Corp Dock					rail, truck		7		400											890
575A	Superior Midwest Energy Term					rail, truck		200		7000											1,780
600A	C Reiss Coal Co - Berwin Dock					truck				1000											890
																					9,320

Code	Name	Load./ Unload.& Handling Equipment: Loading / Unloading Equipment: Type	load rate	unld rate	capacity	Handling Equipment # 1: Type	Rate	Units	Cap.	shared	Handling Equipment # 2: Type	Rate	Units	Cap.	shared	Handling Equipment # 3: Type	Rate	Units	Cap.	Rail Car hold	Capacity 1000 ton/yr	
610A	Incan Railcar Transfer Dock					other															320	281
165A	Burlington Northern Ore Dock 1					other	5000	1			conveyor		1			reclaimer		1			890	+
165B	Burlington Northern Ore Dock 2					other	5000	1													1,780	+
165C	Burlington Northern Ore Dock 5					conveyor	1000	18			reclaimer	3500	2								1,780	+
331A	Lafarge Corp					conveyor	425	1													890	+
335A	CLM Corp Dock					clam shell buck	425	1	15		conveyor		1			front end loader		1			890	+
575A	Superior Midwest Energy Term					shiploader	11500	1			conveyor		5							115	810	+
600A	C Reiss Coal Co - Berwin Dock					stevedore															890	1,108
																					9,050	1,389

Code	Name	Terminal General Remarks: Owner	
610A	Incan Railcar Transfer Dock	Incan Ships Ltd	Receives newsprint via railcar ferry. Dock is transfer bridge. Operates to Thunder Bay Ontario transfer bridge.
165A	Burlington Northern Ore Dock 1	Burlington Northern Inc	Dock #1 has 374 ore pockets. Ore pellets loaded via ore pocket on pier
165B	Burlington Northern Ore Dock 2	Burlington Northern Inc	Bin inc ore dock #2 has 350 ore pockets on both sides. See dock #1 for storage facilities. Iron ore loaded via ore pockets on dock.
165C	Burlington Northern Ore Dock 5	Burlington Northern Inc	Depth alongside inner berth: 18 ft. Combined loading rate of conveyors: 18,000 t/hr.
331A	Lafarge Corp	Lafarge Corp	NW side contiguous with Clm lime dock provides a 970' berth. See Clm lime dock for equipment.
335A	CLM Corp Dock	Clm Corp	Contiguous with NW side of Huron Cement providing a 970' berth Clamshell bucket serves open storage and adjacent Huron Cement dock
575A	Superior Midwest Energy Term	Midwest Energy Resource	
600A	C Reiss Coal Co - Berwin Dock	C Reiss Coal Co	

Flows in 1000 tons/yr for	Canada & Mexico		1991 Flow Total	Port Capacity
Gen.cargo	202	72%	281	320
Dry bulk	1081	98%	1,108	8,730
Bulk grain	29	100%	29	10,200
Liquid bulk	939	61%	1,542	

Port Remarks: Excluded terminals(not listed) are either: exclusively receiving domestic cargo or barges, inactive, or mooring terminals. Approximate flows for each cargo group are derived from MARAD 1991 4-digit Harmonized commodity census for the port, and may/may not represent corresponding terminal group. Total flow is for foreign commerce, domestic cargo is about 75% of the total commerce. Some of the listed terminals are active in both foreign and domestic commerce. Flows and capacities should be considered in combination with those for Duluth.

Port of Superior, WI

Port of Superior	Code	79283				Reg'n	Great Lakes	List of Sheets 1 General Cargo, Dry Bulk	Sheet: 2 of 2
Code 3608	COE	Depth	27			State	Wisconsin	2 Grain, Liquid Terminals	
Coord 46 43 N 92 04 W	Channels	T.basin				owner	Public & Private		

Berthage Characteristics		Types of Terminal Use			Max.	Pier Face / Berth Group # 1					Pier Side 1/ Berth Group # 2					Pier Side 2/ Berth Group # 3					Term. cap	1991 flow
Code	Name	type 1	type 2	type 3	DWT	Access	length	depth	vsl's	width	Access	length	depth	vsl's	width	Access	length	depth	vsl's	width	1000 ton/yr	1000 ton/yr
365A	Peavey Grain - Connor's Point	Bulk grain				conveyor	794	30	1												1,700	*
545B	Harvest States Coop #2	Bulk grain				conveyor	1175	27	1	10											1,700	*
547B	Harvest States Coop - Gallery	Bulk grain				conveyor	591	30	1												1,700	*
547C	Harvest States Coop #1	Bulk grain				conveyor	1165	30	1	9											1,700	*
565A	Peavy - Globe Elevator Dock	Bulk grain				conveyor	710	27	1	12											1,700	*
571A	Adm Grain Co - Elevator S	Bulk grain				conveyor	1254	27	1	14											1,700	29
602A	Amoco Oil Co	Liquid bulk				pipeline	840	21	1												1,790	
																					11,990	29

Storage Area Characteristics				Total Storage		Storage Area number 1					Storage Area number 2					Storage Area number 3					
Code	Name	Container Hold	Reefer storage	Area acres	Capacity tons	Access	storage area inside	storage area outside	Capacity tons IN	Capacity tons OUT	Access	storage area inside	storage area outside	Capacity tons IN	Capacity tons OUT	Access	storage area inside	storage area outside	Capacity tons IN	Capacity tons OUT	Storage cap 1000 ton/yr
365A	Peavey Grain - Connor's Point					rail, truck	5000														1,870
545B	Harvest States Coop #2					rail, truck	10500														1,870
547B	Harvest States Coop - Gallery					rail, truck															1,870
547C	Harvest States Coop #1					rail, truck	7500														1,870
565A	Peavy - Globe Elevator Dock					rail, truck	4000														1,870
571A	Adm Grain Co - Elevator S					rail, truck	13400														1,870
602A	Amoco Oil Co					truck	755														1,880
																				Rail	13,100

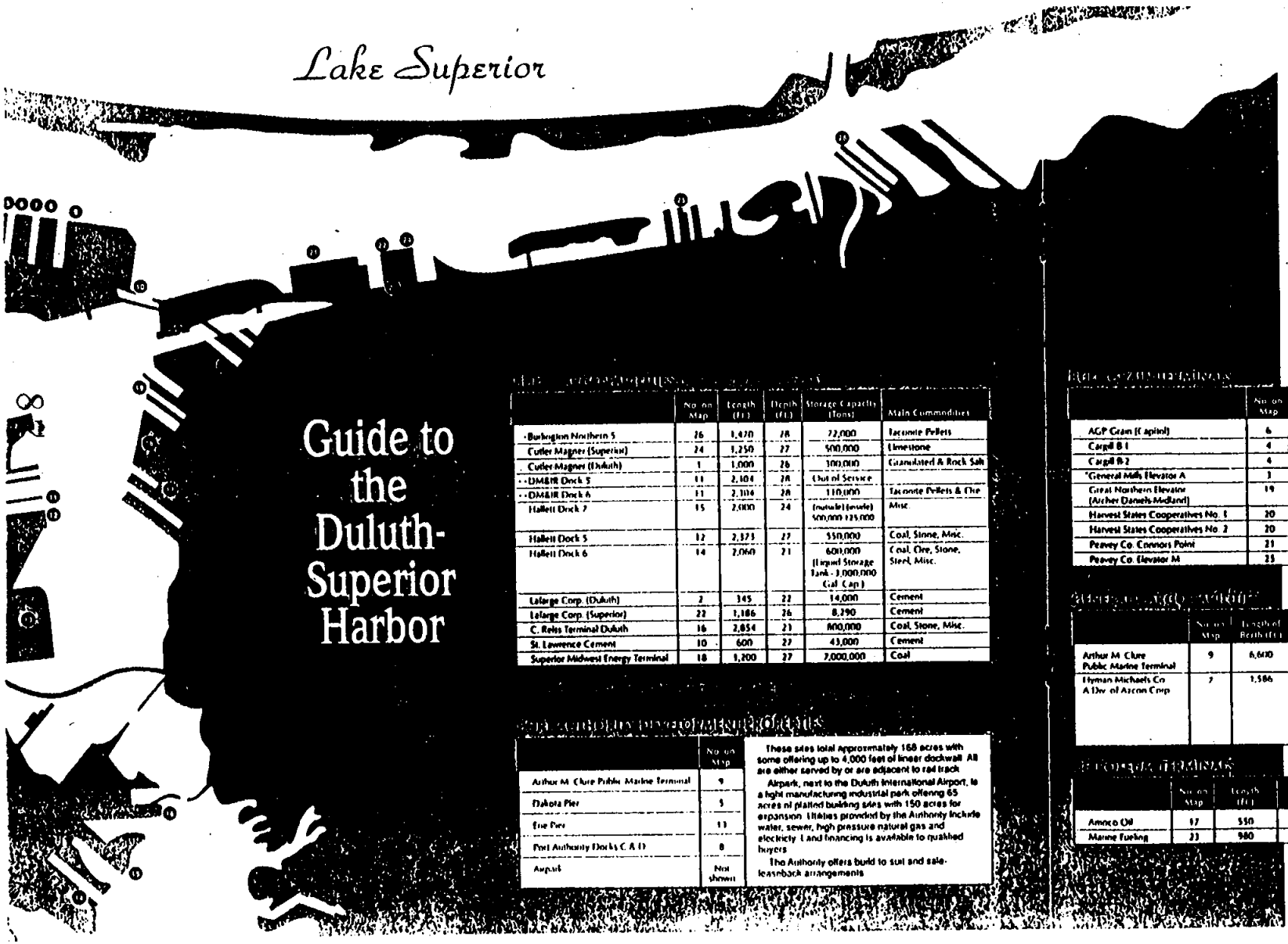
Load./ Unload.& Handling Equipment		Loading / Unloading Equipment				Handling Equipment # 1					Handling Equipment # 2					Handling Equipment # 3						
Code	Name	Type	load rate	unld rate	capacity	Type	Rate	Units	Cap.	shared	Type	Rate	Units	Cap.	shared	Type	Rate	Units	Cap.	Car hold	Capacity 1000 ton/yr	
365A	Peavey Grain - Connor's Point					grvtychute spout	75	6			conveyor		4							65	1,700	*
545B	Harvest States Coop #2					grvtychute spout	65	5			conveyor		1								1,700	*
547B	Harvest States Coop - Gallery					grvtychute spout	60	5			conveyor		1								1,700	*
547C	Harvest States Coop #1					marine leg	18	1			grvtychute spout	65	6			conveyor		3			1,700	*
565A	Peavy - Globe Elevator Dock					grvtychute spout	50	3			conveyor		1								1,700	*
571A	Adm Grain Co - Elevator S					grvtychute spout	60	3			conveyor		3								1,700	29
602A	Amoco Oil Co					cargo hoses	40														1,790	
																					11,990	29

Terminal General Remarks		Owner	
228A	Peavey Grain - Elevator M	Conagra Inc	Destroyed by fire 10/26/86.
365A	Peavey Grain - Connor's Point	Conagra Inc	12 steel tanks, 30 concrete silos, 18 interstices.
545B	Harvest States Coop #2	Harvest States Cooperative	
547B	Harvest States Coop - Gallery	Harvest States Cooperative	Grain transferred from either docks 1 or 2.
547C	Harvest States Coop #1	Harvest States Cooperative	Total capacity of 4 Farmers Union docks is 17,585,000 bu.
565A	Peavy - Globe Elevator Dock	Conagra Inc	
571A	Adm Grain Co - Elevator S	Burlington Northern Inc	
215A	Lakehead Pipeline Co Inc	Lakehead Pipeline Co Inc	Formerly used to ship crude oil. All pipelines removed
602A	Amoco Oil Co	Amoco Oil Co	Tanks are about 3/4 mile from tip of wharf. A 10-in. pipeline.

Flows in 1000 tons/yr for	Canada & Mexico		1991 Flow Total	Port Capacity
Gen.cargo	202	72%	281	320
Dry bulk	1081	98%	1,108	8,730
Bulk grain	29	100%	29	10,200
Liquid bulk	939	61%	1,542	1,790
All Cargo	2251	76%	2,960	21,040

Port Remarks: Excluded terminals(not listed) are either: exclusively receiving domestic cargo or barges, inactive, or mooring terminals. Approximate flows for each cargo group are derived from MARAD 1991 4-digit Harmonized commodity census for the port, and may/may not represent corresponding terminal group. Total flow is for foreign commerce, domestic cargo is about 75% of the total commerce. Some of the listed terminals are active in both foreign and domestic commerce. Flows and capacities should be considered in combination with those for Duluth.

* all dimensions are in feet. Storage area: Inside:in 1000 ft2, Outside:in acres. Storage for Liquids is in 1000 bbls, and for bulk grain is in 1000 bushels



Guide to the Duluth-Superior Harbor

	No. on Map	Length (Ft.)	Depth (Ft.)	Storage Capacity (Tons)	Main Commodities
Burlington Northern 5	26	1,470	28	72,000	Taconite Pellets
Cutler Magner (Superior)	24	1,250	27	500,000	Limestone
Cutler Magner (Duluth)	1	1,000	26	300,000	Granulated & Rock Salt
DM&IR Dock 5	11	2,104	28	Out of Service	
DM&IR Dock 6	11	2,104	28	110,000	Taconite Pellets & Ore
Hallett Dock 7	15	2,000	24	(outside) (inside) 500,000 125,000	Misc.
Hallett Dock 5	12	2,373	27	550,000	Coal, Stone, Misc.
Hallett Dock 6	14	2,060	21	600,000 (Liquid Storage Tank - 3,000,000 Gal. Cap.)	Coal, Ore, Stone, Steel, Misc.
Lafarge Corp. (Duluth)	2	345	22	14,000	Cement
Lafarge Corp. (Superior)	22	1,186	26	8,290	Cement
C. Reiss Terminal Duluth	16	2,854	21	800,000	Coal, Stone, Misc.
St. Lawrence Cement	10	600	27	43,000	Cement
Superior Midwest Energy Terminal	18	1,200	27	7,000,000	Coal

	No. on Map	Capacity (Bushels)	Length Berth (Ft.)	Total Spouts	Water Depth (Ft.)
AGP Grain (Capitol)	6	4,100,000	930	1	27
Cargill B 1	4	7,800,000	1,000	2	27
Cargill B 2	4	2,000,000	1,000	4	27
*General Mills Elevator A	3	3,792,000	1,900	2	27
Great Northern Elevator (Archer Daniels Midland)	19	12,500,000	1,800	3	27
Harvest States Cooperatives No. 1	20	8,000,000	700 + Gallery	10	30
Harvest States Cooperatives No. 2	20	11,000,000	1,350	6	27
Peavey Co. Connors Point	21	3,500,000	790	6	30
Peavey Co. Elevator M	25	2,100,000	800	6	28

	No. on Map	Length of Berth (Ft.)	Water Depth (Ft.)	Enclosed Storage	Open Storage	Cranes
Arthur M. Clure Public Marine Terminal	9	6,600	27	315,000	37 acres	2 90 ton 1 30 ton
Hyman Michaels Co. A Div. of Acme Corp.	7	1,586	26	None	75,000 sq. ft.	2 40 ton, 1 50 ton, 1 30 ton, Gantry 2 50 ton Crawlers

	No. on Map	Length (Ft.)	Depth (Ft.)	Storage Capacity (Tons)	Main Commodities
Amoco Oil	17	550	21	703,000 (bbls.)	Petroleum Products
Marine Fueling	23	980	22	90,000 (bbls.)	Petroleum Products

	No. on Map
Arthur M. Clure Public Marine Terminal	9
Dakota Pier	5
Erie Pier	13
Port Authority Docks C & D	8
Airpark	Not shown

These sites total approximately 168 acres with some offering up to 4,000 feet of linear dockwall. All are either served by or are adjacent to rail track.

Airpark, next to the Duluth International Airport, is a light manufacturing industrial park offering 65 acres of platted building sites with 150 acres for expansion. Utilities provided by the Authority include water, sewer, high pressure natural gas and electricity. Land financing is available to qualified buyers.

The Authority offers build to suit and sale-leaseback arrangements.

Port of Cleveland, Ohio

Port of Cleveland	Code	72073	Reg'n	Great Lakes	List of Sheets 1 Dry Bulk	Sheet: 1 of 2
Code 4101	COE Depth	29	State	Ohio	2 Dry bulk, Gen.cargo, Grain & Liquid terminals	
Coord 41 29 N 81 40 W	Channels T.basin		owner	Public & Private		

Berthage Characteristics

Code	Name	Types of Terminal Use type 1	type 2	type 3	Max. DWT	Pier Face / Berth Group # 1 Access	length	depth	vsl's	width	Pier Side 1/ Berth Group # 2 Access	length	depth	vsl's	width	Pier Side 2/ Berth Group # 3 Access	length	depth	vsl's	width	Term.cap 1000 ton/yr	1991 flow 1000 ton/yr
010A	Conrail Ore Dock - 11	ores\concentrat	Dry bulk		60	rail	1630	24	1												950	•
077A	Ontario Stone Docks 1,3	non-metal ores	Dry bulk		21	truck	1100	25	2												2,171	•
107A	Sand Products Dock 1.	non-metal ores	Dry bulk			truck	1000	20	1												950	•
115A	International Salt	non-metal ores	Dry bulk		24	conveyor	602	18	1												950	•
160	Ontario Stone Docks 2,4	non-metal ores	Dry bulk	Cement		truck	1620	19	2		truck	563	22								2,171	•
178A	Huron Cement Wharf	non-metal ores	Dry bulk		15	pipeline	415	24	1												570	•
250A	United Ready Mix Inc	non-metal ores	Dry bulk			truck	895	18	1												950	•
327A	Cleveland Builders Supply-4 & F	Dry bulk misc.	non-metal			truck	763	18	1		truck	422	22	1							2,171	•
360A	Clifton Concrete Dock	non-metal ores	Dry bulk			conveyor	693	18	1												950	•
378A	Cleveland Builders Supply - 1	non-metal ores	Dry bulk			conveyor	480	19	1												950	•
																					12,783	

Storage Area Characteristics

Code	Name	Container Hold	Reefer storage	Total Storage Area acres	Capacity tons	Storage Area number 1 Access	storage area inside	outside	Capacity IN	tons OUT	Storage Area number 2 Access	storage area inside	outside	Capacity IN	tons OUT	Storage Area number 3 Access	storage area inside	outside	Capacity IN	tons OUT	Storage cap 1000 ton/yr
010A	Conrail Ore Dock - 11					rail		148													890
077A	Ontario Stone Docks 1,3			10		truck				340											1,113
107A	Sand Products Dock 1					truck		5													890
115A	International Salt					rail, truck	40														890
160	Ontario Stone Docks 2,4			12		truck				400											1,335
178A	Huron Cement Wharf					pipeline		36													890
250A	United Ready Mix Inc					truck		13													890
327A	Cleveland Builders Supply-4 & F			15		rail, truck		40													1,669
360A	Clifton Concrete Dock			7		truck		25													779
378A	Cleveland Builders Supply - 1			5		truck		70													556
																					9,901

Load./ Unload,& Handling Equipment

Code	Name	Loading / Unloading Equipment Type	load rate	unld rate	capacity	Handling Equipment # 1 Type	Rate	Units	Cap.	shared	Handling Equipment # 2 Type	Rate	Units	Cap.	shared	Handling Equipment # 3 Type	Rate	Units	Cap.	Rail Car hold	Capacity 1000 ton/yr
010A	Conrail Ore Dock - 11					Hulet	800	4	17												890 •
077A	Ontario Stone Docks 1,3					front end loader		4													1,113 •
107A	Sand Products Dock 1					front end loader		1													890 •
115A	International Salt					ship loader	3300	1			conveyor	1									890 •
160	Ontario Stone Docks 2,4					ships gear															1,335 •
178A	Huron Cement Wharf					other	500														570 •
250A	United Ready Mix Inc					ships gear					front end loader		1			forklifts		2			890 •
327A	Cleveland Builders Supply-4 & F					stevedoring															1,669 •
360A	Clifton Concrete Dock					ships gear					conveyor		2								779 •
378A	Cleveland Builders Supply - 1					ships gear					front end loader		3			conveyor		1			556 •
																					9,581

Terminal General Remarks

Code	Name	Owner	
010A	Conrail Ore Dock - 11	Consolidated Rail Corp	Depth alongside 24/30 feet
077A	Ontario Stone Docks 1,3	Ontario Stone Corp	
107A	Sand Products Dock 1	SandProducts Corp	Depth Alongside 18/24 feet
115A	International Salt	International Salt Co	
160	Ontario Stone Docks 2,4	Ontario Stone Corp	Depth Alongside 18/24 feet. Equipment are shared with docks 1,3.
178A	Huron Cement Wharf	Lafarge Cement Corp	Group one pipeline
250A	United Ready Mix Inc	Forest City Interprise Inc	Depth Alongside 18/24 feet
327A	Cleveland Builders Supply-4 & F	Cleveland Builders Supply	Depth Alongside 18/24 feet
360A	Clifton Concrete Dock	Mobil Oil Corp	Depth Alongside 18/24 feet. Storage area: 1-Stones, 2-Sand
378A	Cleveland Builders Supply - 1	Cleveland Builders Supply	

Flows in 1000 tons/yr for	Canada & Mexico		1991 Flow % Total	Port % Capacity
Gen.cargo			399	932
Dry bulk	2026	46%	4,360	14,810
Bulk grain				312
Liquid bulk	58	100%	58	900
All Cargo	2084	43%	4,837	16,954

Port Remarks: Excluded terminals(not listed) are either: exclusively receiving domestic cargo or barges, inactive, or mooring terminals. Approximate flows for each cargo group are derived from MARAD 1991 4-digit Harmonized commodity census for the port, and may/may not represent corresponding terminal group. Total flow is for foreign commerce, domestic cargo is about 70% of the total commerce. Some of the listed terminals are active in both foreign and domestic commerce. The public facilities are limited in expansion due to its location in Cleveland city (next to the stadium).
- No future expansion is expected for general cargo facilities, dry bulk facilities are privately owned.

Port of Cleveland, Ohio

Port of Cleveland	Code	72073	Reg'n	Great Lakes	List of Sheets 1 Dry Bulk	Sheet: 2 of 2
Code 4101	COE Depth	29	State	Ohio	2 Dry bulk, Gen.cargo, Grain & Liquid terminals	
Coord 41 29 N 81 40 W	Channels T.basin		owner	Public & Private		

Berthage Characteristics		Types of Terminal Use			Max.	Pier Face / Berth Group # 1					Pier Side 1/ Berth Group # 2					Pier Side 2/ Berth Group # 3					Term.cap	1991 flow
Code	Name	type 1	type 2	type 3	DWT	Access	length	depth	vsl's	width	Access	length	depth	vsl's	width	Access	length	depth	vsl's	width	1000 ton/yr	1000 ton/yr
410A	LTV steel corp-lower Dk west	non-metal ores	iron,steel	Dry bulk		rail, truck	2331	23	2												2,171	+
440A	LTV steel corp-mid,upper docks	non-metal ores	iron,steel	fuel oil	25	conveyor	2780	19	2		rail, truck	1250	20	1							3,664	+
590A	Cleveland builder supply-dock 2	non-metal ores	Dry Misc			conveyor	1750	24	2												2,171	+
598A	River Dock Inc	non-metal ores	Dry bulk			rail, truck	630	19	1												950	+
673A	Medusa Cement Co	Cement	Dry bulk			conveyor	600	20	1												950	4,380
728A	Cleveland-Cuyahoga - 20-28W	Gen.Cargo,iron,	steel, mill	bauxitu	36	rail, truck	2229	26	3	50	rail, truck	1368	27	2	50	rail, truck	1321	25	2	5	540	+
730A	Cleveland-Cuyahoga-26/32,32e	Gen Cargo,iron,	steel, mill		36	rail,truck	2294	27	3	50											540	399
410A	Cereal Food Processors	Grain				conveyor	350	20	1												1,700	
435A	LTV Steel Corp- fuel oil dock	Fuel Oil tankers				pipeline	1150	20	1												450	+
556B	Marathon Petroleum Co	Asphalt	Fuel oil			pipeline	858	20	1												450	58
																					13,586	4,837

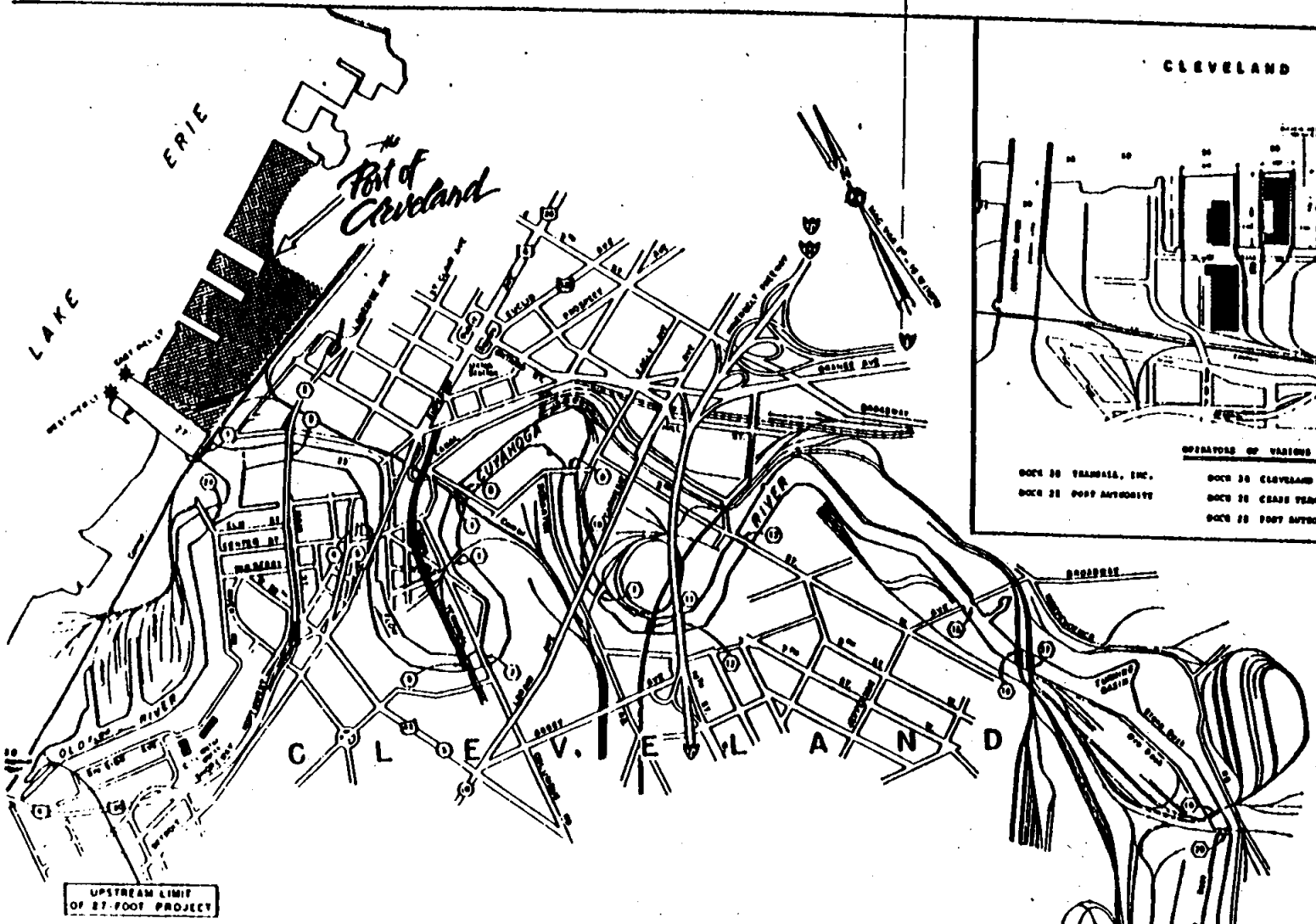
Storage Area Characteristics		Container	Reefer	Total Storage		Storage Area number 1					Storage Area number 2					Storage Area number 3					Storage cap
Code	Name	Hold	storage	Area acres	Capacity tons	Access	storage area inside	storage area outside	Capacity IN	Capacity OUT	Access	storage area inside	storage area outside	Capacity IN	Capacity OUT	Access	storage area inside	storage area outside	Capacity IN	Capacity OUT	1000 ton/yr
410A	LTV steel corp-lower Dk west					rail, truck				800											800
440A	LTV steel corp-mid,upper docks			12		rail, truck	900				rail, truck	674	6								1,335
590A	Cleveland builder supply-dock 2			5		truck	185														556
598A	River Dock Inc			15		rail, truck	780	13													1,669
673A	Medusa Cement Co			7		truck	6														770
728A	Cleveland-Cuyahoga - 20-28W			24		rail, truck	1600	7			rail, truck		19								672
730A	Cleveland-Cuyahoga-26/32,32e			14		rail, truck	750	4			rail, truck	750	2								392
410A	Cereal Food Processors			500		rail, truck	500														312
435A	LTV Steel Corp- fuel oil dock			510		rail, truck	510														544
556B	Marathon Petroleum Co			450		truck	450														480
																				Rail	7,628

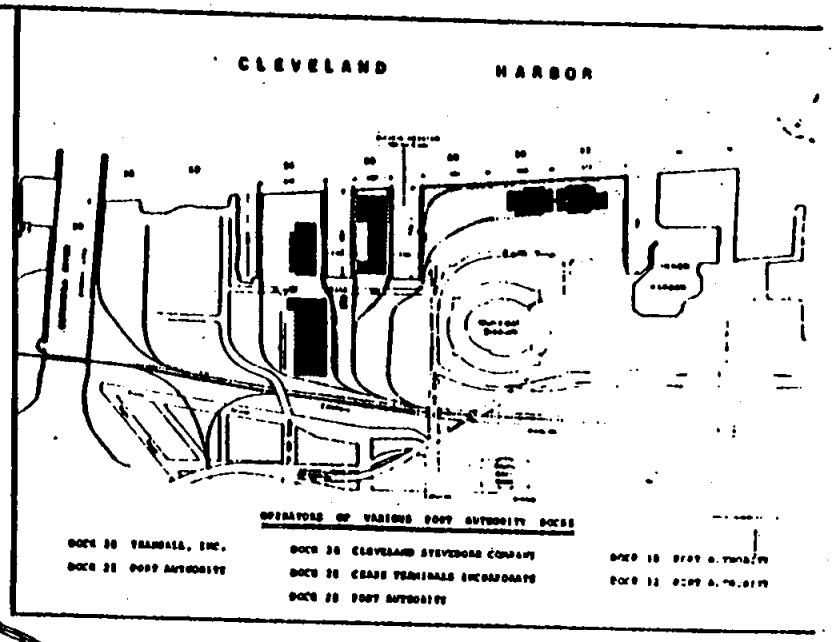
Load./ Unload.& Handling Equipment		Loading / Unloading Equipment				Handling Equipment # 1					Handling Equipment # 2					Handling Equipment # 3					Car	Capacity	
Code	Name	Type	load rate	unld rate	capacity	Type	Rate	Units	Cap	shared	Type	Rate	Units	Cap.	shared	Type	Rate	Units	Cap.	hold	1000 ton/yr	
410A	LTV steel corp-lower Dk west					bridge crane	500	1	15												800	+
440A	LTV steel corp-mid,upper docks					front end loader	300	2			bridge crane	650	4	15		conveyor	450	1			335	+
590A	Cleveland builder supply-dock 2					ships gear					front end loader		3			conveyor		1			556	+
598A	River Dock Inc					front end loader		1													950	+
673A	Medusa Cement Co					ships gear					conveyor	1500	1								770	4,380
728A	Cleveland-Cuyahoga - 20-28W					stevedoring					yard crane/other	150	1			front end loader		1			540	+
730A	Cleveland-Cuyahoga-26/32,32e					stiff leg crane	136	1			crawler crane	200	9			forklifts		65			392	399
410A	Cereal Food Processors					marine leg	9	1													312	
435A	LTV Steel Corp- fuel oil dock					cargo hoses															450	+
556B	Marathon Petroleum Co					cargo hoses															450	58
																					6,654	4,837

Terminal General Remarks		Owner	
410A	LTV steel corp-lower Dk west	LTV Steel Corp	Can use equip. on upper dock. Storage: limestone, iron ore pellets
440A	LTV steel corp-mid,upper docks	LTV Steel Corp	Can use equip. on lower dock. Storage: limestone, iron ore pellets
590A	Cleveland builder supply-dock 2	Cleveland Builders Supply	
598A	River Dock Inc	River Dock Inc	Cargo: limestone
673A	Medusa Cement Co	Medusa Cement Co	
728A	Cleveland-Cuyahoga - 20-28W	Cleveland-Cuyahoga Auth.	Equipment are shared, other equip.: stiff leg derrick. Cargo: general, dry bulk, iron ore pellets
730A	Cleveland-Cuyahoga-26/32,32e	Cleveland-Cuyahoga Auth	Other equip: fixed leg crane, crawler crane.
410A	Cereal Food Processors	Cereal Food Processors	Depth alongside: 18/23'.
435A	LTV Steel Corp- fuel oil dock	LTV Steel Corp	
556B	Marathon Petroleum Co	Marathon Petroleum Co	Liq Storage: 1-Asphalt, 2-Fuel oil

Flows in 1000 tons/yr for	Canada & Mexico		1991 Flow Total	Port Capacity
Gen.cargo			399	932
Dry bulk	2026	46%	4,380	14,810
Bulk grain				312
Liquid bulk	58	100%	58	900
All Cargo	2084	43%	4,837	16,954

Port Remarks: Excluded terminals(not listed) are either: exclusively receiving domestic cargo or barges, inactive, or mooring terminals. Approximate flows for each cargo group are derived from MARAD 1991 4-digit Harmonized commodity census for the port, and may/may not represent corresponding terminal group. Total flow is for foreign commerce, domestic cargo is about 70% of the total commerce. Some of the listed terminals are active in both foreign and domestic commerce. The public facilities are limited in expansion due to its location in Cleveland city (next to the staduim). No future expansion is expected for general cargo facilities, dry bulk facilities are privately owned.





NOTES

PROJECT DEPTHS 27.0 FEET IN LOWER CUYAHOGA RIVER TO JUNCTION WITH OLD RIVER AND 23.0 FEET IN REMAINDER OF CUYAHOGA RIVER
18.0 FEET IN TURNING BASIN AT MILE 4.8 ON CUYAHOGA RIVER
27.0 FEET IN OLD RIVER

PROJECT DEPTHS AND SOUNDINGS ARE REFERRED TO LOW WATER DATUM, ELEVATION 568.8 FEET ABOVE MEAN WATER LEVEL AT FATHER POINT, QUEBEC (IGLD 1955) (INTERNATIONAL GREAT LAKES DATUM 1955)

(6) INDICATES U.S. ROUTES

(2) INDICATES STATE ROUTES

(71) INDICATES INTERSTATE ROUTE

AREAS PARTIALLY DREDGED

CUYAHOGA RIVER PARTIALLY DREDGED TO 23.0 FEET UPSTREAM OF BRIDGE NO. 1 TO JUNCTION WITH OLD RIVER.

OLD RIVER PARTIALLY DREDGED TO 23.0 FEET FROM JUNCTION WITH CUYAHOGA RIVER TO OPPOSITE SAND PRODUCTS CORP. DOCK, REMAINDER DREDGED TO 21.0 FEET.

INDEX TO BRIDGES

SHOWN THUS (1)

1. CONRAIL
2. MAIN AVE HIGH LEVEL BRIDGE
4. CENTER ST BRIDGE
5. DETROIT SUPERIOR HIGH LEVEL BRIDGE
6. UNION TERMINAL [illegible] HIGH LEVEL BRIDGE
7. COLUMBUS RD BRIDGE
8. CARTER RD BRIDGE
9. EAGLE AVE BRIDGE
10. LORAIN CARNEGIE HIGH LEVEL BRIDGE
11. NORFOLK & WESTERN RAILWAY
12. INNER BELT FREEWAY HIGH LEVEL
13. W. 3RD ST BRIDGE
15. JEFFERSON AVE BRIDGE SUPERSTRUCTURE REMOVED
16. NEWBURG & SOUTH SHORE RAILWAY BRIDGE
17. B & O R R BRIDGE
18. RIVER TERMINAL R R BRIDGE
20. N & W RAILWAY BRIDGE NO. 2 [illegible]
21. N & W RAILWAY BRIDGE NO. 3 [illegible]
22. NEWBURG & SOUTH SHORE RAILWAY BRIDGE
24. WILLOW AVE BRIDGE — OLD RIVER

CLEVELAND HARBOR OHIO

SCALE OF FEET

1000 0 1000 2000

PORT OF CLEVELAND

Port of Ashtabula, Ohio	Code	72101				Reg'n	Great Lakes-Ashtabula rive	Sheet: 1 of 1
Code 4108	COE	Depth	27			State	Ohio	
Coord 41 54 N 80 47 W	Channels	T.basin				owner	Private	

Berthage Characteristics		Types of Terminal Use			Max.	Pier Face / Berth Group # 1					Pier Side 1/ Berth Group # 2					Pier Side 2/ Berth Group # 3					Term. cap	1991 flow
Code	Name	type 1	type 2	type 3	DWT	Access	length	depth	vsl's	width	Access	length	depth	vsl's	width	Access	length	depth	vsl's	width	1000 ton/yr	1000 ton/yr
226A	Pinney Dock & Transport - 4	Gen.Cargo,ores	Wood pro	ducts		rail, truck	2000	27	2	60											2,171	•
224A	Pinney Dock & Transport - 1,2	non-metal ores	Dry bulk			rail, truck	2000	28	1		truck	2000	28	1							3,680	•
225A	Pinney Dock & Transport - 3	non-metal ores	Dry bulk			rail, truck	2000	27	2												2,171	•
215A	Pinney Dock & Transport - 1 Ext	ores\concentrat	Dry bulk			rail, truck	1165	27	1												950	•
038A	Conrail Coal Dock - 10	coal\coke	Dry bulk			conveyor, rail	2800	14	1												950	•
177A	R W Sidley Inc	non-metal ores	Dry bulk			truck	350	13	1												950	•
218A	Conrail Dock 2 Ext	ores\concentrat	Dry bulk			rail, truck	1198	27	1												950	3,989
																					11,822	3,989

Storage Area Characteristics				Total Storage		Storage Area number 1					Storage Area number 2					Storage Area number 3					
Code	Name	Container Hold	Reefer storage	Area acres	Capacity tons	Access	storage area inside	storage area outside	Capacity tons IN	Capacity tons OUT	Access	storage area inside	storage area outside	Capacity tons IN	Capacity tons OUT	Access	storage area inside	storage area outside	Capacity tons IN	Capacity tons OUT	Storage cap 1000 ton/yr
226A	Pinney Dock & Transport - 4			9		rail, truck	160	5													1,001
224A	Pinney Dock & Transport - 1,2			20		rail, truck				2000											4,944
225A	Pinney Dock & Transport - 3			14		rail, truck															1,558
215A	Pinney Dock & Transport - 1 Ext					rail, truck		40			rail, truck				1000						890
038A	Conrail Coal Dock - 10					rail		43	12	1500											890
177A	R W Sidley Inc					truck		5		60											890
218A	Conrail Dock 2 Ext					rail, truck				45	rail, truck				1000						890
																					11,063

Load./ Unload.& Handling Equipment		Loading / Unloading Equipment				Handling Equipment # 1					Handling Equipment # 2					Handling Equipment # 3					Rail Car	
Code	Name	Type	load rate	unld rate	capacity	Type	Rate	Units	Cap	shared	Type	Rate	Units	Cap	shared	Type	Rate	Units	Cap	hold	Capacity 1000 ton/yr	
226A	Pinney Dock & Transport - 4					gantry crane		2	45		fork lift		20								1,001	•
224A	Pinney Dock & Transport - 1,2					ships gear					front end loader		10								3,680	•
225A	Pinney Dock & Transport - 3					ships gear															1,558	•
215A	Pinney Dock & Transport - 1 Ext					ships gear															890	•
038A	Conrail Coal Dock - 10					shiploader	8000	1			conveyor		1								890	•
177A	R W Sidley Inc					front end loader		1			crawler crane		1								890	•
218A	Conrail Dock 2 Ext					ships gear					front end loader		1								890	3,989
																					9,799	3,989

Terminal General Remarks		Owner	
226A	Pinney Dock & Transport - 4	Pinney Dock&Transport Co	Uses mobile equip listed under Docks 1&2 for handeling General & Dry bulk cargos.
224A	Pinney Dock & Transport - 1,2	Pinney Dock&Transport Co	Shares Equipment with Dock 3&4
225A	Pinney Dock & Transport - 3	Pinney Dock&Transport Co	Storage is shared between Docks 1 thru 4.
215A	Pinney Dock & Transport - 1 Ext	Consolidated Rail Corp	
038A	Conrail Coal Dock - 10	Consolidated Rail Corp	Located on Ashtabula river wwith depth alongside 14/27 feet
177A	R W Sidley Inc	R W Sidley Inc	Located on Ashtabuls river. Cranes equiped with buckets
218A	Conrail Dock 2 Ext	Consolidated Rail Corp	

Flows in 1000 tons/yr for	Canada & Mexico		1991 Flow Total	Port Capacity
Gen.cargo			•	•
Dry bulk	3838	96%	3,989	9,799
All Cargo	3838	96%	3,989	9,799

Port Remarks: Excluded terminals(not listed) are either inactive or mooring terminals. Approximate flows for each cargo group are derived from MARAD 1991 4-digit Harmonized commodity census for the port, and may/may not represent corresponding terminal group. Total flow is for foreign commerce, domestic cargo is about 45% of the total commerce. Some of the listed terminals are active in both foreign and domestic commerce. All terminals are privately operated. Capacity was evaluated for all terminals.

Port of Toledo, Ohio

Port of Toledo	Code	72014				Reg'n	Great Lakes	List of Sheets	Sheet: 1 of 2
Code 4105	COE	Depth	27			State	Ohio	1 Dry Bulk Terminals	
Coord 41 41 N 83 28 W	Channels	T.basin	1300			owner	Public & Private	2 All Other Terminals	

Berthage Characteristics		Types of Terminal Use			Max.	Pier Face / Berth Group # 1					Pier Side 1/ Berth Group # 2					Pier Side 2/ Berth Group # 3					Term.cap	1991 flow
Code	Name	type 1	type 2	type 3	DWT	Access	length	depth	vsl's	width	Access	length	depth	vsl's	width	Access	length	depth	vsl's	width	1000 ton/yr	1000 ton/yr
220A	Consolidated Dock	Dry Bulk Misc	Fertilizers	NonMetal	25	Conveyor	331	18	1												950	•
235A	Kuhlman - #7 Wharf	Dry Bulk Misc	NonMetal			Truck	1280	12	1												950	•
258A	Lafarge Corp	Dry Bulk	Cement		15	Pipeline	924	18	1												950	•
446A	Kuhlman Yard-1	Dry Bulk	Mooring			Conveyor	265	18	1												950	•
450A	Kuhlman - Upper Dock	Dry Bulk	Mooring	Fertilizers		Conveyor	340	22	1												950	•
828A	Medusa Cement Co	Dry Bulk	Cement			Conveyor	250	21	1												950	•
963A	Toledo Docks-Coal Dock	Dry Bulk	coal/coke			Conveyor	1760	27	2												3680	•
963B	Toledo Docks-West Pier	Dry Bulk	coal/coke	Mooring			362	14	0		Rail	1123	27	1		Rail	1712	11	1		3680	•
963C	Toledo Docks-Middle Pier	Dry Bulk	coal/coke				202	27	0		Rail	1398	27	1		Rail	1993	27	1		2171	•
999D	Torco Dock	Dry Bulk-ores	concentra				100		0		Rail	2105	27	1							950	9516
																					16,181	9,516

Storage Area Characteristics				Total Storage		Storage Area number 1					Storage Area number 2					Storage Area number 3					Storage cap
Code	Name	Container Hold	Reefer storage	Area acres	Capacity tons	Access	storage area inside	storage area outside	Capacity tons IN	Capacity tons OUT	Access	storage area inside	storage area outside	Capacity tons IN	Capacity tons OUT	Access	storage area inside	storage area outside	Capacity tons IN	Capacity tons OUT	1000 ton/yr
220A	Consolidated Dock			20		Rail,Truck		20	75	500											2,225
235A	Kuhlman - #7 Wharf					Rail,Truck				150											890
258A	Lafarge Corp					Truck			12												890
446A	Kuhlman Yard-1					Rail,Truck				100											890
450A	Kuhlman - Upper Dock					Rail,Truck			16	100					50						890
828A	Medusa Cement Co					Truck			14												890
963A	Toledo Docks-Coal Dock			25		Rail															6,181
963B	Toledo Docks-West Pier			15		Rail															9,708
963C	Toledo Docks-Middle Pier			12		Rail															1,335
999D	Torco Dock			8		Rail				123					800						800
																					18,789

Load./ Unload,& Handling Equipment		Loading / Unloading Equipment				Handling Equipment # 1					Handling Equipment # 2					Handling Equipment # 3				Rail Car	Capacity	
Code	Name	Type	load rate	unld rate	capacity	Type	Rate	Units	Cap.	shared	Type	Rate	Units	Cap	shared	Type	Rate	Units	Cap	hold	1000 ton/yr	
220A	Consolidated Dock	Front loader	2*100			conveyor		2												23	950	•
235A	Kuhlman - #7 Wharf	Front loader																			890	•
258A	Lafarge Corp	Ships Gear	550																		890	•
446A	Kuhlman Yard-1	clam bucket				conveyor	400	1													890	•
450A	Kuhlman - Upper Dock	conveyor belt	2000																		890	•
828A	Medusa Cement Co	conveyor belt	500																		890	•
963A	Toledo Docks-Coal Dock	loading tower	6000			conveyor		1			Hulet		3								3,680	•
963B	Toledo Docks-West Pier	other	3600																	320	3,680	•
963C	Toledo Docks-Middle Pier	other	3600																	285	1,335	•
999D	Torco Dock	conveyor belt	4000			Ships gear														250	800	9,516
																					14,985	9,516

Terminal General Remarks		Owner	
220A	Consolidated Dock	Toledo World Terminal Inc	
235A	Kuhlman - #7 Wharf	Kuhlman Corp	
258A	Lafarge Corp	Lafarge Corp	Depth alongside 18/22 ft
446A	Kuhlman Yard-1	Kuhlman Corp	
450A	Kuhlman - Upper Dock	Kuhlman Corp	Open storage: fretilizer, salt
828A	Medusa Cement Co	Medusa Cement Co	Berth length 250 ft - using adjacent wharves 568 ft
963A	Toledo Docks-Coal Dock	Toledo-Lucas Co PortAuth	Located on Maumee river. Hulets removed
963B	Toledo Docks-West Pier	Toledo-Lucas Co PortAuth	Located on Maumee river. depth 11/15 ft, other equip. electric car dumper: rate 30 120 ton cars/hr
963C	Toledo Docks-Middle Pier	Toledo-Lucas Co PortAuth	other equip. electric car dumper. rate 30 120 cars/hr
999D	Torco Dock	Toledo Ore Railroad Co	Equip. used to load rail cars only

Flows in 1000 tons/yr for:	Canada & Mexico		1991 Flow Total	Port Capacity
Gen.cargo	32	23%	142	554
Dry bulk	4334	41%	10,516	16,985
Bulk grain	204	22%	913	2,203
Liquid bulk	91	34%	266	4,270
All Cargo	4661	39%	11,837	24,012

Port Remarks: Excluded terminals(not listed) are either: exclusively receiving domestic cargo or barges, inactive, or mooring terminals. Approximate flows for each cargo group are derived from MARAD 1991 4-digit Harmonized commodity census for the port, and may/may not represent corresponding terminal group. Total flow is for foreign commerce, domestic cargo is about 62% of the total commerce. Some of the listed terminals are active in both foreign and domestic commerce. The port is served by 5 RailRoads: Ann Arbor RR, CSX, Conrail, Grand Trunk Western RR, and Norfolk Southern No current or planned improvements are expected.

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Port of Toledo, Ohio

Port of Toledo	Code	72014	Reg'n	Great Lakes
Code 4105	COE Depth	27	State	Ohio
Coord 41 41 N 83 28 W	Channels T.basin	1300	owner	Public & Private

List of Sheets
1 Dry Bulk Terminals
2 All Other Terminals

Sheet: 2 of 2

Berthage Characteristics

Code	Name	Types of Terminal Use: type 1	type 2	type 3	Max. DWT	Pier Face / Berth Group # 1: Access	length	depth	vsl's	width	Pier Side 1/ Berth Group # 2: Access	length	depth	vsl's	width	Pier Side 2/ Berth Group # 3: Access	length	depth	vsl's	width	Term.cap 1000 ton/yr	1991 flow 1000 ton/yr
222A	ToledoHarborWarehousing Corp	Gen Cargo			25	Rail, Truck	1237	20	1												320	142
920A	Toledo-Lucas Co PortAuth	Gen Cargo	Dry Bulk	Liq Bulk		Rail, Truck	4196	27	6	50											1,234	500
141A	Petroleum Fuel & Terminal Co	Liq Bulk tankers	refined oil				331	18			Pipeline	403	18	1							450	•
748A	Toledo Edison Co	Liq Bulk	Asphalt			Pipeline	200	10	1												450	•
777A	Sun Oil Dock	Liq Bulk	refined oil	oil tanker			335	27			truck,pipeline	557	18	1							450	•
882A	Standard Oil Co	Liq Bulk	refined oil	oil tanker		Pipeline	300	21	1		Pipeline	351	13	1		Pipeline	500	10	1		1,735	•
886A	Great Amer Lakes Petrol Prod	refined oil	fertilizers	molasses		Pipeline	300	18	1												450	266
442A	AndersonsToledoRiver Terminal	Grain,Dry&Liq	fertilizers			conveyor	1030	27	1												1,700	500
452A	Cargill-Toledo Elevator	Bulk Grain			25	conveyor	730	27	1												1,700	•
603A	Mid-States Terminals Inc	Bulk Grain			17	conveyor	1790	27	2												3,885	913
																					12,374	2,321

Storage Area Characteristics

Code	Name	Container Hold	Reefer storage	Total Storage: Area acres	Capacity tons	Storage Area number 1: Access	storage area inside	outside	Capacity tons IN	OUT	Storage Area number 2: Access	storage area inside	outside	Capacity tons IN	OUT	Storage Area number 3: Access	storage area inside	outside	Capacity tons IN	OUT	Storage cap 1000 ton/yr
222A	ToledoHarborWarehousing Corp			15		Rail, Truck	2000	25													630
920A	Toledo-Lucas Co PortAuth			50		Rail, Truck		115					54								2,100
141A	Petrol Fuel & Terminal Co					Rail, Truck	8*216	bbls													480
748A	Toledo Edison Co																				480
777A	Sun Oil Dock			1021		Pipeline	1021	bbls													1,089
882A	Standard Oil Co					Pipeline															480
886A	Great Amer Lakes Petrol Prod			350		RR,Truck,Pipe	15*350														373
442A	AndersonsToledoRiver Terminal					Rail, Tiuck	7000	bushels													1,870
452A	Cargill-Toledo Elevator					Rail, Truck	5800	bushels													1,870
603A	Mid-States Terminals Inc					Rail, Truck	9000	bushels													1,870
																					11,242

Load./ Unload.& Handling Equipment

Code	Name	Loading / Unloading Equipment: Type	load rate	unld rate	capacity	Handling Equipment # 1: Type	Rate	Units	Cap	shared	Handling Equipment # 2: Type	Rate	Units	Cap.	shared	Handling Equipment # 3: Type	Rate	Units	Cap.	Rail Car hold	Capacity 1000 ton/yr	
222A	ToledoHarborWarehousing Corp																				320	142
920A	Toledo-Lucas Co PortAuth	Gantry cranes			110	Gantry cranes		1	70		Gantry crane		2	32		Gantry crane		2	20		1,234	500
141A	Petroleum Fuel & Terminal Co					Fork lifts		12	2												450	•
748A	Toledo Edison Co																				450	•
777A	Sun Oil Dock					other mechanic	30														450	•
882A	Standard Oil Co					cargo hoses	11														480	•
886A	Great Amer Lakes Petrol Prod					cargo hoses	7														373	266
442A	AndersonsToledoRiver Terminal	chute spout	7*60																		1,700	500
452A	Cargill-Toledo Elevator	chute spout	1*60																		1,700	•
603A	Mid-States Terminals Inc	chute spout	10*50			conveyor	80	3													1,870	913
																					9,027	2,321

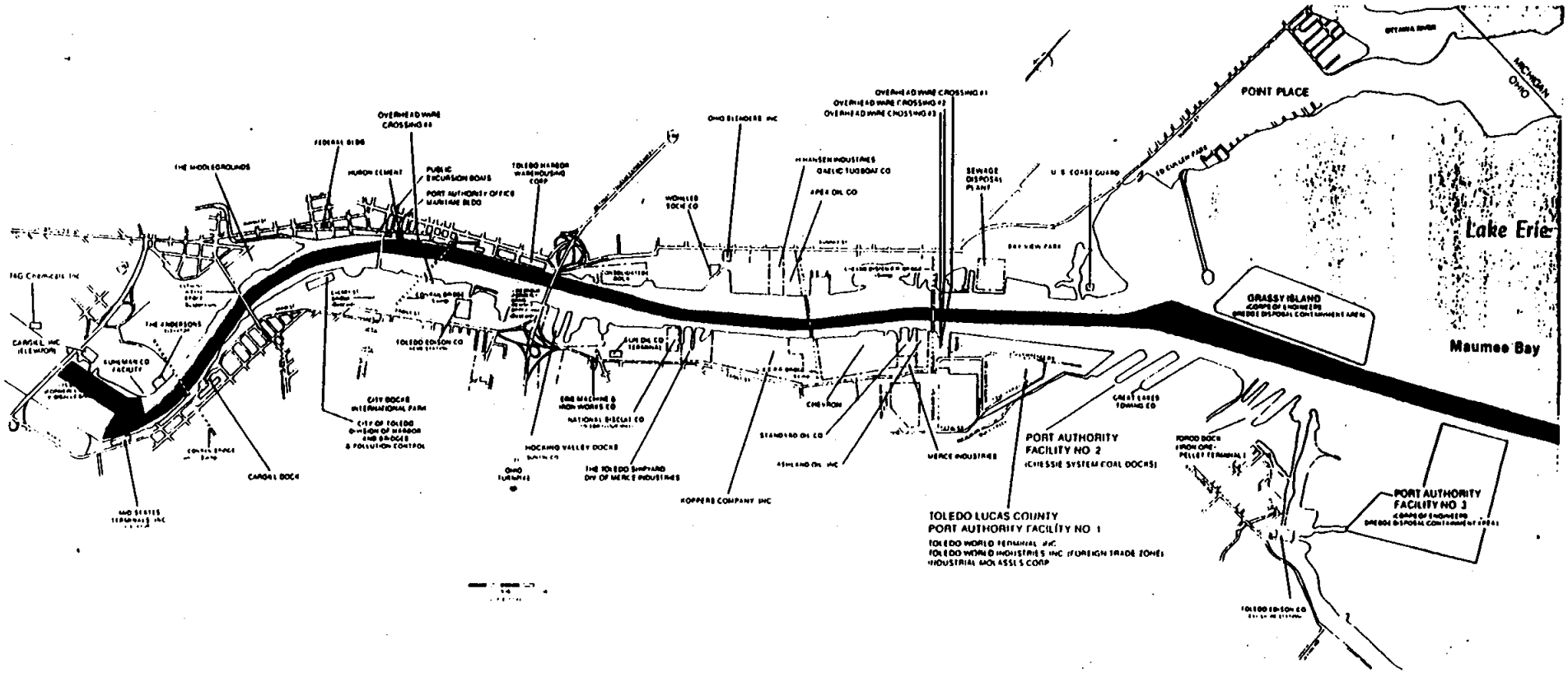
Terminal General Remarks

		Owner	
222A	ToledoHarborWarehousing Corp	Consolidated Ril Corp	Located on Maumee river, Cargo:Newsprint
920A	Toledo-Lucas Co PortAuth	Toledo-Lucas Co PortAuth	Equip.used for Gen &Dry Cargo. Total area of 150 acres including FTZ zone#8. Storage for 104 million gallons of liquids
141A	Petroleum Fuel & Terminal Co	Apex Oil Co	
748A	Toledo Edison Co	Toledo Edison Co	
777A	Sun Oil Dock	Sun Refin.&Marketing Co	Located on Maumee river, Liq stor Area 1 located 2 miles inland at refinery
882A	Standard Oil Co	Norfolk&Western railways	Located on Maumee river, Liq storage located 1.5 miles inland at refinery
886A	Great Amer Lakes Petrol. Prod	Gt.AmerLakesPetrol Prod	Located on Maumee river
442A	AndersonsToledoRiver Terminal	The Andersons	Cargo: grain, liquid and dry fertilizer. Storage for 7 million bushels of grain, and 11 millionglallons of liquids
452A	Cargill-Toledo Elevator	Cargill Inc	Located on Maumee river
603A	Mid-States Terminals Inc	Mid-States Terminals Inc	Located on Maumee river

Port Remarks: Excluded terminals(not listed) are either: exclusively receiving domestic cargo or barges, inactive, or mooring terminals. Approximate flows for each cargo group are derived from MARAD 1991 4-digit Harmonized commodity census for the port, and may/may not represent corresponding terminal group. Total flow is for foreign commerce, domestic cargo is about 62% of the total commerce. Some of the listed terminals are active in both foreign and domestic commerce. Total static storage capacity for the three grain elevators is 600,000 tons, and the grain elevator rates are given in 1000 bushels/hr per unit. Both terminals 920A and 442A serve dry bulk commodities in addition to their primary functions.

Flows in 1000 tons/yr for	Canada & Mexico		1991 Flow % Total	Port Capacity
Gen.cargo	32	23%	142	554
Dry bulk	4334	41%	10,516	16,985
Bulk grain	204	22%	913	2,203
Liquid bulk	91	34%	266	4,270
All Cargo	4661	39%	11,837	

Harbor Map


POINT PLACE
MICHIGAN
OHIO
Lake Erie
Maumee Bay
GRASSY ISLAND
CORPS OF ENGINEERS
DREDGE DISPOSAL CONTAINMENT AREA
OVERHEAD WIRE CROSSING #1
OVERHEAD WIRE CROSSING #2
OVERHEAD WIRE CROSSING #3
OVERHEAD WIRE CROSSING #4
OHIO BLENDERS INC
HANSEN INDUSTRIES
GAELIC TUGBOAT CO
APEX OIL CO
SEWAGE DISPOSAL PLANT
U S COAST GUARD
WOHLLEB DOCK CO
TOLEDO HARBOR WAREHOUSING CORP
THE MIDDLEGROUNDS
FEDERAL BLDG
HURON CEMENT
PUBLIC EXCURSION BOATS
PORT AUTHORITY OFFICE
MARINAE BLDG
THE ANDERSONS
CARGILL INC (ELEVATOR)
SUBMARINE FACILITY
TOLEDO EDISON CO
CITY DOCKS INTERNATIONAL PARK
CITY OF TOLEDO DIVISION OF HARBOR AND BRIDGES & POLLUTION CONTROL
CARGILL DOCK
HOCKING VALLEY DOCKS
OHIO TURNPIKE
ERIE MACHINE & IRON WORKS CO
NATIONAL BISCUIT CO
THE TOLEDO SHIPYARD DIV OF MERCE INDUSTRIES
KOPPERS COMPANY INC
STANDARD OIL CO
ASHLAND OIL INC
CHEVRON
MERCE INDUSTRIES
PORT AUTHORITY FACILITY NO 2
(CHESSIE SYSTEM COAL DOCKS)
TOLEDO LUCAS COUNTY PORT AUTHORITY FACILITY NO 1
TOLEDO WORLD TERMINAL INC
TOLEDO WORLD INDUSTRIES INC (FOREIGN TRADE ZONE)
INDUSTRIAL MOLASSES CORP
CANAL EXPED TOWING CO
FORD DOCK (IRON ORE PELLET TERMINAL)
PORT AUTHORITY FACILITY NO 3
CORPS OF ENGINEERS
DREDGE DISPOSAL CONTAINMENT AREA
TOLEDO EDISON CO

Port of Baltimore, Maryland

Port of Baltimore		Code	5550	6001			Reg'n	Atlantic	List of Sheets	1 General Cargo	Sheet: 1 of 5
Code 1303	COE	Depth	50	38			State	Baltimore		2 Gen.Cargo, Dry Bulk	4 Bulk Grain, Liquid Bulk
Coord 39 15 N 76 34 W	Channels	T.basin					owner	Public & Private		3 Dry Bulk	5 Liquid Bulk

Berthage Characteristics

Code	Name	Types of Terminal Use: type 1	type 2	type 3	Max. DWT	Pier Face / Berth Group # 1: Access	length	depth	vsl's	width	Pier Side 1/ Berth Group # 2: Access	length	depth	vsl's	width	Pier Side 2/ Berth Group # 3: Access	length	depth	vsl's	width	Term.cap 1000 ton/yr	1991 flow 1000 ton/yr
016A	Penwood Shipping Wharf	Gen. cargo	iron,steel			rail, truck	870	32	1	83											140	+
139A	Dundalk Marine Term - 11,12,13	Gen. cargo	container	ro/ro		rail, truck	2860	34	3												540	+
140A	Dundalk Marine Term - 7,8,9,10	Gen. cargo	automobil	container		rail, truck	2800	34	4												1,234	+
143A	Dundalk Marine Terminals 1-6	Gen. cargo	liq bulk	automobil		RR,truck,pipe	3800	34	6			190	12								1,651	+
168A	Seagirt Marine Terminal	Gen. cargo	container			truck	3127	42	3												1,234	+
189A	Sea-Land Terminal	Gen. cargo	automobil	container		truck	700	32	1		truck	300	30								320	+
218A	CCSC Marine Piers 3-8,10,11	Gen. cargo				truck	1790	20	1		truck	3500	32	4		truck	3250	20	4		1,060	+
245A	Rukert Terminal - A & B	Gen. cargo	dry bulk			rail, truck	575	34	1	45											140	+
300A	Clinton St Marine Term Pier 1	Gen. cargo	wood pro				223	32			rail, truck	1100	32	2	32	rail, truck	1100	32	2	18	1,234	+
631A	Locust Point Piers 3,4,5	Gen. cargo	liq bulk	scrap met			645	35			rail, truck	2412	34	4	37	rail, truck	2530		3		1,234	+

Storage Area Characteristics

Code	Name	Container Hold	Reefer storage	Total Storage: Area acres	Capacity tons	Storage Area number 1: Access	storage area inside	storage area outside	Capacity tons IN	Capacity tons OUT	Storage Area number 2: Access	storage area inside	storage area outside	Capacity tons IN	Capacity tons OUT	Storage Area number 3: Access	storage area inside	storage area outside	Capacity tons IN	Capacity tons OUT	9,007 Storage cap 1000 ton/yr
016A	Penwood Shipping Wharf					rail, truck	50														3,140
139A	Dundalk Marine Term - 11,12,13			20		rail, truck	49				rail, truck	49				rail, truck	47				580
140A	Dundalk Marine Term - 7,8,9,10			14		rail, truck		14													588
143A	Dundalk Marine Terminals 1-6					rail, truck	150				rail, truck	33				rail, truck	38				640
168A	Seagirt Marine Terminal			100				135													2,100
189A	Sea-Land Terminal					rail, truck	34	23													420
218A	CCSC Marine Piers 3-8,10,11					truck	172														420
245A	Rukert Terminal - A & B					rail, truck	20														140
300A	Clinton St Marine Term Pier 1			18		rail, truck	252	15													756
631A	Locust Point Piers 3,4,5			30		rail, truck	267	30													1,260

Load./ Unload.& Handling Equipment

Code	Name	Loading / Unloading Equipment: Type	load rate	unld rate	capacity	Handling Equipment # 1: Type	Rate	Units	Cap.	shared	Handling Equipment # 2: Type	Rate	Units	Cap.	shared	Handling Equipment # 3: Type	Rate	Units	Cap.	Rail Car hold	7,224 Capacity 1000 ton/yr
016A	Penwood Shipping Wharf					bridge crane		21	25		stevedore										140 +
139A	Dundalk Marine Term - 11,12,13					container crane		6	45		stevedore									250	540 +
140A	Dundalk Marine Term - 7,8,9,10					container crane		4	45		gantry crane	2	60								588 +
143A	Dundalk Marine Terminals 1-6					ships gear					stevedore										640 +
168A	Seagirt Marine Terminal					container crane		7	50												1,234 +
189A	Sea-Land Terminal					container crane		1	28												320 +
218A	CCSC Marine Piers 3-8,10,11					stevedore															420 +
245A	Rukert Terminal - A & B					stevedore															140 +
300A	Clinton St Marine Term Pier 1					gantry crane		1	14		gantry crane		1	16		fork lifts		6	3		756 +
631A	Locust Point Piers 3,4,5					gantry crane		2	75		stevedore									2700	1,234 +
																					16,212

Terminal General Remarks

Code	Name	Owner	Remarks
016A	Penwood Shipping Wharf	Bethlehem Steel Corp	
139A	Dundalk Marine Term - 11,12,13	Maryland Port Admin.	Ro/Ro ramp located at berth 13
140A	Dundalk Marine Term - 7,8,9,10	Maryland Port Admin.	Ro/Ro ramp (122'x72') serves berths 8,9. Uses cfs located at berths 11-13. Gantry cranes used at berths 5,6,7,8
143A	Dundalk Marine Terminals 1-6	Maryland Port Admin.	Berth 1 also handles cruise vessels. Berths 5,6 have use of gantry cranes located at berths 7-8.
168A	Seagirt Marine Terminal	Maryland Port Admin.	Adjacent to ftcf. Estimated capacity 150,000 TEUs.
189A	Sea-Land Terminal	Maryland Port Admin.	
218A	CCSC Marine Piers 3-8,10,11	Consolidation Coal Sales	Depth alongside ranges from 20-30 ft. Pier 11: moors USNS Comfort
245A	Rukert Terminal - A & B	Rukert Terminals Corp	
300A	Clinton St Marine Term Pier 1	Maryland Port Admin.	Cranes located on south side.
631A	Locust Point Piers 3,4,5	Csx transportation Inc	Other cargo: liquid latex. Latex stored at piers 4/5. Depth alongside east side of pier 3 ranges from 18-33ft.

Flows in 1000 tons/yr for	Canada & Mexico		1991 Flow Total	Port Capacity
Gen.cargo	44	1%	4,371	7,352
Dry bulk	2458	20%	12,027	21,418
Bulk grain	24	1%	1,990	3,740
Liquid bulk	117	4%	2,927	11,160
All Cargo	2643	12%	21,315	43,671

Port Remarks: Excluded terminals(not listed) are either: exclusively receiving domestic cargo or barges, inactive, or mooring terminals. Approximate flows for each cargo group are derived from MARAD 1991 4-digit Harmonized commodity census for the port, and may/may not represent corresponding terminal group. Total flow is for foreign commerce, domestic cargo is about 32% of the total commerce. Some of the listed terminals are active in both foreign and domestic commerce. Some of the liquid bulk terminals are active in shipping other chemicals and other dry bulk cargo for both domestic and foreign commerce.

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Port of Baltimore, Maryland

Port of Baltimore	Code	5550	6001			Reg'n	Atlantic	List of Sheets 1 General Cargo	Sheet: 2 of 5
Code 1303	COE	Depth	50	38		State	Baltimore	2 Gen.Cargo, Dry Bulk	4 Bulk Grain, Liquid Bulk
Coord 39 15 N 76 34 W	Channels	T.basin				owner	Public & Private	3 Dry Bulk	5 Liquid Bulk

Berthage Characteristics

Code	Name	Types of Terminal Use: type 1	type 2	type 3	Max. DWT	Pier Face / Berth Group # 1: Access	length	depth	vsl's	width	Pier Side 1/ Berth Group # 2: Access	length	depth	vsl's	width	Pier Side 2/ Berth Group # 3: Access	length	depth	vsl's	width	Term.cap 1000 ton/yr	1991 flow 1000 ton/yr
704A	South Locust Point 9-12	Gen cargo	container			rail, truck	3195	31	5												540	•
800A	Fairfield Auto Terminal	automobiles	car carrier				53	35			truck	852	50	1		truck	420	50	1		320	•
808A	Atlantic Terminal Pier	automobiles	car carrier				75	32			truck	575	34	1			575	32			140	•
835Z	Chesapeake Terminal	automobiles	car carrier			truck	453	30	1												140	4,371
018A	Blue Circle Cement - Penwood	Dry bulk				conveyor	60	30	1	85											950	•
020A	Bethlelem Steel - Ore Pier	Dry bulk	ores/conc				83				conveyor	1020	45	1		conveyor	1020	45	1		3,680	•
022B	Maryland Slag Co Loading Dock	Dry bulk				conveyor	425	28	1												950	•
048A	Bethlelem Steel - Coal Unld Doc	Dry bulk	coal/coke			conveyor	1460	18	2												2,171	•
197A	Gold Bond Building Products	Dry bulk	liq bulk				46	30			conveyor, pipe	459	32	1							950	•
																					9,641	4,371

Storage Area Characteristics

Code	Name	Container Hold	Reefer storage	Total Storage Area acres	Capacity tons	Storage Area number 1: Access	storage area inside	storage area outside	Capacity tons IN	Capacity tons OUT	Storage Area number 2: Access	storage area inside	storage area outside	Capacity tons IN	Capacity tons OUT	Storage Area number 3: Access	storage area inside	storage area outside	Capacity tons IN	Capacity tons OUT	Storage cap 1000 ton/yr
704A	South Locust Point 9-12			35		rail, truck	363	46													960
800A	Fairfield Auto Terminal			30		truck		45													840
808A	Atlantic Terminal Pier					truck		42													140
835Z	Chesapeake Terminal					rail, truck		30													140
018A	Blue Circle Cement - Penwood					truck			40												890
020A	Bethlelem Steel - Ore Pier			40		truck		51													9,689
022B	Maryland Slag Co Loading Dock					truck															890
048A	Bethlelem Steel - Coal Unld Doc					truck		40			truck		4								890
197A	Gold Bond Building Products					truck															690
																					15,549

Load./ Unload.& Handling Equipment

Code	Name	Loading / Unloading Equipment: Type	load rate	unld rate	capacity	Handling Equipment # 1: Type	Rate	Units	Cap.	shared	Handling Equipment # 2: Type	Rate	Units	Cap.	shared	Handling Equipment # 3: Type	Rate	Units	Cap.	Rail Car hold	Capacity 1000 ton/yr
704A	South Locust Point 9-12					container crane		3	40		gantry crane		1	100		gantry crane		2	10		540
800A	Fairfield Auto Terminal					ships gear															320
808A	Atlantic Terminal Pier					ships gear															140
835Z	Chesapeake Terminal					ships gear															140
018A	Blue Circle Cement - Penwood					load/unld tower	1500	1													890
020A	Bethlelem Steel - Ore Pier					gantry+buckt		3	26		conveyor	1500	2			receiv. hopper		1	175		3,680
022B	Maryland Slag Co Loading Dock					load/unld tower		1			conveyor		1			front end loader		1			890
048A	Bethlelem Steel - Coal Unld Doc					bridge crane		1	17		bridge crane		2	10		conveyor		1			890
197A	Gold Bond Building Products					ships gear					receiv. hopper	500	1			conveyor		1			690
																					8,380

Terminal General Remarks

Code	Name	Owner	Remarks
704A	South Locust Point 9-12	Maryland Port Admin.	Cranes equipped with magnets, buckets.
800A	Fairfield Auto Terminal	Maryland Port Admin	
808A	Atlantic Terminal Pier	Atlantic Venture Inc	Estimated annual capacity: 170,000 vehicles Storage area used to process automobiles
835Z	Chesapeake Terminal	Chesapeake Venture Inc	
018A	Blue Circle Cement - Penwood	Blue Circle Atlantic Inc	Cargo: cement slag.
020A	Bethlelem Steel - Ore Pier	Bethlelem Steel Corp	Discharge rate per belt 1500 t/hr
022B	Maryland Slag Co Loading Dock	Maryland Slag Co	Other cargo: slag Trucks dump slag into receiving hopper.
048A	Bethlelem Steel - Coal Unld Doc	Bethlelem Steel Corp	Depth alongside ranges from 18-27 ft
197A	Gold Bond Building Products	National Gypsum Co	Cargo: gypsum rock

Flows in 1000 tons/yr for	Canada & Mexico		1991 Flow Total	Port Capacity
Gen.cargo	44	1%	4,371	7,352
Dry bulk	2458	20%	12,027	21,418
Bulk grain	24	1%	1,990	3,740
Liquid bulk	117	4%	2,927	
All Cargo	2643	12%	21,315	

Port Remarks: Excluded terminals(not listed) are either: exclusively receiving domestic cargo or barges, inactive, or mooring terminals. Approximate flows for each cargo group are derived from MARAD 1991 4-digit Harmonized commodity census for the port, and may/may not represent corresponding terminal group. Total flow is for foreign commerce, domestic cargo is about 32% of the total commerce. Some of the listed terminals are active in both foreign and domestic commerce. Some of the liquid bulk terminals are active in shipping other chemicals and other dry bulk cargo for both domestic and foreign commerce.

Port of Baltimore, Maryland

Port of Baltimore		Code	5550	6001			Reg'n	Atlantic	List of Sheets 1 General Cargo	Sheet: 3 of 5
Code 1303	COE	Depth	50	38			State	Baltimore	2 Gen.Cargo, Dry Bulk	4 Bulk Grain, Liquid Bulk
Coord 39 15 N 76 34 W	Channels	T.basin					owner	Public & Private	3 Dry Bulk	5 Liquid Bulk

Code	Name	Types of Terminal Use: type 1	type 2	type 3	Max. DWT	Pier Face / Berth Group # 1: Access	length	depth	vsl's	width	Pier Side 1/ Berth Group # 2: Access	length	depth	vsl's	width	Pier Side 2/ Berth Group # 3: Access	length	depth	vsl's	width	Term.cap 1000 ton/yr	1991 flow 1000 ton/yr
227A	CCSC Marine Term Pier 2	Dry bulk	coal/coke				88	35			conveyor	802	27	1		conveyor	1253	42	1		2,171	*
284A	Agrico Chemical Pier	Dry bulk	liq bulk	fertilizers		pipeline	450	30	1												950	*
294A	Rukert - Pier 5	Dry bulk	Gen. carg				80	36			truck	870	38	1		truck	450	30	1		2,171	*
578A	Amstar Sugar Dock	Dry bulk	Liq bulk	Gen carg		conveyor	970	38	1		pipeline	248	10	1							2,171	*
866,71	CSX-Curtis Bay Ore/Coal piers	Dry bulk	ores/conc	coal/coke		conveyor	650	42	1		conveyor	900	30	1		conveyor	900	42	1		6,210	*
872B	Bayside Coal Terminal	Dry bulk	coal/coke				50	42			conveyor	909	42	1							950	*
962A	Blue Circle Atlantic Cement	Dry bulk	cement			pipeline	60	28	1												950	*
975A	US Gypsum Co	Dry bulk	non metal			conveyor	30	2	1												950	*
982A	Hawkins Point Terminal	Dry bulk	liq bulk	fertilizers			90				conv.,truck, pipe	720	36	1		conv.,truck, pipe	720	36	1		2,171	*
993A	Baltimore Gas & Electric Co	Dry bulk	liq bulk	coal/coke							conveyor, pipe	54	17	1		conveyor, pipe	60	17	1		2,171	12,027
																					20,865	12,027

Storage Area Characteristics

Code	Name	Container Hold	Reefer storage	Total Storage Area acres	Capacity tons	Storage Area number 1: Access	storage area inside	storage area outside	Capacity tons IN	Capacity tons OUT	Storage Area number 2: Access	storage area inside	storage area outside	Capacity tons IN	Capacity tons OUT	Storage Area number 3: Access	storage area inside	storage area outside	Capacity tons IN	Capacity tons OUT	Storage cap 1000 ton/yr
227A	CCSC Marine Term Pier 2			19		rail, truck				970											2,114
284A	Agrico Chemical Pier					rail, truck			26												890
294A	Rukert - Pier 5					rail, truck			40												890
578A	Amstar Sugar Dock					rail, truck			62												890
866,71	CSX-Curtis Bay Ore/Coal piers			20		rail, truck		20													4,944
872B	Bayside Coal Terminal					rail, truck				300											890
962A	Blue Circle Atlantic Cement					RR,truck,pipe			33												890
975A	US Gypsum Co					rail, truck	58														890
982A	Hawkins Point Terminal					rail, truck			64												890
993A	Baltimore Gas & Electric Co					rail, truck				600											890
																					14,178

Load./ Unload.& Handling Equipment

Code	Name	Loading / Unloading Equipment: Type	load rate	unld rate	capacity	Handling Equipment # 1: Type	Rate	Units	Cap.	shared	Handling Equipment # 2: Type	Rate	Units	Cap.	shared	Handling Equipment # 3: Type	Rate	Units	Cap.	Rail Car hold	Capacity 1000 ton/yr	
227A	CCSC Marine Term Pier 2					shiploader	7000	1			conveyor										2,114	*
284A	Agrico Chemical Pier					ships gear															890	*
294A	Rukert - Pier 5					gantry+buckt	600	1	21		rec hopper		4								890	*
578A	Amstar Sugar Dock					gantry+buckt	300	2	12		conveyor		1			bulldozer		6			890	*
866,71	CSX-Curtis Bay Ore/Coal piers					gantry+buckt	2000	2	20		shiploader	5000	2			rec hopper		2	100	4467	4,944	*
872B	Bayside Coal Terminal					shiploader	6000	1			conveyor		1							250	890	*
962A	Blue Circle Atlantic Cement					pneumatic unldr	700	4													890	*
975A	US Gypsum Co					ships gear					conveyor	1600	1			rec hopper		1			890	*
982A	Hawkins Point Terminal					gantry+buckt	1000	1	30		rec hopper		1			conveyor	550	1			890	*
993A	Baltimore Gas & Electric Co					gantry+buckt	1200	1			gantry+buckt	4000	1			conveyor		2			890	12,027
																					14,178	12,027

Terminal General Remarks

Code	Name	Owner	Remarks
227A	CCSC Marine Term Pier 2	Consolidated Coal Sales C	West side depth ranges from 42-50 ft
284A	Agrico Chemical Pier	Agrico Chemical Co	
294A	Rukert - Pier 5	Rukert Terminals Corp	
578A	Amstar Sugar Dock	Amstar Corp	Barge facility adjacent to sugar dock. Cranes equipped with 6 cubic yard buckets.
866,71	CSX-Curtis Bay Ore/Coal piers	CSX Transportation Inc	Ore pier: air draft 40'. Coal pier west side is barge dock, east side is vessel dock.
872B	Bayside Coal Terminal	Curtis Bay Co	
962A	Blue Circle Atlantic Cement	Blue Circle Atlantic Inc	Wharf consists of 4 mooring platforms: 20'x20' 16 storage silos.
975A	US Gypsum Co	US Gypsum Co	
982A	Hawkins Point Terminal	Maryland Port Admin.	Cargo: alumina, fertilizer, blister copper
993A	Baltimore Gas & Electric Co	Baltimore Gas&Electric Co	

Flows in 1000 tons/yr for	Canada & Mexico		1991 Flow Total	Port Capacity
Gen.cargo	44	1%	4,371	7,352
Dry bulk	2458	20%	12,027	21,418
Bulk grain	24	1%	1,990	3,740
Liquid bulk	117	4%	2,927	11,160
All Cargo	2643	12%	21,315	43,671

Port Remarks: Excluded terminals(not listed) are either: exclusively receiving domestic cargo or barges, inactive, or mooring terminals. Approximate flows for each cargo group are derived from MARAD 1991 4-digit Harmonized commodity census for the port, and may/may not represent corresponding terminal group. Total flow is for foreign commerce, domestic cargo is about 32% of the total commerce. Some of the listed terminals are active in both foreign and domestic commerce. Some of the liquid bulk terminals are active in shipping other chemicals and other dry bulk cargo for both domestic and foreign commerce.

* all dimensions are in feet. Storage area: Inside:in 1000 ft2, Outside:in acres. Storage for Liquids is in 1000 bbls, and for bulk grain is in 1000 bushels

D- Customs Inspection and Facitilies at Ports

Customs Organization

The major responsibility of the US Customs Service as part of the Federal Inspection Service (FIS) is to administer the Tariff Act of 1930, as amended. Primary duties include the assessment and collection of all duties, taxes and fees on imported merchandise, the enforcement of customs and related laws, and the administration of certain navigation laws and treaties.

As a major enforcement organization, the Customs Service combats smuggling and frauds on duty revenue and enforces the regulations of numerous other Federal agencies at ports of entry and along the land and sea borders of the United States.

The customs territory of the United States consists of the 50 states, the District of Columbia and Puerto Rico. The Customs Service, an agency under the Department of the Treasury, has its headquarters in Washington, DC, and is headed by a Commissioner of Customs.

The field organization consists of seven geographical regions further divided into 48 districts with ports of entry within each district. These organizational elements are headed respectively by regional commissioners, district directors (or area directors in the case of the New York region), and port directors. The Customs Service is also responsible for administering the customs laws of the Virgin Islands of the United States.

A summary of U.S. Customs Service regions, districts and ports of entry within those regions are highlighted on the attached map.

Functionally, Customs is divided into three major areas: (1)**Inspection and Control**, primarily responsible for cargo inspection and clearance at U.S. ports of entry, (2) **Enforcement**, primarily an investigative branch involved in suspected violations (i.e. smuggling, product "dumping" activities, quota violations, insurance fraud, etc.), and (3) **Commercial operations**, primarily an administrative branch involved with the assessment and collection of duties, commodity classification activities, and monitoring of duty import quotas, tariff schedules, and trademark infringement issues.

The remainder of this section will focus on the inspection and control functions of Customs since this is the area most directly involved with ports and water transportation.

The Entry Process

When a cargo shipment reaches the United States, the consignee will file entry documents for the goods with the district or port director at the port of entry. Imported goods are not legally entered until after the shipment has arrived within the port of entry, delivery of the merchandise has been authorized by Customs and estimated duties have been paid. It is responsibility of the importer to arrange for examination and release of the Goods.

Goods may be entered for consumption, entered for warehouse at the port of arrival or they may be transported inbound to another port of entry and entered there under the same conditions as at the port of arrival. Arrangements for transporting the merchandise to an interior port in-bond may be made by the consignee, by a customs broker, or by any other person having a sufficient interest in the goods for that purpose.

The entry of merchandise is a two part process consisting of (1) filing the documents necessary to determine whether merchandise may be released from Customs custody and (2) filing the documents which contain information for duty assessment and statistical purposes. In certain instances, such as the entry of merchandise subject to quotas, all documents must be filed and accepted by Customs prior to the release of the goods.

Entry Documents

Within 5 working days of the date of arrival of a shipment at a US port of entry, entry documents must be filed at a location specified by the district/area director, unless an extension is granted. These documents consist of:

a. Entry Manifest, Customs Form 7533; an Application and Special Permit for Immediate Delivery, Customs Form 3461, or other form of merchandise release required by the district director.

b. Evidence of right to make entry.

c. Commercial invoice or a pro forma invoice when the commercial invoice cannot be produced.

d. Packing lists if appropriate.

e. Other documents necessary to determine merchandise admissibility.

If the goods are to be released from Customs custody on entry documents, an entry summary for consumption must be filed and estimated duties deposited at the port of entry within 10 working days of the time the goods are entered and released.

Entry for Warehouse

If it is desired to postpone the release of the goods, they may be placed in a Customs bonded warehouse under warehouse entry. The goods may remain in the bonded warehouse up to five years from the date of importation.

At any time during that period, warehouse goods may be reexported without the payment of duty or they may be withdrawn for consumption upon the payment of duty at the rate of duty in effect on the date of withdrawal. If destroyed under Customs supervision, no duty is payable.

While the goods are in the bonded warehouse, they may, under Customs supervision, be manipulated by cleaning, sorting, repacking or otherwise changing their condition by processes which do not amount to manufacture. After manipulation and within the warehousing period, the goods may be exported without the payment of duty or they may be withdrawn for consumption upon payment of duty at the rate applicable to the goods in their manipulated condition at the time of withdrawal. Perishable goods, explosive substances or prohibited importations may not be placed in a bonded warehouse.

Inspection and Control Operations

Nationally, there are approximately 500 "Centralized Examination Stations" (CES) operated by Customs to provide cargo inspection and release functions. In most cases, these inspection stations are provided to Customs by the local port authority or port district. There may be as many as 10-15 satellite CES for larger ports of entry (i.e. New York, New Orleans, Baltimore, Houston, Savannah, Miami, etc.). In general, CES are located every 8-10 miles along access channels to the ports of entry. Recent improvements in the automation of cargo release and inspection functions (i.e. Automated Cargo Release system, ACR) will significantly reduce the number of CES needed nationwide, and at each port of entry.

Customs Facilities at Maritime Ports

Based on the contacts and interviews made by NPWI, and the feedback from the outreach program organized by VNTSC, the existing U.S. Customs facilities for inspection and cargo release (i.e. Centralized Examination Stations "CES") appear adequate to handle increases in North American trade. Through advances in automation and electronic data interchange (EDI) capabilities of Customs which relates to maritime ports, the number of CES stations and Customs staffing required may actually decline despite increases in cargo volumes.

Specific port examples of U.S. Customs Service activities are highlighted below:

New Orleans

The jurisdiction of the U.S. Customs Service New Orleans District includes Louisiana, Arkansas, Tennessee and Mississippi. An interview with the District Director revealed that the examination of imported cargo moving through the Port of New Orleans constitutes a major part of their activities. Due to the volume of cargo, the Customs Service conducts a select audit of approximately 15 to 20 percent of the port's cargoes.

An example of the audit procedures includes the examination of labelling on imported apparel to detect commercial fraud, inspecting imported cargoes arriving from Central and South America for contraband narcotics, and randomly checking for insurance fraud on some of the 18,000 packages that Federal Express ships out a night.

In the past, there were 27 inspection stations in New Orleans, and brokers would call the inspectors after the cargo had already arrived. This caused serious delays and staffing problems. Those 27 stations have been consolidated into one station at Elysian Fields now called the "Centralized Examination Station" (CES). It is located off of I-10 Elysian Fields in a central location. The CES was located off of Jefferson Highway but due to congestion there it was moved to its present location.

Port of Hampton Roads, Virginia

The Customs agents in Hampton Roads search approximately 250-300 containers per month. These inspections involve roughly one-tenth of one percent of the 38,500 containers a month moved through Hampton Roads.

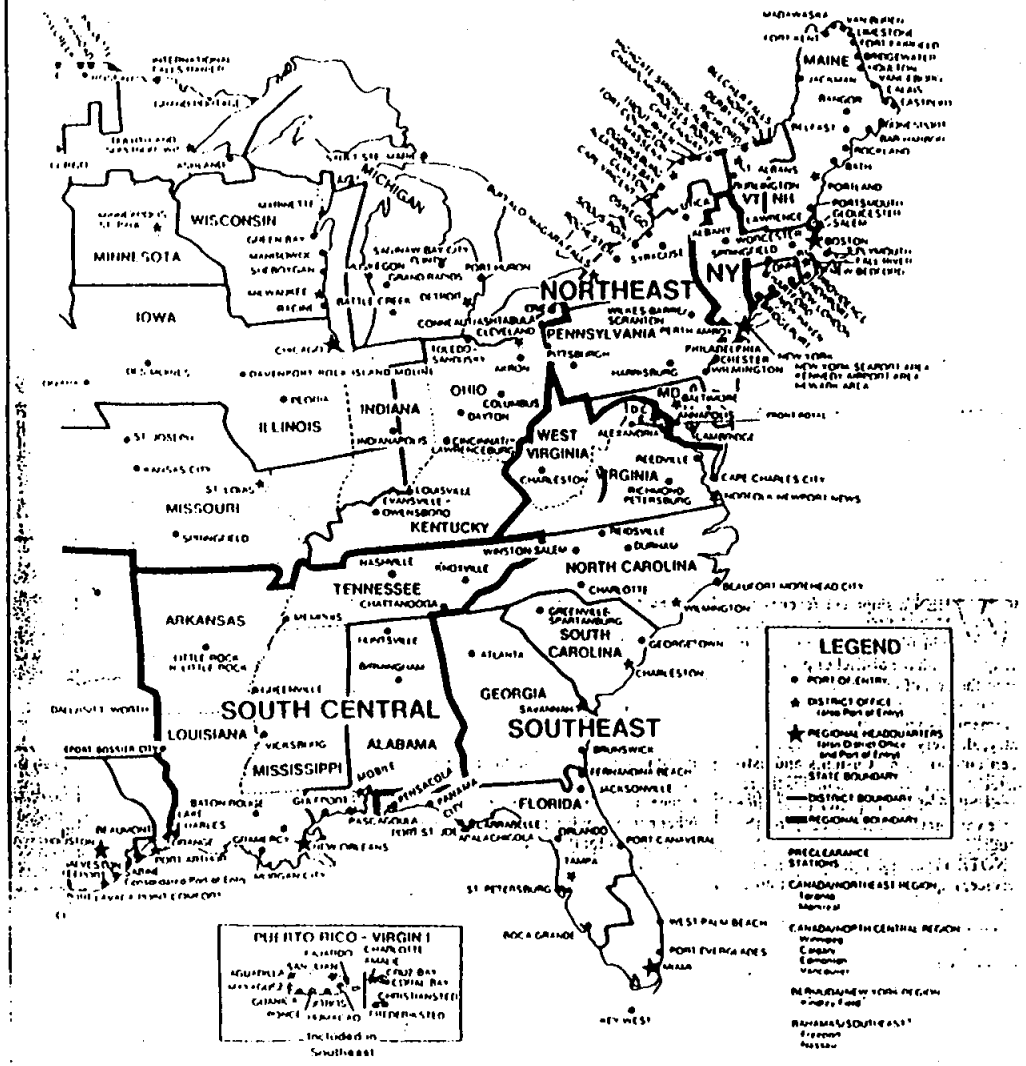
Port-related industries have claimed that many U.S. Customs Service regulations and administrative practices are archaic and inconsistently applied. Customs representatives have acknowledged that there is not uniform application or interpretation of regulations in the more than three-hundred U.S. ports of entry, but this situation is getting better as a result of administrative guidance from Washington and greater acceptance of electronic data records. In fact, many motor carrier representatives have characterized Customs as proactive and willing to work with electronic data, compared to brokers, freight forwarders and other middlemen who still require transmittal of paper documentation. Also, to improve uniform enforcement of Customs regulations, senior Customs officers and management are being rotated on a regular basis.

Port of Toledo, Ohio

The port is included in the North Central Customs region with the nearest district Customs office located in Cleveland, Ohio. The port has enjoyed good working relationships with Customs Inspection and Control division.

To help congestion at the port, Customs has agreed to conduct its intensive inspections at locations away from the busy terminals, and as a result has increased the number of inspections that it can perform threefold. After inspection, the cargo is transported, at the port's expense, to the transportation terminal from which it will be shipped.

U.S. CUSTOMS SERVICE



SOURCE: U. S. Customs House Guide (1993)

5. INTERMODAL CONNECTIONS OF BORDER PORTS

5.1 Definitions and Objectives

Definitions:

This chapter discusses the intermodal (IM) transportation systems which involve the U.S. ports that trade with Canada and Mexico, called hereafter border ports. Intermodal transportation is a broad term describing any transportation system that encompasses more than one mode of transportation, and any form of cargo (freight). This study focused on one modal combination of ship and rail, and one type of cargo, marine (international) containers. The focus is on containers; because the rail facilities are considered as part of the port for other cargos, such as dry and liquid bulk, and are thus evaluated in the port facility section in Chapter 4. This chapter specifically looks at intermodal systems, ship-to-rail connection for containerized cargo in the border ports.

Intermodal Bridges and Ports' Connectivity:

Modern IM transportation of marine containers began in the early 1980's with the establishment of so-called *"land bridges"*, which substituted all-water, ship service between the Far East and the North Atlantic (through the Panama Canal), with a combined ship-rail service through a U.S. West Coast port. The Far East, east-west[1] bridge service over the West Coast ports is still the largest in the U.S. totaling 3 million containers transported per year. The second largest bridge is the European, west-east bridge with the transportation of about 0.5 million containers per year. A recent, and still relatively small bridge, is the Americas south-north bridge through the Gulf ports.

IM, ship-rail service can substantially shorten the distance, time and cost for overall, point-to-point transportation. However, the IM service requires the linkage of ships to rail and vice versa. Efficient linkage requires good rail connections, preferably in close vicinity to the marine facilities, with special rail loading facilities, IM yards, to actually perform the ship-to-rail transfer operations. The *"intermodal connectivity"* of a port is both a function of the rail connection and the IM yards.

The availability of efficient IM linkage is the key factor to the efficiency of the entire bridge service. A brief description of the transfer facilities is highlighted below.

Intermodal Yards:

The ship-to-rail transfer of containers involves three basic activities: (1) the container is discharged from the ship in the marine terminal; (2) the container is then drayed to the IM yard; and finally (3) the container is loaded onto a railcar in the IM yard.

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[1] The bridges are defined in the inbound (import) direction, starting with their foreign point and ending with their U.S. point.

The IM yard[2] can be located on-dock, or within the port area, or off-dock, somewhere else in town, outside the port area. In either location, the IM yard consists of a "ramp", or rail trackage with an adjacent, paved apron. The lifting of containers (or trailers) onto/from the railcars is usually performed by Toploaders or Rail-Mounted Gantry (RG) cranes.

The on-dock yard is dedicated solely to marine containers and international trade. The advantage of locating this yard on-dock, or in the general vicinity of the marine terminal, is the elimination of drayage costs. Locating the on-dock yard on-terminal, or within the marine terminal itself, can eliminate some of the administrative procedures that relate to gate crossing, exchange of equipment and use of over-the-road tractors (instead of terminal tractors). Constructing on-dock, on-terminal yards requires large investments in land, facilities, and equipment which can only be justified for large volumes of IM containers. Usually, these yards are designed and configured for shipping lines which operate their own unit-trains.

Off-dock yards are usually general-purpose yards, designed mainly for the domestic trailer. Given the increased use of double-stack trains, some of the yards also handle domestic containers. These yards handle marine containers (with or without wheels), either on dedicated unit-trains or, most commonly, mixed with domestic cargo on regular trains. The advantage of these yards for international cargo is the more economical usage of the facilities, spreading their fixed cost over the larger volume of domestic cargo. The disadvantage for the containers is the distance from the ports. Since these yards are designed for domestic cargo, they are located closer to the origin/destination points of these cargos which can be 20 miles away from the ports.

Objectives:

The analysis of border ports' intermodal connections in this study comprised two stages:

- Defining possible IM bridges for trade routes that involve Canada and Mexico; and
- Examining the port-area rail connection and IM yards that were expected to handle these bridges.

The specific objective, in line with the broader scope of the Section 6015 study, was to identify deficiencies and impediments in the IM connections for handling present and future bilateral trade between the U.S., Mexico and Canada.

5.2 Intermodal Connection with Mexico

The IM trade-routes for containers between Mexico's East Coast and the U.S. could, conceptually, involve 3 principal bridges:

(1) **West Coast IM Bridge** -- a water connection between the Mexican East Coast port

[2] An alternative name is Intermodal Container Transfer Facility, abbreviated ICTF.

(Veracruz), and a U.S. Gulf port, with a continuation westward by rail to California (Los Angeles) and the Pacific Northwest (Seattle).

(2) **Midwest/Canada IM Bridge** – the same as above for the water leg, but with continuation by rail northward to the U.S. Midwest (Chicago) and the Canadian Midwest (Toronto).

(3) **Atlantic IM Bridge** – the same as above, but with continuation by rail either eastward to the South Atlantic (Atlanta), or to the North Atlantic (New York).

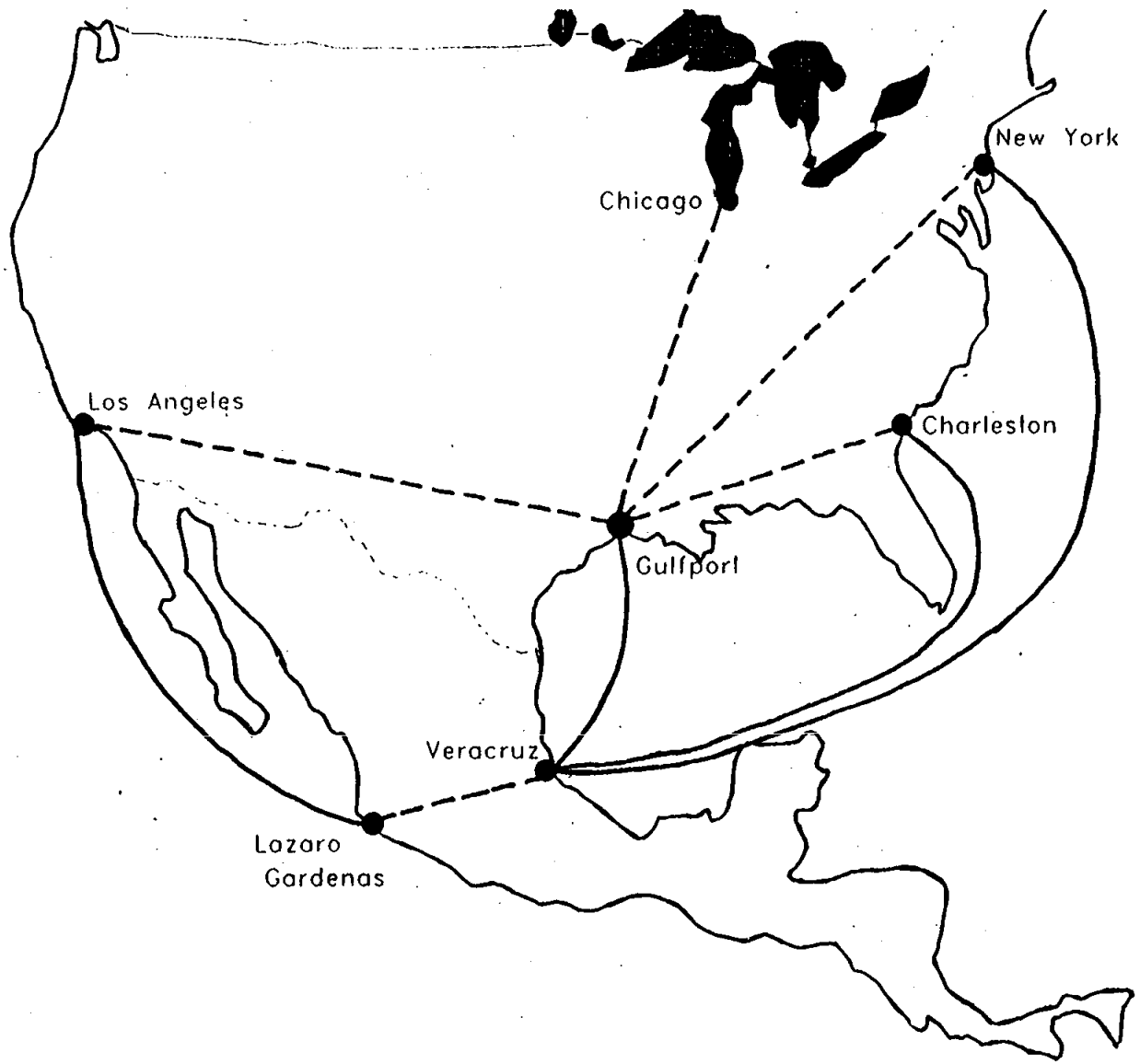
Figure 5-1 presents a schematic drawing of these bridges.

Other bridge options appear highly unlikely. For example, a conceivable IM bridge might involve a combination of a water route from Mexico to New York and then by rail to Chicago. However, the rail distance between New York and Chicago of 908 miles is almost equal to the distance between New Orleans and Chicago of 921 miles. The water distance from Mexico to New York, however, is almost three times that of Mexico to New Orleans.

As for the three IM bridges mentioned, prospects for both the Atlantic and the Pacific Bridges seem also unfavorable, especially in the long term. The Atlantic bridge faces competition from direct water service between Mexico and the Atlantic ports. For example, the water distance between Veracruz and New York is 2,026 Nautical Miles. The water-rail distance through New Orleans is essentially the same. It includes the Veracruz - New Orleans water distance of 789 nautical miles, plus New Orleans - New York by rail with 1,355 Statute miles. However, presently, there is no frequent, container service connecting Mexico ports with the North Atlantic ports. Establishing such services requires large volumes of trade. This is not expected in the near future. In the short term, the containerized trade between Mexico and the U.S. Atlantic Coast is likely to follow the IM route.

The West Coast IM bridge, especially towards Southern California, faces threats from two fronts. First, unlike the Atlantic Coast, the shipping lines calling at the West Coast with Far East cargo, have already established line-controlled, double-stack trains that cross the border and continue to move south to Mexico. These trains, are dedicated to the lines' cargo and do not offer service to other cargos. Furthermore, these trains do not reach the southern and eastern parts of Mexico. Secondly, there is the possibility of development of a direct water service between Mexico's West Coast ports. This type of service will be more attractive to cargo originating/terminating closer to the West Coast of Mexico. In the short term, some of the cargo from Mexico to the U.S. West Coast is likely to follow the IM route.

FIGURE 5-1 INTERMODAL BRIDGES WITH MEXICO



The Midwest/Canada IM bridge seems to be the most viable alternative. It has the advantage of direct rail connection combined with a short water route across the Bay of Mexico. Its main competition is from the all-rail service which, as mentioned above, faces the problems associated with border crossings.[3]

The U.S. Gulf includes many ports that can be used for the Mexican IM bridges in Texas, Louisiana, Mississippi and Alabama. However, only the ports that at present (a) have containerized liner trade; and (b) rail connection should be considered as candidates for IM bridge services in the near future. These criteria reduce the number of ports under consideration to four: **Galveston** and **Houston** in Texas; and **Lake Charles** and **New Orleans** in Louisiana. The rest either do not have containerized shipping lines calling there on a regular basis (e.g. Beaumont, Corpus Christie, and Freeport, TX; Baton Rouge, LA; and Mobile, AL), or do not have good rail connection (e.g. Gulfport, MS). The following is a review of the containerized trade, bridge options and IM connections in each of the relevant ports.

Port of New Orleans

New Orleans accommodates a large selection of container lines, mainly to/from Europe, the Mediterranean and South/Central America. Some of these lines have already established IM bridge services, including those serving Mexico.

New Orleans has the widest selection of rail services and related IM yards of all the Gulf ports. New Orleans, with its location on the Mississippi River, can offer connection to both the major Eastern railroads, Norfolk Southern (NS) and Chessie System (CSX), and the Western railroads, Southern Pacific (SP) and Union Pacific (UP). New Orleans also has the south-north connection with Kansas City Southern (KCS) and Illinois Central (IC). In fact, New Orleans is the only Gulf Coast port connected to the IC (for containers), which provides the port with the shortest route to Chicago. This makes New Orleans a very desirable candidate for the Mexico to Midwest/Canada IM bridge.

The abundance of railroads in New Orleans is also reflected in the number of IM yards in the area. There are seven IM yards, with a total of over 300,000 moves annually. The largest yard, the CSX yard, has 28 acres, 90 carspots and about 100,000 lifts a year. However, more than two-thirds of the cargo handled in New Orleans yards is domestic. As for the rest, the international cargo, almost all of the boxes, especially in the yards of the eastern and western railroads, belong to the Far East or the European bridges, and to a lesser extent, Puerto Rican trade. The only significant (although still small) Mexican bridge is the one to/from the Midwest, mainly through IC, and mainly to/from Chicago.

All the IM yards in New Orleans are off-dock. The SP and UP yards are located west of the

[3] A case in point is the newly-established Protexa service which connects the Midwest by rail to Galveston and from there, on a rail barge, to Coatzacoalcos, Mexico.

river, about 18 miles from the main New Orleans terminals in France Road, or the equivalent of 1 - 2 hours drayage time; the KCS, IC, NS and CSX are located east of the river, 2 - 5 miles from France Road, and 1/2 - 1 hour of drayage. The IC yard, however, is very close (1/8 mile) to the River Terminal and also handles a substantial number of containers, including those of lines calling in South and Central America.

The ports have been planning to construct a public, on-dock yard either at France Road, or at the existing site of the IC yard. The obstacle for an on-dock yard, especially in the France Road complex where the majority of the containers are handled, is the need to use additional switch service by the New Orleans Public Belt (NOPB). Also, the rail access of the NOPB to a potential yard in France Road is difficult, requiring railtracks through the town with at-grade crossings.

In summary, New Orleans has unique IM connections, providing for the establishment of bridges in all directions, but especially to the North. The present system of IM yards is large with no reported capacity constraints. The Mexican IM trade is very small compared with the domestic and even with the international cargo of non-Mexico trade. The ship-to-rail transfer in New Orleans might be improved by introducing on-dock yards, perhaps even on-terminal. However, bringing the trains on or even close to the terminal requires an additional charge for switching that might negate the savings in drayage costs.

Figure 5-2 presents a map of the New Orleans area, including the IM yards (called railroad ramps).

Port of Houston

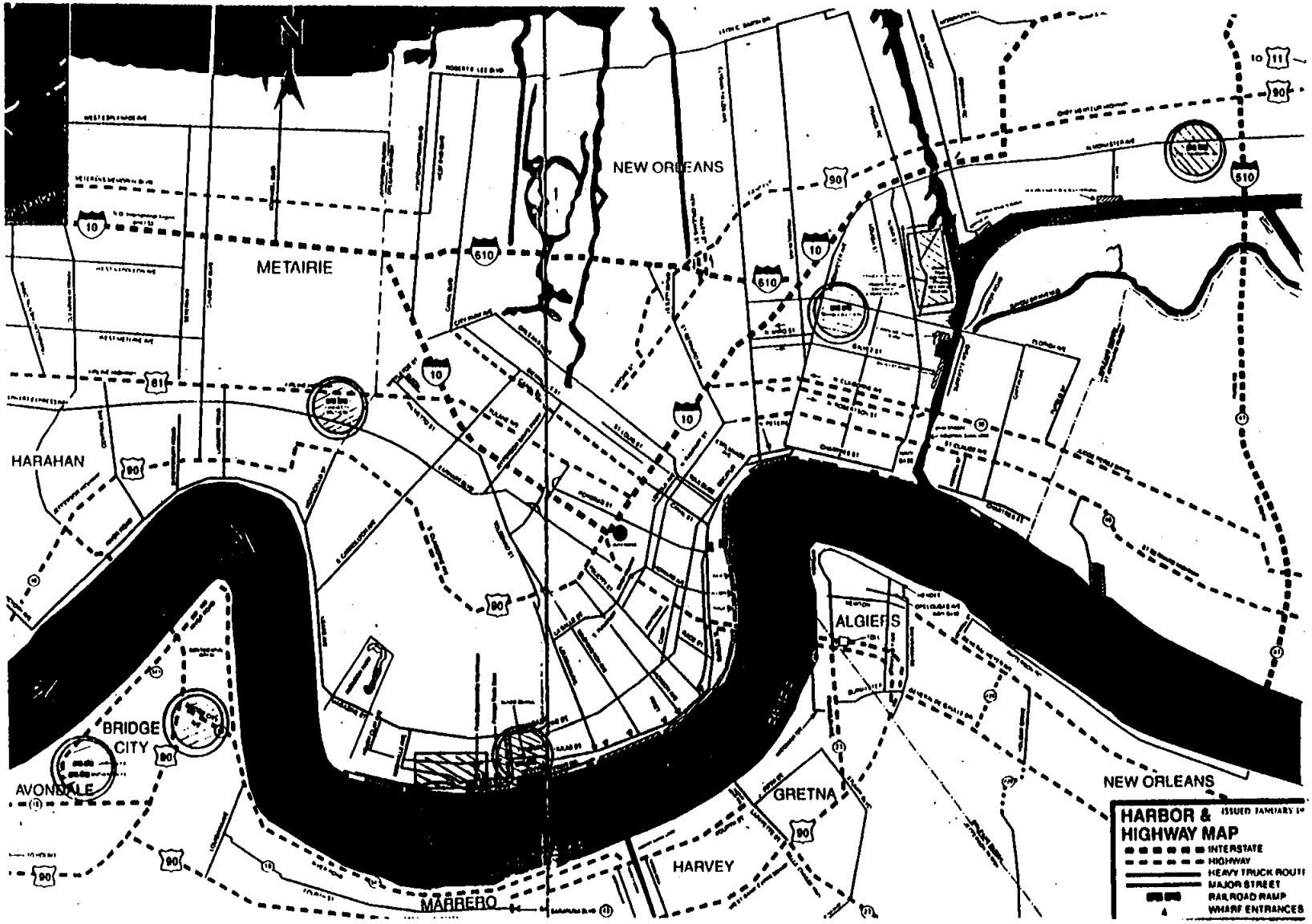
Houston, like New Orleans, is a port of call to many container lines that offer services to almost anywhere in the world. Some of the container lines already have IM bridges through Houston, mainly to California.

Houston has excellent rail connections, including all four Western railroads, SP, Sante Fe (SF), Burlington Northern (BN) and UP. Houston does not connect directly with the Eastern railroads and the KCS/IC railroads. Nevertheless, the Houston area serves as a large transportation hub for rail traffic, for both domestic and international cargo. The proximity of Houston to Mexico as well as its excellent rail connection with Western railroads, places Houston as the most desirable port for the West Coast IM Bridge.

The large volume of intermodal traffic is served by 10 IM yards, all of which are located within 20 miles of the ports. These yards serve mainly domestic cargo and international cargo which relates to the Far East Bridge. Only one yard, at Barbours Cut terminal, is dedicated to marine containers.

Houston is the only Gulf port that has an on-dock yard. The yard is located at Barbours Cut, near Houston's main container terminal, which is also the largest container terminal in the Gulf (440,000 TEUs/year). The IM yard handles about 55,000 moves/year, including unit-train with double-stack cars. The yard is not on-terminal and located outside the marine terminal. The

Figure 5-2
Road and Rail Connection in New Orleans



IH Yard Marine Terminal

access to the yard is through a public road and requires drayage of about a mile. The yard is operated by only one railroad, the SP, although theoretically railcars of other railroads can be brought in for handling. Another disadvantage of the yard is the need to use the local switch railroad, the Port Terminal Railroad Association (PTRA) to bring in trains from the SP mainline. Nevertheless, being a dedicated yard, it is quite efficient, and it is not working at full capacity. If needed, the port already has plans for expansion to provide for additional lines calling at Barbours Cut in order to establish their dedicated rail services, including those used for Mexican trade as well.

In addition to the IM yard in Barbours Cut, there are rail connections to other Houston terminals that handle containers. Although no IM transfer is presently performed at these terminals, IM yards can be established, depending on the specific needs of the line calling to these terminals.

Figure 5-3 presents a map of the road and rail connection in the Houston area and *Figure 5-4* presents a map of Barbours Cut terminal and the adjacent, on-dock IM yard.

Port of Lake Charles

Lake Charles is a much smaller port than both New Orleans and Houston, especially in container trade. In fact, there is only one container line that calls there on a regular basis. This line does not serve Mexico.

The port has good connections to the 2 Western railroads, SP and UP as well as to the KC. All these railroads used to have active IM yards in Lake Charles, mainly for domestic cargo. Presently, only the KC has its yard active, whereas the other two railroads closed their yards because of insufficient cargo volumes. Consequently, the SP and UP intermodal cargo is drayed either to the IM yards in Houston or New Orleans. The KC yard is located about 5 miles away from the port.

There is a possibility to develop a Mexican service in Lake Charles, though probably not on a large scale and probably with a local orientation. It is unlikely that any meaningful intermodal bridge will evolve in the Lake Charles area.

Figure 5-3

Road and Rail Connection in Houston

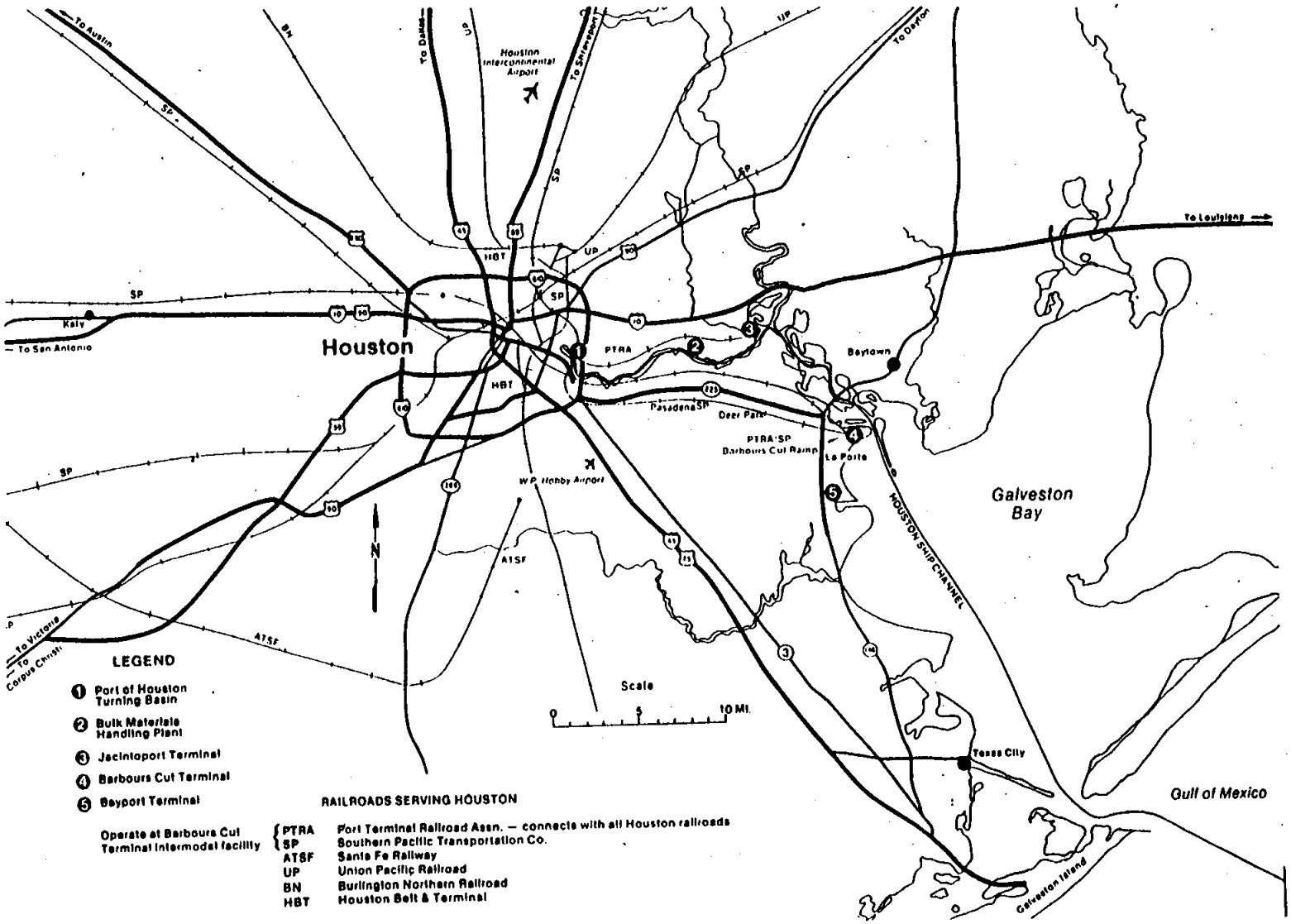
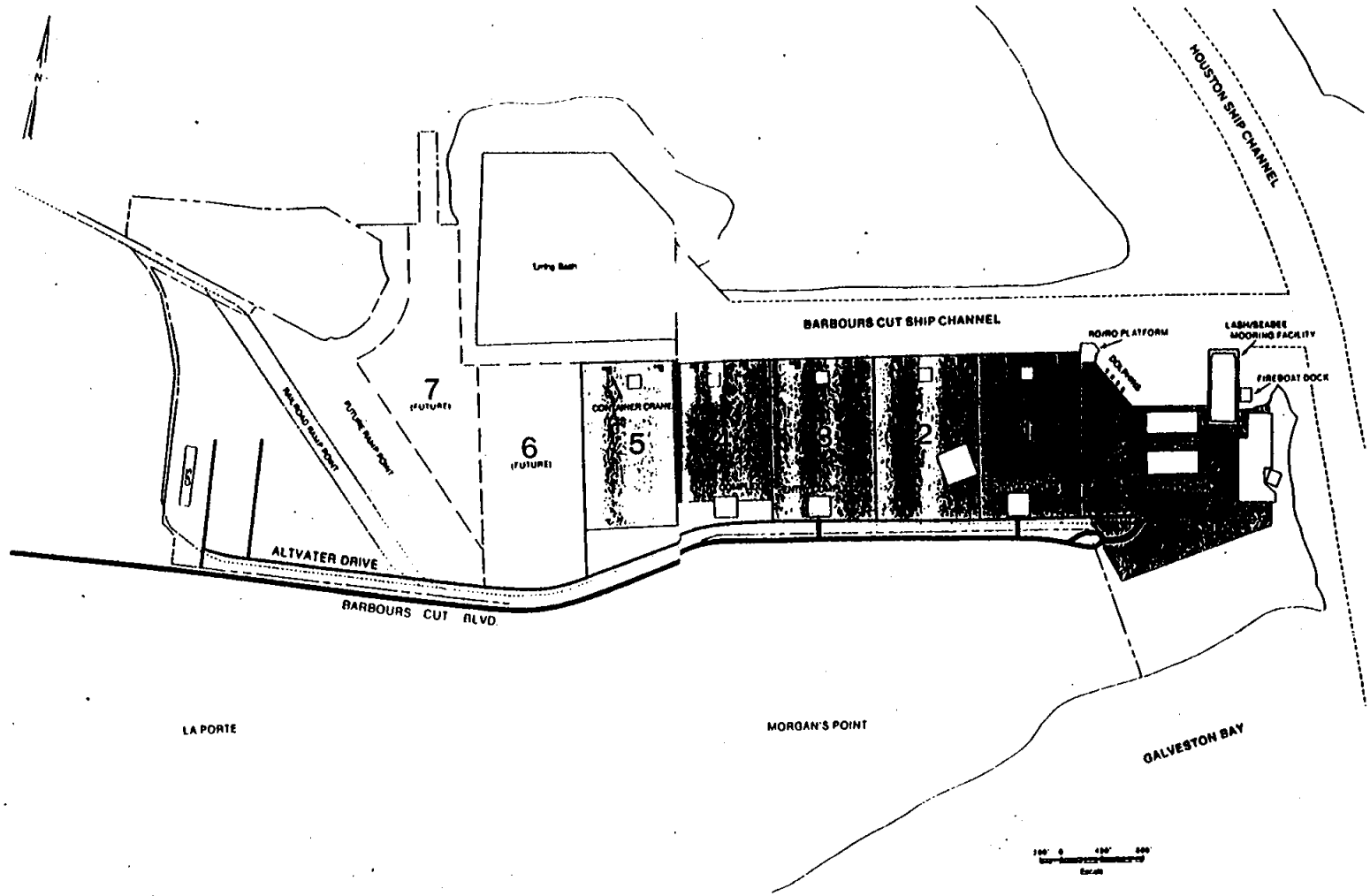


Figure 5-4

Barbours Cut Terminal in Houston



Port of Galveston

The port of Galveston is located on an island, 50 miles south of Houston's main container terminal. The port is the closest container port to Mexico. Galveston's main liner services are to Mexico and other Central and South American countries.

The ports' main rail connection is to the BN. The access to the terminal is by a local switch line, called Galveston Rail Inc. BN has also established the recent Protexa service connecting Galveston to Coatzacoalcos, Mexico by deck barges carrying railcars. This service presently handles grain, but plans have already been drawn to add a special barge for containers. The containers moving to Mexico by barge will not be placed on railcars (as the hopper cars) but rather on deck (stacked).

The port of Galveston is the only Gulf port to have an on-terminal IM yard within the port's container terminal. The IM facility is limited to 4 working tracks, each for 10 flat cars (TTX). The IM yard is only partially active at present with about 2,000 moves per year. In the past both the container terminal and its IM yard were much more active. Galveston can serve as an excellent port for relatively small lines serving Mexico, with limited volumes of IM cargo, taking advantage of the on-terminal IM yard.

Conclusion

As seen from the above sections, the major Gulf ports, especially New Orleans and Houston, have excellent IM connection with no immediate identifiable problem. These ports are serving large volumes of IM containers, mainly for the Far East and Europe bridges in addition to domestic IM services. The ports have rail connections to several railroads, including large, off-dock IM yards. The ports already serve Mexican bridge cargo, although it is relatively small and only represent a negligible portion of total IM activities. It is likely to assume that any conceivable growth in bilateral trade between the U.S. and Mexico, including its IM portion, will be served by these ports with no capacity constraints.

Except for Galveston, none of the Gulf ports have an efficient on-dock/on-terminal IM yard like those available presently in the large West and East Coast ports. Development of such yards can facilitate trade with Mexico, especially the trade that can take advantage of the IM bridges. This assumes that the IM volume justifies the investment in such a yard. Another problem related to the on-dock yard is the need to use an additional switch by local railroad to gain access to the waterfront which entails an additional switch charge and lost times.

Most of the smaller ports on the Gulf do not have any containerized trade, rendering the issue of IM connection irrelevant, at least for the near future. However, recently, some of the smaller ports have been successful in attracting smaller lines, providing cross-Gulf services to Mexico. If these lines have meaningful IM cargo, problems due to the lack of IM connectivity may arise. A case in point is Gulfport, the future port of call for a new liner service to Mexico.

5.3 Intermodal Connection With Canada

The geographical setting of the U.S. and Canada does not give rise to the development of IM "bridges". There is no Gulf separating the two countries which allows for distance-saving, as was the case with Mexico. Conceptually, the only setting of a combined water-rail service could involve the Great Lakes and the St. Lawrence Seaway. Such an IM bridge could involve a West Coast connection: a water connection from the U.S. Atlantic port (Charleston, SC) through the St Lawrence Canal to a Great Lakes port (Cleveland, OH) with continuation westward by rail to the Canadian West Coast (Vancouver, BC).

Two problems are associated with such a bridge service. First, the combined water-rail distance, of about 5,000 miles, is almost twice that of the direct water route of about 2,800 miles. Second, there is no liner service on the Great Lakes that calls at any of the U.S. Atlantic ports. The only liner service currently on the Lakes provides service to Russia. Given the closure of the Canal during winter, the limitation on draft, and the proximity of the North Atlantic ports, the prospect of additional liner services seems slim.

The only IM bridge connection that can be developed on the Great Lakes is related to the European connection, which involves rail connection to both the Canadian and U.S. West Coast as well as the western portion of the Midwest. This might involve some trade between the two countries, but on a very low level. Nevertheless, it is far from being an independent IM bridge.

Another unrelated possibility was already mentioned before with respect to the Mexican Midwest Bridge toward Canada. In this case, the Great Lake ports could serve as a terminal (or origin) point. However, they would function like an inland IM yard with no connection to the port activity.

All the ports on the Great Lakes have excellent rail connections, some of them to both Eastern and Western railroads. Almost all of them have large IM facilities, though they are unrelated to the ports. Chicago, for example, has the largest IM yards in the country, but none of them are connected to the Port of Chicago (which has no containerized trade).

Port of Milwaukee

The only port that has its own, on-dock IM yard is Milwaukee. The yard is served by Canadian Pacific (CP) and Chicago North Western (CNW) railroads with, on the average, about one train per day. The yard serves, however, both domestic and international cargo. For the international cargo, the IM yard serves as a terminal (origin) point for the Far East/European IM Bridges. For example, the port's IM yard handles a container which is brought from Europe and discharged at Atlantic ports, say New York, where it is loaded on a railcar and sent for a Wisconsin consignee. A small percentage of the activity in this yard is related to the Russia-bound container service. The IM yard also serves as a container depot for shipping lines serving Wisconsin (by rail).

Conclusion

The combination of geographical settings and the problems associated with shipping to/from the Great Lakes suggests that the likelihood of development of an IM bridge service for the trade between the U.S. and Canada is negligible.

6. TRENDS, IMPEDIMENTS, AND IMPLICATIONS FOR TRADE

Background

A major requirement of the Section 6015 Study on boarder crossings is to identify impediments, needs and significant improvements necessary to accommodate trade and cargo flows in North America. This report looks at these impediments, issues and needs that are specifically port and cargo related. Impediments of tourism, for example, at boarder crossings and related customs/port issues are not included.

The expressed goals of infrastructure assessment in the 6015 Study include: (1) an identification of the impediments and problems that exist today as well as (2) a discussion of those problems that are *likely to arise*. The remainder of this report incorporates both concepts.

A- Port Related Impediments and Issues

Customs Policies (Staffing & Clearance)

The U.S. Federal government, because of ongoing budget deficits, has been cutting back or not refilling positions within the Federal Inspection Services (FIS). In many situations, the physical capacities of ports are now much larger than the ability of Customs to clear the cargo. The costs of inadequate staffing at the FIS facilities level can amount to millions of dollars per year for carriers and shippers. A current budget proposal to reduce further the overall staffing of the Custom Service while at the same time increasing Customs' staffing at the Southwest U.S. border by moving current staff from the Northeast Customs region was of particular concern to Northeast roundtable participants. This staffing shift, if implemented by FIS, will further reduce effective cargo handling clearance capacities for ports in the Northeast.

It is important to note that none of the Federal Inspection Services has *facilitation of traffic* as an objective. Thus there are no goals or measures of performance. Facilitation of traffic is important to Customs in that it reduces the loads placed on the Customs' staff. Additionally, it may be possible for shippers and carriers/terminal operators to *integrate enforcement requirements* into their processes to expedite the inspection process, e.g., they could use crossing facilities that are staffed 24 hours during off peak times, they could provide advanced information electronically to permit cargo analysis by Customs before cargoes reach the borders, or they could make greater use of line release. There must be an appreciation of the enforcement roles of the FIS, but likewise a recognition that concern with drug and passport problems can impose a cost on the legal flow of trade across the border.

Port Financing of Obsolescent Facilities

Although there are cargo handling facilities in place, the maintenance, modification, and replacement of aging facilities can impose financial burdens upon port authorities, terminal operators and state and local communities that are beyond the financial capabilities of these groups. Declining funding sources at the Federal level should also be noted.

Nationally, there has been a growing voter reluctance to support tax proposals at any level of government. Given the current fiscal climate, the port industry faces a serious challenge in convincing local voters and governments of their genuine need for public funds. This problem is compounded by the fact that most citizens probably do not fully understand the economic benefits derived by their community from the port's presence. In the future, ports will have to be more aggressive in demonstrating their economic benefits and return on investment to the local community.

As the current economic climate persists, public ports are assuming a more "pay-as-you-go" approach to carry out investment programs. This fact is reflected in the port industry's anticipated funding sources for their projected 1992-1997 expenditures, which show port revenue bonds accounting for nearly 85 percent with Government grants and assistance totaling less than 5 percent. [1]

State and local governments are exerting more pressure on ports to become increasingly self-sufficient. Financial assistance to public ports from these governmental entities will continue to be more difficult to obtain as state and local jurisdictions face revenue shortfalls and increased demands for services.

Landside Access/Egress Impediments

For many ports the weakest link in the logistics chain is at their back door, where congested roads or inadequate rail linkages to marine terminals, or both, result in inefficient delays and higher transportation costs. Direct influence over these issues, however, is beyond the control of port officials. Responsibility for road and highway improvement projects usually resides with a city, county, regional, or state government. Decisions about most rail line investments, with the exception of a few municipally owned belt lines, are made by privately owned railroads. Port officials may have a particularly difficult challenge in communicating their needs and resolving their access problems, but their problem is not unique. The governmental transportation sector in the United States, despite the leadership role of the federal government in many areas, is highly decentralized, with multiple points of influence over competing project priorities and with multiple opportunities for delay.

[1] Source: USDOT (MARAD)- The Status of Public Ports in the United States, A report to Congress (December 1992).

A recent survey by the American Association of Port Authorities, summarized in ***Table 6-1***, identified various examples of landside impediments. Inadequate clearances for high-cube (i.e., 9.5' per container) double stack trains because of numerous bridge and tunnel restrictions in the Northeast are significant landside impediments to cost effective intermodal container movements for ports in this region.

Numerous at-grade rail-highway crossings on the East and Gulf coasts contribute to congestion that is already significant for the large metropolitan and urban settings that spawned the growth of most East Coast and Gulf ports. Major truck routes into and out of marine terminals are, as a consequence, significant bottlenecks to the intermodal movement of containers and other general cargoes.

Crucial to the competitiveness of U.S. international trade are the land transportation connections at deep water ports. These connections are key points of transfer in the intermodal system that transports the Nation's international and domestic cargo. The efficiency and effectiveness of this system could be threatened, however, by increasing bottlenecks on those few miles nearest ports, where inadequate rail and highway links to marine terminals increase cargo delays and transportation costs.[2]

A more detailed look at three specific ports of Hampton Roads, VA; New Orleans, LA; and Toledo, OH provide representative examples of related landside issues and impediments facing ports.

Ports of Hampton Roads (Norfolk, Newport News and Portsmouth), VA

The Ports of Hampton Roads are ranked among the fastest growing in the country. Since the early eighties, general cargo tonnage has nearly tripled and seventy-five carriers now service Hampton Roads. Hampton Roads set new records in 1990 by collectively handling over seventy million tons of cargo. Accelerated industrial development throughout the region is resulting in congestion on the area's transportation infrastructure. Roads, tunnels, bridges, and rail systems that serve the terminals have reached or are reaching capacity. If this growth continues without significant improvements to landside transportation infrastructure, the overall effective operating capacity of the ports and regional transportation networks will be greatly diminished.[3]

Highway access problems for the Ports of Hampton Roads do not result from the absence of high-design roadways, but rather from the capacity of these roadways now being overwhelmed by traffic. The Hampton Roads Planning District Commission has collected travel speeds and travel times for the primary and arterial highways in the metropolitan area. Between 1972 and 1983, travel times and travel speeds were not substantially degraded. Between 1983 and 1990, there was a doubling of travel times and a halving of travel speeds.

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[2] Transportation Research Board Report #236: *Landside Access to U.S. Ports*, February 1993.

[3] Virginia Port Authority, "Highway Projects Impacting The Port Of Hampton Roads.", Lamperts Point Docks, Inc., "Landside Access Concerns", November 1990.

TABLE 6-1 - Examples of Landside Access Impediments Identified in AAPA survey *

Impediment	Container ports (n = 25)		All Ports (n=54)	
	No.	Percent	No.	Percent
Truck routes usually or always congested	16	64	27	50
Numerous at-grade rail-highway crossings	14	56	25	46
Inadequate clearances for high-cube double stacks	9	36	12	22
Competition increasing for available land	21	84	40	74
Restricted access improvements due to lack of land	11	44	17	31
Regulations in place or proposed restrict truck or rail operations	4	16	5	11
Development of access improvements impeded by wetland regulations				
Usually or always	6	24	11	20
Sometimes	8	32	16	30

* Source: Transportation Research Board National Research Council Report #238, *Landside Access to U.S. Ports* (Feb. 1993)

This degradation in traffic service occurred due to enormous growth in the Tidewater area while funding for highway projects was severely constrained and very few non-Interstate projects were constructed.

There are ten major intra-regional highway improvements proposed for the Hampton Roads area with a total estimated construction cost of $2.2 billion. However, Fiscal Year 1990 construction fund allocations were only $120 million and declined in years 1991 and 1992 to approximately $110 million. During peak hours, travel speeds on one-third of these intra-regional highways are less than ten miles per hour and less than fifteen miles per hour on an additional third. Even if highway improvements could be accelerated, it is debatable whether construction could keep pace with demand.

Perhaps the most severe port-related landside traffic problems are being experienced by the City of Suffolk, which does not even have a port facility.[4] The City of Suffolk is traversed by virtually all major roadways and rail lines that serve the southern port terminals of Hampton Roads resulting in twenty-seven transportation "pinch points" identified by Suffolk's traffic engineers. Over the last fifteen years, traffic volumes in the city's central business district have doubled to more than twenty-nine thousand vehicles per day with heavy trucks accounting for approximately sixty percent of this traffic. The four-lane, undivided section of Route 58 in downtown Suffolk has pavement widths of only forty-five feet, with no right-of-way available for expansion.

Port of New Orleans, LA

The Port of New Orleans is strategically located on the Mississippi River, close to the heartland of America. Its market base is served by the Interstate Highway system, six major railroads, the Mississippi River-Gulf Outlet (MR-GO) and more than 18,000 miles of navigable inland waterways. This transportation infrastructure enables the port to serve a very rich market. The port's Mid-America customer base includes 35 percent of the population, 34 percent of the purchasing power, 41 percent of the productive industry, and 40 percent of the employment of the United States.[5]

About 90 percent of the cargo handled at the Port of New Orleans moves inland. Therefore, the need for efficient landside access to port terminal facilities is of critical importance. This provision of improved landside access is a fundamental element of the port's capital improvement program and the port's strategic planning effort to enhance the flow of cargo by rail.

In light of this, the Transportation Trust Fund Amendment, passed by Louisiana voters in 1989, reserves a portion of state fuel taxes to fund a $1.3 billion ten-year program to improve the state's transportation infrastructure. The infusion of some $100 million through the Trust Fund, plus an additional $87 million in self-generated funds, enabled the port to

[4] VPA and VDOT presentations to the U.S. DOT study group on Landside Access to U.S. Ports, Source: MARAD.
[5] The Total Port Brochure, (Publication of the Port of New Orleans).

launch an extensive capital improvement program. Important program elements include the construction of state-of-the-art terminals on the upriver portion of the Mississippi river front, construction of the Tchoupitoulas Street Corridor, and the provision of much-needed infrastructure maintenance.

The highway congestion in and around the City of New Orleans hinders access to the port facilities. The geography of the city, which is bounded on the north by Lake Pontchartrain, on the south by the Mississippi River and on the east and west by extensive wetlands, limits access and egress.

Only three radial six-lane freeways are available to carry all of the metropolitan area's traffic. Congestion is compounded because all of those freeways come together within the central city area.

A lack of signage on the Interstate and expressway system to direct truck traffic to port facilities is a problem, particularly for drivers unfamiliar with the port. The failure to provide this directional signage can result in heavy truck traffic straying onto the residential streets not designated as truck routes. Scheduling is also a major problem because although local truckers can be contacted and scheduled, it is the out-of-town people that often show up unexpectedly and often at the same time.[6]

Over 90 percent of the Port of New Orleans' cargo moves to or from inland markets, therefore the use of all inland transportation modes must be used. There are six trunkline railroads that connect at and serve the Port of New Orleans, more than any other deep-water port. The railroads are major elements of an inland rail network that touches almost every major city in the continental United States (see ***Figure 6-1***). The eastern market is served by Norfolk Southern (NS) and CSX Transportation (CSXT), the western area by Southern Pacific (SP) and Union Pacific (UP), and the Midwestern part of the country by Illinois Central (IC) and Kansas City Central (KCS). These railroads cross the Mississippi River in New Orleans on the Huey P. Long Bridge owned by the New Orleans Public Belt railroad (NOPB). The NOPB is a terminal railroad owned and operated by the City of New Orleans. The SP and UP reimburse the New Orleans Public Belt for bridge maintenance at an annual cost of just under $1 million each.

Rights-of-way in New Orleans presents a major access problem. There is no room to improve access. Railroads have the last remaining corridors for access solutions in densely populated urban areas like New Orleans.

With the exception of three wharves, all of the marine terminals of the Port of New Orleans are served directly by the NOPB. The NOPB in turn, provides equitable access to all six of the trunklines. Historically, the NOPB and the port have sometimes had separate and uncoordinated approaches to port development issues.[7]

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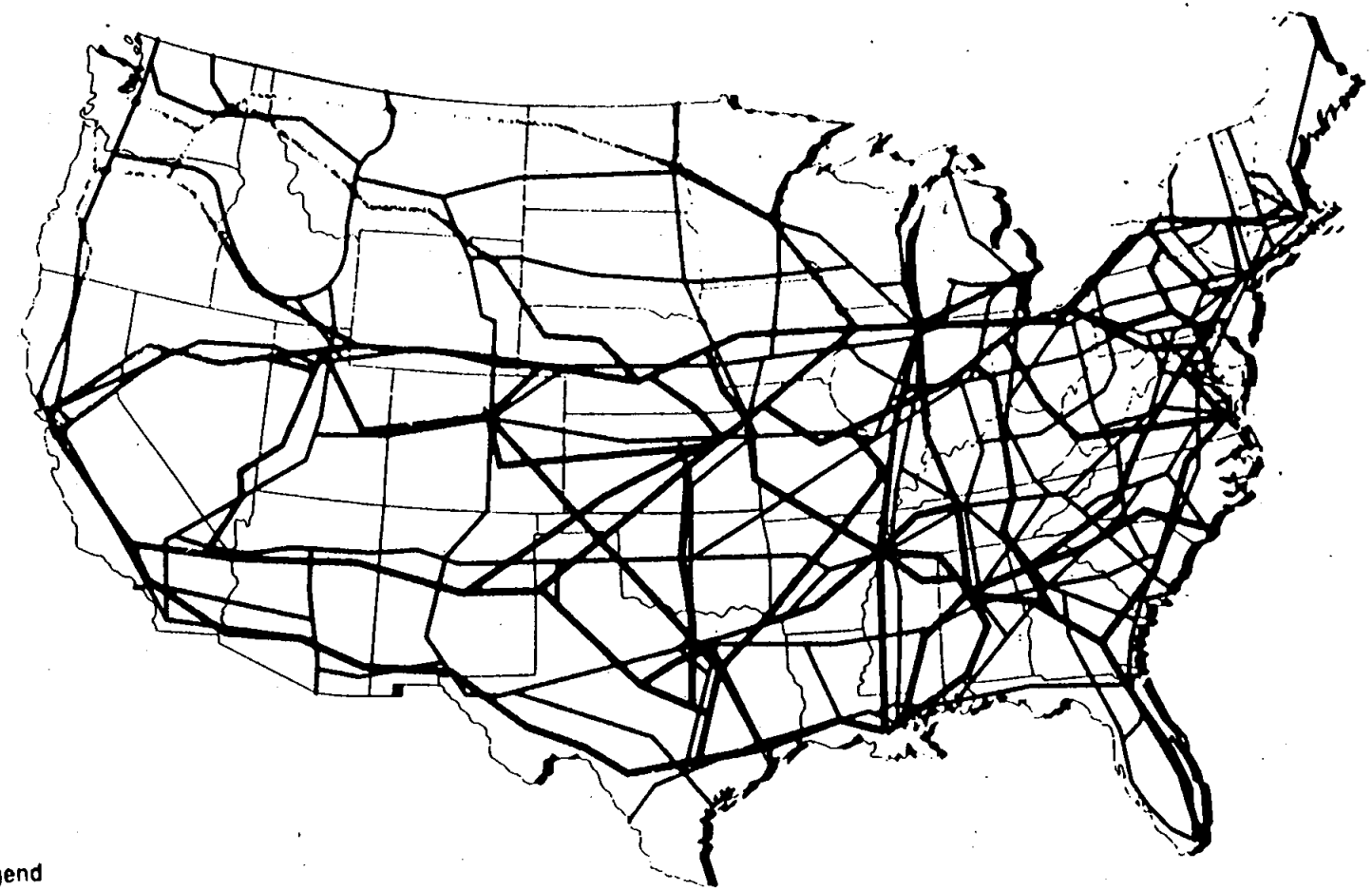
[6] Port of New Orleans presentation to U.S. DOT study group on Landside Access to U.S. Ports. Source: MARAD.
[7] Ibid. New Orleans Presentation to U.S. DOT on Landside Access (MARAD).

Figure 6-1 Intermodal Cargo Network of the United States



Legend

Interstate Highway System

Rail Lines Used for Intermodal Cargo

Port of Toledo, OH

The Port of Toledo is located at the western end of Lake Erie at the mouth of the Maumee river, the largest river flowing into the Great Lakes. Toledo is the third largest rail hub in the United States creating considerable multi-modal opportunities. It became a transportation hub due to its location on Lake Erie as well as the agricultural and industrial productivity of the region. The port provides international shippers efficient transportation from the heart of America's Midwest via the St. Lawrence Seaway to the Atlantic Ocean. The port is served by five railroads and a belt that encircles the city and three interstate highways including I-75 (north-south), I-80 and I-120 (east-west). None of the terminals are more than three miles from an interstate with Front, Summit or Miami streets serving as the principal access routes paralleling the Maumee River shipping channel.[8] The flat terrain around Toledo results in numerous at-grade crossings of railroad track with highways and with other rail lines. Although railroads access most terminals, the majority of rail links are to the ones used for coal and iron ore.

Rail movements to the port frequently involve just-in-time coal shipments that must be handled expeditiously to avoid delays in vessel loading and sailing times. Just-in-time deliveries are also made by truck from the port to the Chrysler Motor Corporation's Jeep Plant in Toledo. These movements are often delayed due to railroad congestion blocking the sole access road to the port facility.

Bridges impede both landside and waterside traffic. Three of the seven bridges spanning the Maumee River shipping channel are rail bridges that must be opened to allow marine vessels to pass. Although marine vessels are supposed to have the right-of-way when approaching rail and highway bridges, vessels frequently encounter delay due to infrastructure congestion. For example, Conrail often leaves trains on its bridge for an hour or more awaiting switching movements elsewhere on the line.[9]

Canadian Cargo Diversion

The Omnibus Budget Reconciliation Act of 1990, P.L. 101-508 (OBRA), increased the Harbor Maintenance Tax from 0.04 percent to 0.125 percent with an effective date of January 1, 1991. The new tax rate was determined by estimating the annual O&M dredging costs plus certain administrative costs and the operating costs for the St. Lawrence Seaway Development Corporation. The changes in the tax rate and the percentage of the annual costs to be drawn from the trust fund make O&M dredging costs fully funded by the users of U.S. ports. The port industry has expressed concerns for increased cargo diversion from the East Coast and Great Lakes U.S. ports.

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[8]Port of Toledo presentation to U.S. DOT study group on *Landslide Access to U.S. Ports*, MARAD, 1992.
[9]Ibid. (MARAD)

Impact of Federal User Fees

Since the passage of the 1990 Act, there has been increased maritime industry concern about the potential impacts that Federal user fees may have on U.S. trade competitiveness. Over the past several years, a number of maritime-related fees and charges were either initiated or increased. Many of these changes occurred as a result of the OBRA in which Congress and the Administration attempted to address budgetary shortfalls.

Examples of the fees which were affected included the harbor maintenance tax, the vessel tonnage tax, Coast guard user fees, and various inspection services. The current U.S. policy is that user charges are the most equitable means of paying for those Federal services where a direct beneficiary can be identified.

Many ports have expressed concern over the recent increase in the harbor maintenance tax. They feel the increase has created a Canadian ports advantage. An earlier study conducted by the Treasury Department found no significant cargo diversion from the initial fee of .04 percent. However, no follow-up study has examined the diversion issue under the new rate structure, which more than tripled to 0.125 percent.

Figure 6-2 presents an estimate of the impact on U.S. liner trade of the effects of Canadian diversion (MARAD Market Analysis, 1989). Since U.S. harbor tax fees have increased significantly since 1989, the cargo diversion effects of this impediment were assumed to have grown as well. Roundtable participants felt that the 6015 study should update the investigation into diversion of U.S. origin/destination cargo transshipped via Canada or Mexico by shippers/consignees trying to avoid paying U.S. harbor maintenance fees.

Land Use Impediments

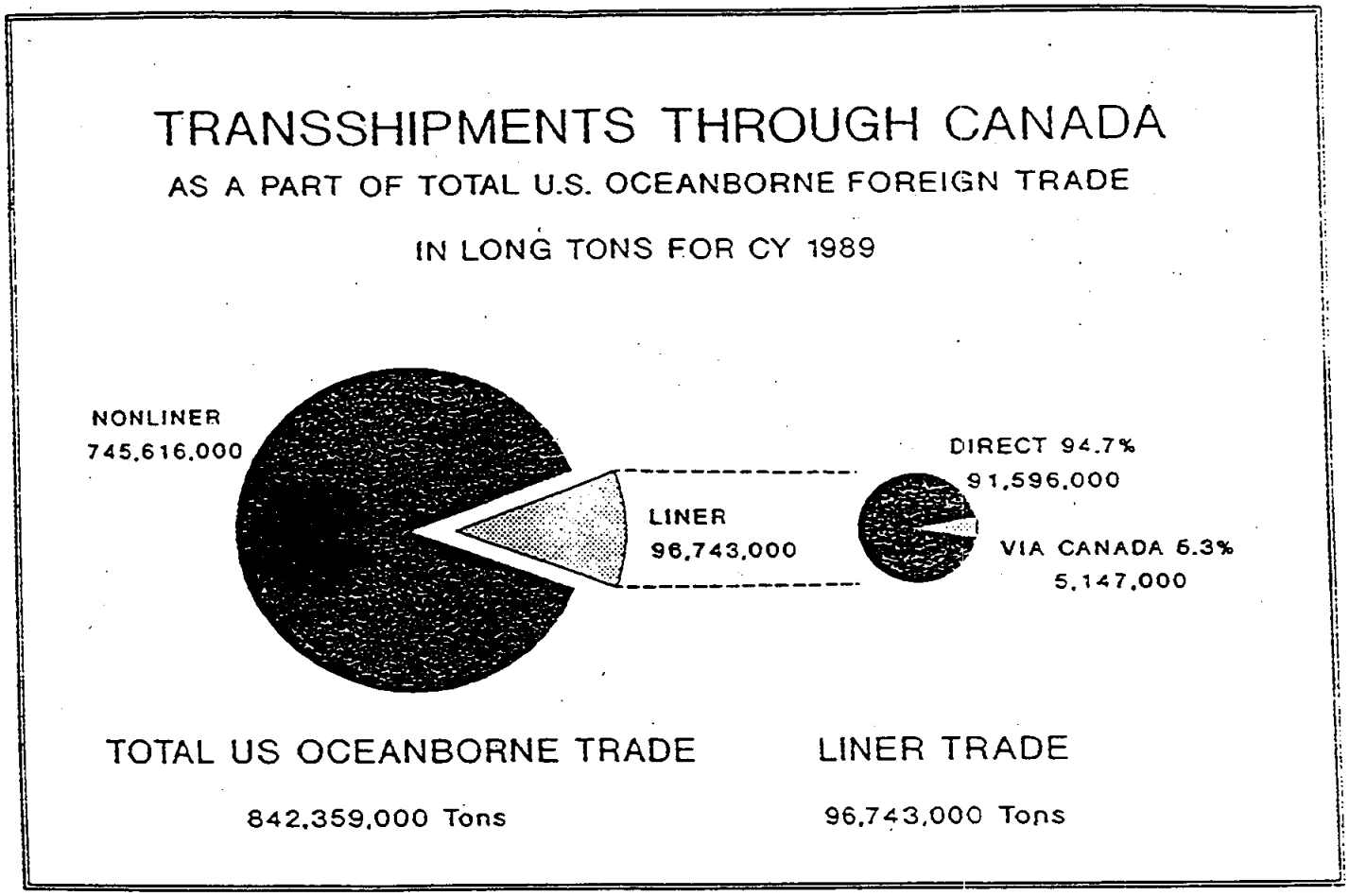
The encroachment of non-maritime urban development has all but eliminated opportunities for expansion of port facilities for many East Coast, Great Lakes and Gulf coast ports.

The port industry must address land use impediments, which center on the conflicts between non maritime versus maritime-related waterfront land uses and requirements. Three main issues play a role in waterfront land use. Primarily, land values along the waterfront are increasing due to recent commercial and residential waterfront development. Secondly, as these new land use patterns are being developed along traditional port access routes, the potential for additional traffic congestion increases. Finally, there are problems with neighborhood opposition to the port and its operations.

The Ports of Hampton Roads, New Orleans and Toledo are once again presented as representative examples of how ports are facing land use conflicts.

Figure 6-2

The Impact of Canadian Diversion on U.S. Liner Trade



The transshipping of 5.2 million tons of imports and exports through Canadian ports represents more than five percent of the total U.S. liner trade.

SOURCE: U.S. EXPORTS AND IMPORTS TRANSHIPPED VIA CANADIAN PORTS- A MARKET ANALYSIS (MARAD) 1989

The Ports of Hampton Roads, VA

Land suitable for maritime facilities is at a premium at the ports of Hampton Roads but every effort is being made to maximize land use. Construction of a state-of-the-art chassis storage system at Norfolk International Terminal (NIT) allows eighteen chassis to be stacked in the same area that would normally accommodate only two. Eleven acres of land once used for chassis storage are now available for other uses. With the addition of six new yard cranes, productivity is improved through storing up to 200 containers per acre. To further encourage efficient land use, shippers are charged a $45 transfer fee per container upon entering a Virginia Port Authority terminal gate. The fee includes up to ten days storage on the terminal and additional fees are assessed after ten days to discourage "warehousing" and encourage speedy through-put.

There are many highway/railway projects that are significant to the ports and their surrounding communities. One of these projects involves improvements to the Norfolk/Southern Railroad at-grade crossing of the Hampton Boulevard-International Terminal Boulevard intersection. Rail movements through this intersection impede local vehicular traffic as well as commercial traffic entering and exiting NIT and Sewell's Point Terminals. Norfolk/Southern Railroad operates one container train a day into and out of NIT, blocking traffic for up to twenty minutes during each movement. Port officials are concerned that access to NIT could be disrupted for two to three years while improvements to the intersection are being accomplished. As a further constraint on port operations, residents along Hampton Boulevard successfully sought night-time prohibition of through-truck movements.

Norfolk Southern's daily operation of twenty-four 200 car coal trains through the City of Suffolk block at-grade highway/rail crossings an average of twenty-eight hours per week, and the development of a rail storage area in the nearby town of Windsor will dramatically increase this level of rail traffic. Suffolk has unsuccessfully attempted to persuade the railroads to improve coordination of train scheduling thus avoiding peak hour highway congestion.

The Port of New Orleans, LA

The encroachment of non-maritime urban development has eliminated opportunities for expansion of port facilities and congested transportation arteries in the downtown river front area. The Regional Planning Commission needs to coordinate transportation and land use plans. There should be long term planning that addresses the impact of transportation development on land use and vise versa.

Since 1984, a number of downtown wharves have been removed from maritime service to accommodate a World's Fair, a Riverwalk, a Rouse Company festival marketplace, an aquarium, and a riverfront park.

Also, with the opening of property along the Tchoupitoulas Avenue, a new shopping center has been built and more commercial development is expected. However, the shopping mall and other developments have and will put additional traffic burdens on the already strained two-lane roadway.

In response to public interest in the downtown riverfront and because sufficient land is available upriver to meet the requirements of modern cargo-handling techniques, the port has begun to modernize and consolidate its riverfront facilities in an area bounded by Jackson Avenue and Audubon Park. The port's capital improvement program includes over $100 million for development in this area. As a result of this planned consolidation of facilities, the Board has identified approximately four and one half miles of riverfront property that will become available for redevelopment as capacity is replaced in the upriver area.

The Board conducted a series of public meetings with various constituent groups to develop a consensus on how to plan for development of this stretch of riverfront. The principal outcome of this exercise was the recommendation that an open and comprehensive planning process was the most important prerequisite for successful riverfront redevelopment.[10]

The Port of Toledo, OH

A master development plan known as the Maumee River Overlay was prepared in 1970 to guide the development of Toledo along the Maumee River. Toledo Lucas County Port Authority (TLCPA) endorsed the land use plan advocated by the Maumee River Overlay to ensure land use continuity, and to prevent conflict between commercial and recreational water traffic. The plan concentrates industrial facilities at the mouth of the river and consolidates warehouse facilities at the upper end of the shipping channel, above I-280. All existing commercial Maritime operations outside the designated area are allowed to remain in place but are encouraged to relocate to the upper end of the shipping channel to be developed outside of the industrial area.

Regulatory Impediments

There is a serious industry concern regarding the increase in the number of Federal, State, and local government regulatory agencies and also the lack of coordination and in some cases conflicting policies between those agencies.

There are several trends that are creating conditions of uncertainty for the port community as it plans developments to adapt to commercial needs and meet environmental standards. Over the past 20 years, Federal legislation, Executive Orders , and subsequent regulations have multiplied and created major changes in several aspects of port planning and operation. These trends include:

[10]Source: Port of New Orleans testimony: U.S. DOT Study Group on Landside Access to U.S. Ports (MARAD) 1993.

1. Federal, state, and local Government regulatory agencies have increased in number, slowing down the decision-making process.
2. Port development projects are subject to time-consuming environmental assessments, delays, and increased costs; and
3. Options for channel dredging and ocean disposal have become more restricted.

As a result, public ports cannot predict resolution of port development projects with any degree of certainty. Project costs associated with planning, construction, operation, and maintenance have increased. Port exposure to environmental liabilities has increased and has created additional financial burdens and risks.

Once again, the ports of Hampton Roads, New Orleans and Toledo are used as examples.

The Ports of Hampton Roads, VA

EPA regulations on disposal of dredge material and avoidance of wetlands areas present major hurdles when preparing plans to develop marine terminal facilities and other projects in the Hampton Roads area. Local officials acknowledge that preservation of shallow water seabeds and land areas contiguous to shorelines are priority issues for environmentalists and the general public, but are discouraged by regulatory constraints associated with these issues. Various press releases further inflamed public opposition to proposed site development plans when dredged material deposited on Craney Island was described as "sludge"[11] but when this same material was used to rebuild the Atlantic Coast resort beaches, it was called "sand".

The Customs agents in Hampton Roads search approximately 250-300 containers per month. These inspections involve roughly one-tenth of one percent of the 38,500 containers a month moved through Hampton Roads. The U.S. Department of Agriculture (USDA) probably opens more containers than Customs. As a result of stringent inspections by USDA, meat shippers transferred all their business to other ports where inspections were not as stringent.[12]

The International Longshoremen's Association conducts Federal Highway Administration (FHWA) inspections of chassis and outbound containers. For carriers that do not have sufficient chassis, the terminals maintain a neutral chassis pool. The poor maintenance of over-the-road equipment by ocean carriers creates time delays of up to two hours for motor carriers when substandard chassis are tendered to them. Motor carriers are concerned about liability for operating chassis which do not meet safety standards as well as transporting overweight containers.

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[11]The Virginian-Pilot and The Ledger-Star, "2 Cities vow to fight expansion at Craney Island", September 25, 1990.

[12]VPA testimony U.S. DOT study group on Landside Access (MARAD) 1993.

The ports of Hampton Roads support several important military installations in the surrounding area producing regulatory problems. Portsmouth Marine Terminals is approaching its limits in handling commercial and military explosives due to the rapid growth of surrounding residential areas. Movements of regular ship and vehicle traffic must also be curtailed while transportation of explosives or other hazardous materials (hazmat) is accomplished. Hazmat problems may also be encountered when the NIT dismantles the Exxon bulk petroleum storage facility to develop the land for alternative uses. Soil tests are currently being conducted.

The Port of New Orleans, LA

In the past, there were 27 inspection stations in New Orleans, and brokers would call the inspectors after the cargo had already arrived. This caused serious delays and staffing problems. Those 27 stations have been consolidated into one station at Elysian Fields now called the "Centralized Examination Station" (CES). It is located off of I-10 Elysian Fields in a central location. The CES was located off of Jefferson Highway but due to congestion there it was moved to its present location. Another regulatory problem that is common to most ports is that of overweight containers.[13] There are currently no roads in New Orleans designated for overweight traffic. Truckers have cited problems associated with the movement of these overweight containers. Specifically, the State of Louisiana does not issue permits for the movement of overweight containers, and drivers are subject to fines if caught. Truckers complained that other states, particularly on the eastern seaboard, issue specific permits for overweight containers containing international cargo. The failure of Louisiana to issue such permits hampers the truckers' ability to compete. Furthermore, the efficiency of the landside cargo movements is impeded when trucks are stopped and fined for hauling these containers. Truckers added that often containers do not exceed gross weight limitations, but, because of improper stuffing, exceed over axle weight limitations.

Another fairly common regulatory impediment involves wetland and other environmental issues. For a period of six months, the container trade in and out of the Gulf's largest port was restricted to vessels pulling drafts of less than 33 feet due to unresolved spoil disposal issues. Port officials estimated that the Port would lose up to eight percent of its container traffic because of this draft restriction. The MR-GO is the only route of access available to large vessels headed for the port's main container and public bulk terminals.[14]

The Port of Toledo, OH

The environmental impact study of widening Route 2 has taken over four years and cost over $1 million. The Buckeyes Basin highway project was halted when the Corps of Engineers (COE) issued a revised interpretation of wetlands legislation. The project is

[13]Each state has different over the road weight restrictions and regulations. Some states have designated overweight container routes others do not.

[14]Plume, Janet, "Green Issues Continue to Clash With Army Corps Dredging Plans," Journal of Commerce, June 26, 1991.

currently under review by the COE for wetlands mitigation and environmental impact and the Environmental Protection Agency (EPA) is investigating soil contamination resulting from the area's long-time use as a dumping site.

Problems of site contamination also pose significant regulatory considerations on the Millard Avenue project. Although money has been appropriated for the Millard Avenue overpass to avoid highway backups created by congestion at the CSX-NS rail-rail crossing, part of the property required for this project has been contaminated hazardous waste. These contaminants are located on a 229-acre former oil refinery.

These environmental problems have also delayed the acquisition and development of the entire parcel, which has been under review by the Toledo Lucas County Port Authority for several years. The former oil refinery, consisting of 75 acres of waterfront and 154 acres for inland property, has many attractive development features.

Although many of the environmental issues appear complex, or subject to several levels of coordination, issues can be resolved by involving regulatory agencies as early as possible in the transportation planning process.[15]

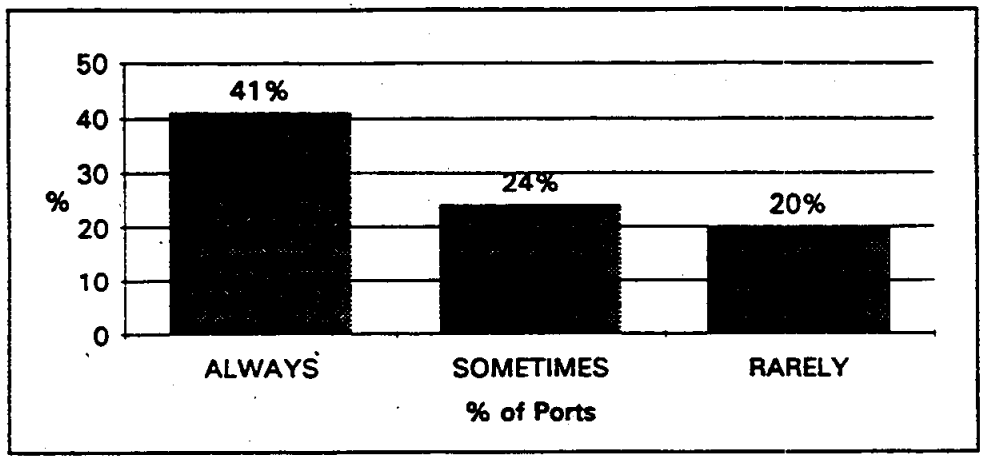
B- Institutional Impediments

Local port authorities should be provided with consistent definitions, guidelines, enforcement and application procedures among Federal and State regulatory authorities. Lack of communication among the various public and private agencies involved in waterfront development is a major institutional problem. As with many other complex policy issues, no single agency has complete authority, and different agencies pursue different, sometimes competing, objectives. Even among transportation agencies, officials at different levels of government often have different priorities. These differences are magnified when the goals and objectives of environmental agencies and environmentalists and the interests of private carriers and neighborhood groups are included.

When asked whether the state transportation department coordinates activities such as road construction with the ports, 41 percent of the ports said that the state DOT "always" provided this service, 24 percent said it "sometimes" provided the coordination, and 20 percent reported that their states "rarely" coordinated activities. ***Figure 6-3*** summarizes this information.

[15]Toledo testimony: U.S. DOT Study Group on Landside Access / U.S. ports (MARAD) 1993.

Figure 6-3
State DOT Coordination



Source: A Report to Congress on The Status of Public Ports of the United States (MARAD) Dec. 1992

The Intermodal Surface Transportation Efficiency Act of 1991 (ISTEA) places even more authority in the hands of state and local officials. This heightens the need for ports to become more active in the transportation planning process so that both local and national needs, like interstate commerce, are given full consideration in the allocation of available transportation funds.

The Act as written does not guarantee funding of improved land transportation connections to ports. It does, however, have key program provisions that afford ports the opportunity to present their access requirements to state and local transportation planning organizations for consideration and project development using partial Federal funds, based on specified criteria and demonstrated need.

Another institutional impediment facing ports involves labor contracts and their effect on operational efficiency and congestion. By operating marine terminal gates over longer hours, the port experiences a substantial increase in overall productivity and utilization of its assets as well as a decrease in congestion surrounding the port area because truck and train movements can occur during off-peak hours. In many cases, however, ports have faced a reluctance on the part of some labor union locals to extend operating hours.

Finally, there appears to be a need for regional cooperation between local and regional interest groups and stakeholders in the port and intermodal development sectors. Perhaps more formal border and regional transportation alliances need to be formed. The Federal Highway Administration (FHWA) could take the lead in building those coalitions. A summary of port related impediments is attached in ***Table 6-2***.

Table 6-2
SUMMARY OF PORT-RELATED IMPEDIMENTS

Impediment	Effects	Related Issues	Remedies
• Customs Staffing and Clearence policies	• Reduces effective port throughput and capacity • Increases transportation costs to shippers and maritime transportation providers	• Uneven staffing/work policies in different regions • Facilitation of traffic as a stated goal for FIS	• Adequate staffing at all port facilities • Incorporate cargo related objectives into FIS goals (i.e. facilitation of traffic) • Integration of enforcement requirements with private sector (i.e. EDI, providing advance information, etc.)
• Port Financing of Obsolescent Facilities	• Declining Federal, State, and local sources of funds restrict port expansion • Pressure on ports to become financially self sufficient or privatize parts of their operation	• Most taxpayers do not understand the economic benefits derived to their community from ports presence • Bonding authorities of ports are limited particularly with intermodal issues/costs	• Ports must be more aggresive in demonstrating economic benefits and return on investment to their local communities • Identify areas/operations where privatization makes sense
• Landside Access/Egress	• For many ports, the weakest link in their logistics chain is congested roads, or inadequate rail linkage to marine terminals	• Numerous at-grade rail highway crossings especially in N.E. USA • Inadequate signage on interstate highway system • Bridge/tunnel restrictions for high cube double-stack trains • Congested truck routes in residential areas • Limited rights-of-way to improve access	• Reduce number of crossings especially near port facilities • Improve signage to marine terminals • Address restrictions • Modify terminal access routes • Coordinate with rail and highway interests and authorities
• Federal harbor user fees	• Cargo is and will be diverted under certain circumstances through Canada or Mexico	• U.S. harbor maintenance taxes put Northeast ports at competitive disadvantage • Last real effort to look at diversion effects was in 1989; before latest increases went into effect	• 6015 study or follow-up should include investigation into magnitude of cargo diversion or possible diversion
• Alternative land use	• Non-maritime urban development has eliminated or restricted opportunities for expansion of port facilities	• Waterfront land values are increasing significantly • New land use patterns provide potential for added traffic and congestion • Neighborhood opposition to port operations and new facilities	• Land banking for master plan development • Better and more aggresive public relations efforts by port authorities
• Regulation/overlap	• Compliance for port planning and development becomes increasingly complex and costly	• Environmental compliance • Channel dredging and spoil disposal sites • Hazardous cargo handling	• Better coordination among regulator agencies • Consistent policies between regulatory bodies • A single agency to coordinate policy at the Federal level
• Institutional issues	• Lack of communication between public and private agencies created unneeded and costly delays (i.e. getting permits and authorizations for compliance, qualifying for funding, etc.) • Labor work rules not often conducive to port efficiency • Significant number of ports (44%) report they are only sometimes or rarely involved in state DOT issues that can affect ports (i.e. road construction, rights-of-way issues)	• Regional concerns may arise (i.e. interstate roads and rail connections) • Identify reasons for existing work rules • Intermodalism requires ports to be concerned with landside access and other related issues	• Create regional coalition or stakeholder group • Modify work rules as necessary especially for new business • More formal involvement of ports with state DOT planning process

C- Implications for Trade

The Mid-America waterways system can clearly participate in the emerging North American trade opportunities with Canada and Mexico. The comparative cost advantage of water transportation and related environmental advantages (i.e. air quality, lowered cost of pollutant control) are significant for bulk and general cargoes that normally would move via unit train services. Improvements in vessel technology have produced ships capable of using this vast Mid-America waterways system.

River-ocean (R/O) vessels now being used in Europe and Russia are gearless, commonly 450-460 feet long, 50 feet wide and draw only 11'-12' of water. They are also designed to cross open water such as the gulf of Mexico or the Great Lakes. These ships would typically transport cargoes of 3000 to 6000 tons and cost an estimated $4 million to $8 million to build.[16]

The River/Ocean market, where it exists, is a specialty (niche) market. Existing Mid-America waterway users and service providers are not oriented to R/O services. It would appear clear that if cargo commitments can be made that are conductive to general cargo/minor bulk "semi-liner" services to river ports that specialized R/O vessels would likely be deployed. The primary source of the cargo commitments would be shippers and to a lesser extent ports who were able to identify and promote the savings of R/O services to key users.

The geographic scope of the River/Ocean market would most likely be on the Lower Mississippi River. However, a substantial volume of high value manufacturing that occurs in this area is located in close proximity to the river. Therefore, existing or potential distribution centers adjacent to the river, such as Memphis, would be ideal staging grounds for R/O services in terms of providing threshold volume commitments.

The R/O vessels have sufficient economies to serve small volumes of general cargoes, including containers and minor bulk especially in a region with limited and costly transportation alternatives. The R/O service is viable on a least total cost comparative analysis in the Lower Mississippi River. Relatively modest cargo requirements would be sufficient to anchor a port specific and/or shipper specific "semi-liner" scheduled service. These cargoes could be supplemented by other high value shipments of used vehicles, machinery, etc.

R/O service could also be viable with an adroit combination of cargoes and markets. For example, very high value alloy steel from Pittsburgh could provide the threshold volume to sustain a fixed number of Ohio River calls to the Yucatan that would be supplemented by other key cargoes and ports on the lower portions of the river for service to Central Mexico via Veracruz.

[16] Source: LSU Port and Waterways Institute Survey (1993)

The River/Ocean competitive cargo requirements to sustain viability are very modest relative to other vessel technologies and competing modes of transportation. The more disadvantaged the Mexican markets relative to distance from the U.S. via rail, the more competitive and larger the size of the U.S. and Mexico hinterland. R/O service will be attractive to an entrepreneurial vessel operator looking for a new market and induced by shipper or third party interests. The nature of the inducement would be commitments of cargo. For example, a Lower Mississippi River port that attracted a block of containers and some neobulk could take the lead to induce R/O general cargo semi-liner service. This could be used to elicit other freight effectively spreading the costs of R/O services over more units of cargo.

Navigation by short sea vessels is also technically feasible. The United States has a larger fleet of ocean-going barges and more extensive experience with their operation than many other countries. These vessels are concentrated on domestic coastal and short-sea trade (i.e. Caribbean Basin) and are chiefly liquid and dry bulk carriers, although there are also container, neo-bulk, break-bulk, and RO-RO highway trailer carriers. There are, however, limited short-sea services for the Mid-America Waterway System.

There are also a variety of barge designs to allow transport of more than one commodity or commodity type on the same ocean-going barge or barge unit. These vessels are of interest because, as trade increases, the variety and volumes of products available between origin-destination pairs increases the opportunities of locating backhauls, which is a key factor in determining the feasibility of water transport.

Ocean barge services also exist in Japan, other Far East countries, and in Venezuela. They handle principally petroleum, limestone, cement, coal, iron ore, steel, coke, and lumber. Sizes vary widely, including: (1) units separable into four 300-500 dwt barges, each deliverable by a small pusher tug; (2) deep notch push-tow units from 8,000 to 12,000 dwt; and (3) deep notch tanker barges of 37,000 dwt and 7,200 horsepower tugs.

Port cargo handling is an important cost factor of the total point-to-point transport cost and it might also be an important advantage of the short-sea services. The short-sea service, unlike other water-related systems, can use shallow-draft ports. These ports can be located on the Gulf, Atlantic coast, and the Great Lakes, corresponding with secondary ports in Mexico, Central America and other countries avoiding the congestion of the major (and expensive) deep-draft ports. New port activities can also trigger economic development of the ports' hinterlands, especially for industries which process the bulk and neo-bulk cargoes hauled by the proposed short-sea services.

Economic benefits from the use of short-sea vessels include: (1) accommodation of increased trade with less major investment needed for infrastructure for new berths, breakwaters, etc., in either U.S. or foreign ports; (2) decrease in congestion in deep-water ports; (3) decrease in point-to-point transfer costs; (4) decrease in charges to some users due to use of shallow draft ports; and (5) provide direct water transport access to areas and ports with

limited volume of shipments which require most expensive transport alternatives such as trucking and sometimes even air.

A market for general cargo/minor bulk shipments exists that could be successfully served by R/O vessels or short sea barges. Conventional land-water services currently employed in this region typically involve transporting cargo by truck or rail to a major coastal port and then transfer to a deep-draft vessel with liner service to Mexico, Central America, Columbia, Venezuela, or one of the Caribbean island countries. Conventional shipping, especially for large scale shipments of bulk cargoes and with the established liner service schedules, is still a preferred choice of most shippers.

The extent of the market in terms of penetration of the Mid-America region via the Mississippi River is defined primarily by relative value of the commodity as it relates to the pricing structure for the alternative mode of transportation, and the rail distance of the destination from the U.S. border. The value of the commodity with respect to its transportation characteristics is a critical parameter affecting the viability of an alternative vessel bulk service on the Mississippi River. R/O service to the Yucatan via Progreso would be more competitive with direct (Mexican) rail service from the U.S. border crossing than service to Central Mexico in the vicinity of Mexico City via Veracruz.

7. PUBLIC PORT DEVELOPMENT AND FINANCING

The development of public port infrastructure in the United States over the last four decades has paralleled the expansion of international trade since the end of World War II. The U.S. public port industry has invested $11.8 billion in capital improvements during this period for the construction of new facilities and the modernization and rehabilitation of existing facilities. ***Table 7-1*** below summarizes these historical expenditures by port region.

Table 7-1
U.S. Port Capital Expenditures for 1991 - 1946
(Thousands of Dollars)

Region	Expenditures	Percent
North Atlantic	$2,922,859	24.6%
South Atlantic	$1,587,457	13.4%
Gulf	$2,402,187	20.3%
South Pacific	$2,666,800	22.5%
North Pacific	$1,325,997	11.2%
Great Lakes	$488,078	4.1%
AK, HI, PR, and VI*	$342,102	2.9%
Guam, Saipan	$122,457	1.0%
Total	$11,857,947	100.0%

* Alaska, Hawai, Puerto Rico, & Virgin Islands
Source: United States Port Development Expenditure Report USDOT (MARAD) March 1993.

A- Port Capital Improvements

During the 1970's and first half of the 1980's public port expenditures for capital improvements sustained average annual increases of 5%-7% as the port industry was rebuilding terminal infrastructure and adding equipment to respond to containerization. By the end of the 1980's and into the economically troubled early 1990's, capital investment had slowed and even showed negative growth. ***Table 7-2*** highlights this trend from 1988 through 1991.

This more recent trend also shows that certain port regions have declined in relative investment in infrastructure (i.e. North Atlantic and Great Lakes regions) while other regions have expanded their relative investment base (i.e. Gulf and Pacific coast regions). Nevertheless, the annual rate of increase in port development expenditures has slowed significantly in recent years, and in constant dollars was lower in 1991 than in 1988.

Table 7-2
U.S. Port Capital Expenditures for 1991 - 1988
(Thousands of Dollars)

Region	1991		1990		1989		1988	
	Expenditures	Percent	Expenditures	Percent	Expenditures	Percent	Expenditures	Percent
North Atlantic	$124,399	18.2%	$116,365	17.4%	$155,981	22.6%	$178,370	26.0%
South Atlantic	$109,639	16.1%	$169,303	25.3%	$146,355	21.2%	$135,569	19.8%
Gulf	$156,091	22.9%	$97,669	14.6%	$97,122	14.1%	$82,098	12.0%
South Pacific	$206,406	30.3%	$209,906	31.4%	$149,279	21.7%	$176,417	25.8%
North Pacific	$84,851	12.4%	$60,402	9.0%	$106,142	15.4%	$75,010	11.0%
Great Lakes	$653	0.1%	$4,271	0.6%	$2,569	0.4%	$830	0.1%
AK, HI, PR, and VI*	–	–	$10,177	1.5%	$16,971	2.5%	$23,113	3.4%
Guam, Saipan	–	–	–	–	$14,799	2.1%	$13,356	2.0%
Total	$682,039	100.0%	$668,093	100.0%	$689,218	100.0%	$684,763	100.0%
Annual Change		+2.1%		-3.1%		+0.6%		

* Alaska, Hawai, Puerto Rico, & Virgin Islands
Source: United States Port Development Expenditure Report USDOT (MARAD) March 1993.

Capital Improvements By Type And By Facility

Port improvements have generally two broad categories - new construction and modernization or rehabilitation (M&R) of existing facilities. During 1991, expenditures for new construction accounted for 67.6 percent of the identifiable port expenditures. Among the three cargo type categories, specialized general cargo facilities represented 54.7 percent of the new construction and 26.8 percent of M&R expenditures. Bulk cargo expenditures accounted for 9.4 percent of the new construction and only 5% of the M&R expenditures. General cargo investments were 10% of new construction and 18% of M&R improvements. ***Table 7-3*** on the following page summarizes these expenditures by port region.

General Cargo Investment represents 12.1 percent of all 1991 expenditures with bulk and "other" totaling 7.6% and 31.9%. The Gulf region accounted 55.8% of the general cargo and 31.5 percent of the bulk facility investment.

Table 7-3
U.S. Port Capital Expenditures by Type of Expenditure and Facility - 1991
(Thousands of Dollars) 1/

Region	New Construction								
	Genl. Cargo	Percent	Specialized Genl. Cargo	Percent	Bulk	Percent	Other	Percent	TOTAL
North Atlantic	1,109	2.5%	44,951	19.1%	13,404	32.9%	6,714	6.2%	66,178
South Atlantic	11,526	25.7%	28,253	12.0%	940	2.3%	40,163	36.9%	80,882
Gulf	28,453	63.3%	25,974	11.1%	11,373	27.9%	21,369	19.6%	87,169
South Pacific	2,380	5.3%	118,793	50.6%	2,786	6.8%	38,391	35.3%	162,350
North Pacific	1,457	3.2%	16,818	7.2%	12,220	30.0%	2,187	2.0%	32,682
Great Lakes	–	–	–	–	–	–	–	–	–
AK, HI, PR, and VI*	–	–	–	–	–	–	–	–	–
Guam, Saipan	–	–	–	–	–	–	–	–	–
Total	$44,925	100.0 %	$234,789	100.0 %	$40,723	100.0 %	$108,824	100.0 %	$429,261
Percent of Type		10.5%		54.7%		9.5%		25.4%	

Region	Modernization/Rehabilitation								
	Genl. Cargo	Percent	Specialized Genl. Cargo	Percent	Bulk	Percent	Other	Percent	TOTAL
North Atlantic	11,231	30.0%	10,912	19.8%	5,949	53.2%	30,129	29.6%	58,221
South Atlantic	5,802	15.5%	1,079	2.0%	233	2.1%	2,731	2.7%	9,845
Gulf	17,480	46.7%	2,275	4.1%	2,173	19.4%	43,737	42.9%	65,665
South Pacific	1,429	3.8%	33,737	61.2%	1,087	9.7%	7,803	7.7%	44,056
North Pacific	843	2.3%	7,132	12.9%	1,746	15.6%	17,515	17.2%	27,236
Great Lakes	653	1.7%	–	–	–	–	–	–	–
AK, HI, PR, and VI*	–	–	–	–	–	–	–	–	–
Guam, Saipan	–	–	–	–	–	–	–	–	–
Total	$37,438	100.0 %	$55,135	100.0 %	$11,188	100.0 %	$101,915	100.0 %	$205,676
Percent of Type		18.2%		26.8%		5.4%		49.6%	

1/ Excludes expenditures of $47,102,000 for which there were no facility type break down by new construction and modernization/rehabilitation.
* Alaska, Hawaii, Puerto Rico, & Virgin Islands.
Source: United States Port Development Expenditure Report USDOT (MARAD) March 1993.

Table 7-4 on the following page summarizes total improvement investments by type of facility for 1991.

Table 7-4
U.S. Port Capital Expenditures by Type of Facility - 1991
(Thousands of Dollars)

Region	Total Construction								
	Genl. Cargo	Percent	Specialized Genl. Cargo	Percent	Bulk	Percent	Other	Percent	TOTAL
North Atlantic	12,340	15.0%	55,863	17.0%	19,353	37.3%	36,843	17.0%	124,399
South Atlantic	17,328	21.0%	45,949	14.0%	1,173	2.3%	42,894	19.8%	107,344
Gulf	45,933	55.8%	28,249	8.6%	13,546	26.1%	68,363	31.5%	156,091
South Pacific	3,809	4.6%	152,530	46.4%	3,873	7.5%	46,194	21.3%	206,406
North Pacific	2,300	2.8%	45,883	14.0%	13,966	26.9%	22,702	10.5%	84,851
Great Lakes	653	0.8%	–	–	–	–	–	–	653
AK, HI, PR, and VI*	–	–	–	–	–	–	–	–	–
Guam, Saipan	–	–	–	–	–	–	–	–	–
Total	$82,363	100.0 %	$328,474	100.0 %	$51,911	100.0 %	$216,996	100.0 %	$679,744
Percent of Type		12.1%		48.3%		7.6%		31.9%	

The American Association of Port Authorities (AAPA) annually surveys its members on current and future (i.e. anticipated) capital expenditures. ***Table 7-5*** summarizes the top ten U.S. ports ranked by total improvements made during 1991. This summary also reveals how concentrated port infrastructure investment has become with the 10 ports listed accounting for more than two thirds (67.9%) of total U.S. port expenditures of $682,039,000 during 1991. Of the top ten port authorities listed, five were located on the West Coast, three on the East Coast, and two on the Gulf Coast.

Table 7-5
Leading Port Authorities for 1991 by Total Capital Expenditures
(Thousands of Dollars)

Rank	Port	Expenditures
1	Port of Los Angeles	$89,220
2	Port Authority of New York/New Jersey	$73,194
3	Port of Long Beach	$71,921
4	Port of Beaumont	$46,504
5	Port of Oakland	$37,127
6	Port Everglades Authority	$32,803
7	Port of Seattle	$32,000
8	Port of Houston	$31,847
9	Port of Tacoma	$24,933
10	Port of Miami	$24,123
	Total Top Ten Ports	$463,672
	Total Expenditures	$682,039
	Percent of Total	67.9%

Source: AAPA Annual Port Expenditure Survey (Spring 1993).

Proposed Capital Expenditures - 1993 to 1998

The annual AAPA capital expenditure survey also includes projected expenditures for 1993 through 1998. *Table 7-6* summarizes these proposed expenditures by coastal region. As shown in the following table, expenditures are forecasted to reach $5.5 billion during this period.

Table 7-6
U.S. Port Capital Expenditures for 1993 - 1998
(Thousands of Dollars)

Region	Expenditures	Percent
North Atlantic	$649,898	11.8%
South Atlantic	$1,151,248	20.9%
Gulf	$723,178	13.1%
South Pacific	$2,065,863	37.4%
North Pacific	$811,631	14.7%
Great Lakes	$60,373	1.1%
AK, HI, PR, and VI*	$57,000	1.0%
Guam, Saipan	$48	0.0%
Total	$5,519,239	100.0%

* Alaska, Hawai, Puerto Rico, & Virgin Islands

Capital Expenditures - New Construction vs. Modernization/Rehabilitation

Table 7-7 highlights the 1993-1998 capital investments by type of expenditure and facility. The proportion of future expenditures related to new construction amounts to 78.8% of the identifiable expenditures. For new construction, specialized general cargo accounts for 52.2%. Specialized general cargo expenditures also led M&R expenditures with 42.1%.

Forecasted new construction expenditures were led by the South Pacific region with $1.8 billion (43.2%) followed by the South Atlantic region with $1.1 billion (25.8%). The North Atlantic region led M&R expenditures with $352.2 million (31.1%) with the South Pacific region at $244.8 million (21.6%).

Table 7-7
U.S. Port Capital Expenditures by Type of Expenditure and Facility for 1993 - 1998
(Thousands of Dollars) 1/

Region	New Construction								
	Genl. Cargo	Percent	Specialized Genl. Cargo	Percent	Bulk	Percent	Other	Percent	TOTAL
North Atlantic	63,920	15.1%	206,913	9.4%	–	–	20,639	1.5%	291,472
South Atlantic	95,427	22.5%	852,372	38.8%	–	–	140,818	10.5%	1,088,617
Gulf	204,729	48.3%	130,661	5.9%	66,045	26.4%	141,136	10.5%	542,571
South Pacific	26,484	6.2%	689,410	31.4%	167,073	66.8%	938,083	70.0%	1,821,050
North Pacific	16,485	3.9%	317,315	14.4%	17,100	6.8%	91,590	6.8%	442,490
Great Lakes	–	–	–	–	–	–	–	–	–
AK, HI, PR, and VI*	17,000	4.0%	–	–	–	–	7,000	0.5%	24,000
Guam, Saipan	–	–	–	–	–	–	–	–	–
Total	$424,045	100.0 %	$2,196,671	100.0 %	$250,218	100.0 %	$1,339,266	100.0 %	$4,210,200
Percent of Type		10.1%		52.2%		5.9%		31.8%	

Table 7-7 (Continued)

Region	Modernization/Rehabilitation								
	Genl. Cargo	Percent	Specialized Genl. Cargo	Percent	Bulk	Percent	Other	Percent	TOTAL
North Atlantic	121,767	35.6%	176,580	37.0%	6,654	5.9%	47,202	23.6%	352,203
South Atlantic	35,225	10.3%	9,850	2.1%	–	–	15,261	7.6%	60,336
Gulf	64,113	18.8%	30,980	6.5%	16,926	15.0%	65,468	32.7%	177,487
South Pacific	16,420	4.8%	110,678	23.2%	73,879	65.5%	43,836	21.9%	244,813
North Pacific	13,865	4.1%	148,596	31.2%	15,154	13.5%	25,390	12.7%	203,005
Great Lakes	60,373	17.7%	–	–	–	–	–	–	60,373
AK, HI, PR, and VI*	30,000	8.8%	–	–	–	–	3,000	1.5%	33,000
Guam, Saipan	–	–	–	–	–	–	–	–	–
Total	$341,763	100.0 %	$476,684	100.0 %	$112,613	100.0 %	$200,157	100.0 %	$1,131,217
Percent of Type		30.2%		42.1%		10.0%		17.7%	

1/ Excludes expenditures of $47,102,000 for which there were no facility type break down by new construction and modernization/rehabilitation.
* Alaska, Hawaii, Puerto Rico, & Virgin Islands.
Source: United States Port Development Expenditure Report USDOT (MARAD) March 1993.

Once again, a high concentration of forecasted future port improvements (73%) are with the top 10 ranked ports shown in **Table 7-8** on the next page.

Table 7-8
Leading Port Authorities for 1993-1998
By Total Capital Expenditures
(Thousands of Dollars)

Rank	Port	Expenditures
1	Port of Long Beach	$962,759
2	Port of Los Angeles	727,382
3	Port of Seattle	520,900
4	Port of Miami	402,859
5	Port Authority of New York/NJ	346,433
6	Georgia Ports Authority	319,000
7	Port of Houston	224,190
8	Jacksonville Port Authority	211,700
9	Port of Tacoma	166,136
10	Port of Oakland	158,325
	Total Top Ten Ports	$4,039,684
	Total Expenditures	$5,519,239
	Percent of Total	73.2%

Source: AAPA future port expenditure survey (March 1993).

Of these top 10 ports reporting future infrastructure improvements five were located on the West Coast, four on the East Coast, and one on the Gulf Coast.

B- PORT IMPROVEMENT: CASE HISTORIES

New Orleans, LA.

Recent completed projects include site preparation for the Nashville Avenue Terminal Complex. When finished, the complex will encompass 3,150 linear feet of heavy-duty wharf and 32 acres of marshaling area between the Nashville and Napoleon Avenue wharves. Offering about 141,000 square feet of new shedded area, the Nashville Avenue Terminal Complex is designed to be a multipurpose development, with container crane capabilities and rail service at the front and rear of the wharf.

The complex will link two of the Port's busiest wharves, Nashville Avenue and Napoleon Avenue, into one super terminal. Completion of the first wharf and shed is targeted for August 1993 and total construction at the site should be complete by April of 1995. The new dock connecting the Nashville and Napoleon Avenue wharves will create a continuous quay stretching from the Henry Clay Avenue Wharf to the Milan Street Wharf, a distance of over two miles.

Also completed during 1993 was the Harmony to Louisiana connecting wharf designed to bridge the gap between the Harmony Street and Louisiana Avenue wharves. The link makes it easier for one operator to use both facilities and creates additional berthing space. The Harmony Street-First Street Terminal is being developed to meet the special needs of steel and neobulk freight.

The Jourdan Road RO/RO facility was also finished, as well as some portwide terminal improvements. Overall, $1.4 million in portwide improvements, consisting of road, access, signage and landscaping projects, are planned to be finished during 1993.

The corridor project is a joint venture between the city of New Orleans and the Port and is designed to improve the flow of traffic to and from the Port's wharves. the project will create additional lanes exclusively for Port-related traffic.

The Napoleon Avenue downstream extension project, which will extend the wharf 200 feet out into the Mississippi River, is under way with the completion of the geotechnical investigation as well as the test pile design. Construction on this project - which has been moved up in anticipation of relinquishing control of downtown wharves - is set to begin in July 1993.

The Louisiana Avenue terminal improvements include tearing down the existing shed and building a larger one, plus additional paving in the area. Seventy-five percent of the design is finished and construction of the shed should start in September 1993. The Louisiana Avenue Multipurpose Terminal is being remodeled to make it more attractive to ocean carriers handling container, breakbulk and neobulk cargoes.

Also under way are portwide railroad track improvements, which are part of the Strategic Rail Plan. In conjunction with the $1 million railroad track enhancements, electronic data interchange (EDI) and rail car management systems are currently on line and undergoing refinement.

Construction of a proposed intermodal container transfer facility (ICTF) is also being examined. The ICTF would help centralized the Port's dynamic intermodal activities to ensure faster, more effective and more efficient movement of cargo via New Orleans.

Other capital improvement projects that have reached the design stages include plans for a new board office building and improvements totaling $14 million to the France Road roadway whose entrance to the intermodal area on the north end is 90 percent complete.

New ventures proposed include the Central Business District river front development and a series of improvements in anticipation of the introduction of riverboat gaming. Riverfront development includes construction of a temporary cruise terminal, to be located at the Julia Street Wharf. Port staff has finalized negotiations

with the cruise line and has begun terminal design. Parking lot construction is due to start in the Fall.

The Cold Storage Facility is another project addition. Site and cost analysis, as well as a time study on the development of the on-dock cold storage warehouse, have been completed.

Jacksonville, FL

The Jacksonville port authority has begun a $206 million acquisition and development plan for up to 3000 acres for deep water port facilities that would compliment JAXPORT's existing 1,040 acre port terminal complex.

All tracts of land under consideration for port expansion are attractive because all are slated to port development under the city's comprehensive master plan. All are easily accessible by rail and highway, and all should benefit from the proposed plan to deepen the harbor from 38 feet to 42 feet. The feasibility study for the harbor deepening project - the first step towards actual dredging - has been fully funded by the Federal Government.

In addition, an area-wide Development of Regional Impact (DRI) study is nearing completion for Blount Island and Dames Point, and a DRI is underway for the area around Talleyrand Dock & Terminals.

The three areas of the Jacksonville harbor targeted for development include the following:

- Approximately 1,094 acres on the eastern half of Blount Island, which JAXPORT does not currently own.

- Approximately 900 acres surrounding Talleyrand Docks & Terminals. The Talleyrand re-development area is bordered by the St. Johns River, the approach to the Mathews Bridge, the Haines Street Expressway and 21st Street. The area would be converted to port terminal facilities, light manufacturing, warehousing and distribution.

Engineering and design work would begin concurrent with property acquisition, probably in the second quarter of 1993, and construction would begin soon after that.

Additional property not acquired immediately, will be developed in phases from the port's existing revenue stream, which will be augmented in future years by the port's share of the city's telecommunications excise tax.

The port has also purchased two new 40 ton Panamax container cranes for their Talleyrand container handling terminal. These cranes due for delivery in late 1993, early 1994 will give JAZPORT a total of nine containers cranes.

Port of Houston, TX

The port facilities include four public terminals and a 44 berth Turning Basin with a depth of 38 feet, as well as a significant number of private terminals. Among the public terminals are: the bulk plant that handles primarily export bulk materials with the major cargo being pet coke for export, and Jacinto Port which handled bagged and boxed goods. Public facilities also include Barbours Cut, the container terminal located half way up to the Houston Ship Channel, 25 miles from the Gulf. When fully constructed, this terminal will have six berths and 12 container cranes. The fourth public terminal is Bay Port. This facility will be developed after the completion of Barbours Cut and is anticipated to begin by 1996.

The Port of Houston is a 25-mile-long (40-kilometer) complex of diversified public and private facilities just a few hours' sailing time from the Gulf of Mexico. Houston's location makes it an ideal gateway between interior U.S. markets and foreign countries throughout the world.

Existing facilities offer shippers deep-water access to world markets and a direct link to 14,000 miles (22,400 kilometers/12,180 nautical miles) of U.S. intracoastal and navigable inland waterways. Four major railroads and more than 120 trucking lines connect the port to the continental United States, Canada, and Mexico. Air service is also easily accessible through two major public airports and dozens of private terminals.

Ample space and favorable conditions for industrial development as well as for cargo handling make Houston an attractive location for industry. Private companies have invested more than $17 billion in manufacturing and processing facilities along the Houston Ship Channel since 1975.

The Port is adequately served by rail, highway and pipelines. The only significant physical impediment in the Houston port area involves the planned highway access enhancement project over the Houston Ship Channel. This project is part of Texas Department of Transportation's overall plan for the Grand Parkway. The problem involves the bridge on State Highway 146 connecting it to State Highway 225. The Port would like a clearance of 28-30 feet because there are a number of oversized loads moved into this area by truck. Port officials were advised that raising the clearance from the planned 16.5 feet to 30 feet would increase the cost $7-$8 million dollars.

Currently there are plans to widen the Ship Channel to 530 feet and increase its depth to 45 feet in order to handle the increasing size of ocean ships, but, addressing the dredging and other environmental issues are delaying this project.

Port of Baton Rouge, LA

The following is a summary of recently completed port related improvements along with proposed additions through 1993. Substantial funding comes from the Louisiana State Transportation Trust Fund.

Funding Year	Project	DOTD Share	Port Share	Total
1990-91	62,000 sq.ft. Transit Shed Ext.	$3,525,000	0	$3,525,000
1990-91	Westway Trading Molasses Term. Renovation I	350,250	116,750	467,000
1991-92	" " " Phase II	842,175	280,725	1,122,900
Proposed				
1991-92	Dock Access Impr	2,100,000	0	2,100,000
1992-93	Water Sys. Rehab	501,996	167,332	669,328
TOTAL		$7,319,421	$564,807	$7,884,228

The port has also proposed an Inland River Marine Terminal on the Intercoastal Canal that will provide slack water barge loading/unloading facilities for the handling and open storage of bulk cargoes. The terminal will also serve as a facility for barge, tug boat and equipment repair.

Through the construction of the Inland Rivers Marine Terminal, the port also hopes to strengthen its link as a sister port of the Port of Alexandria. The link is particularly important for the movement of forestry products, such as logs and wood chips, from north Louisiana to an export port. If the terminal is constructed, the Port of Greater Baton Rouge and the Port of Alexandria will be in a better position to cooperate and jointly market their facilities to forestry product companies, since open storage facilities would be available to accommodate the needs of the shippers.

Virginia Port Authority, VA

Newport News Marine Terminal

Currently underway is a 186-foot extension of the north berth of Pier C at Newport News Marine Terminal at a cost of $5,651,500 to handle vessels up to 1,000-

feet in length. Further work on Pier C includes modification of the transit sheds to provide for more productive materials handling at a cost of $1,000,000.

Also, Pier 8 will be moved and the sheetpiling/bulkheading between Pier C and the adjacent property will be rebuilt at a cost of $1,000,000. Paving, drainage, and lighting of 35 additional acres of cargo storage area was recently completed at a cost of $10,793,500.

The completion of these projects will finalize the development of the property owned by the VPA at this terminal.

Norfolk International Terminals

The Virginia Port Authority has acquired 300 acres north of this terminal. Approximately $400 million will be spent to develop this property. The rail yard on this property will be realigned for greater efficiency. This terminal has direct connection with Norfolk Southern Railroad, which brings two Midwest intermodal trains in daily, as well as a double-stack train in daily for loading and unloading.

Portsmouth Marine Terminal

A $34 million expansion program is underway at this terminal. The terminal's marginal pier will have 1,000 feet of berth space added, and will connect with the Sea-Land pier. A container crane has been purchased. Also, 35 acres of land is being created by bulkheading and filling a portion of property along the east waterfront area.

Port of Galveston, TX

Galveston operates most of its facilities as a landlord, and is trying to put as much back into private hands as possible. The port owns and operates for-hire public wharves, transit sheds, open and covered storage facilities, warehouses, and freight handling facilities. The port leases land facilities to other tenants.

Facilities at the Port Galveston include: a terminal railroad, warehouse and storage facilities, a container terminal, a banana terminal, a raw sugar terminal, a project cargo terminal, two grain elevators (one operated by the port and one private), a liquid bulk terminal and a private export sulfur terminal. A number of small boat berths, several restaurants and retail seafood shop, a waterfront development area known as the "window to the waterfront" for Galveston's citizens and tourists, and a cruise ship terminal complete the tourist-related projects located on the Galveston waterfront.

Because of terminal operating hours, there is a concentration of container truck traffic in the morning and after lunch. At times, these trucks are backed up from 9th Street all the way to 22nd Street. In the morning, the container terminal opens at 8:00 a.m. and the waiting line of trucks starts well before then, sometimes even before

daylight. This creates a very hazardous situation, especially when combined with the traffic that is generated from the local medical center.

As a solution to this problem, a project is being studied to develop a fly-over to the Causeway. This would provide a direct connection to and from the container terminal, eliminate four at-grade crossings and improve traffic flows. The study includes widening the Causeway and the "Y" where I-45, and State Highways 6, 146, and Loop 197 come together, about 15 miles north of Galveston.

The study, currently called the Galveston Highway Mobility Plan, was initiated by the state highway department. Currently, the Causeway are three lanes with narrow shoulders. In the new project, there will be four lanes on each Causeway, complete with shoulders, extending about 15 miles north to the "Y". To access the port, traffic must take the Causeway to 81st Street and then cut over to Port Industrial Boulevard. The estimated cost of this project is $38 million to widen the causeways, $5 million to build connector to the "Y", $24 million for Offatts Bayou crossing and $6 million for the flyover to Port Industrial Boulevard.

The plan would eliminate four at-grade rail crossings and the dangerous turn needed to access the Causeway. With this new flyover, safety would be improved. In addition to the removal of the at-grade crossings, a better and safer hazmat route would be created, and in the event of a hurricane or other emergency requiring evacuation, traffic flows would be improved.

Port of Mobile, AL

The State Docks' facilities at the Port of Mobile include 26 general cargo piers where various types of cargo are handled on a regular basis; a container port operation for shippers utilizing intermodal services; a RO/RO berth to accommodate Roll On/Roll Off vessels; a Bulk Materials Handling Plant to move both import and export bulk ores, coal and coke; the biggest export coal operation on the U.S. Gulf; and a large Grain Elevator operation.

Management at the State Docks is working to upgrade and improve the port complex. New facilities under development include a 175,000-square-foot forest products terminal, a steel and heavy lift operations berth, and a rubber-receiving facility.

Additional covered warehouse space is to be added at the State Docks during the next two years. Construction will begin soon on two warehouses that will total nearly 250,000 square feet. Property clearing is in progress and site preparation should begin mid-year.

To be located at Berth E, the 126,000-square-foot twin building will face each other. They will be separated by a 47,000 square foot marshaling area and will

adjacent to a new 400-foot pier. Berth E is the area north of the grain elevator and just south of the Bulk Material Handling Plant. Cost of the new project is estimated to be $21.5 million.

A new 153,000-square-foot warehouse, with a new 500-foot pier, has been opened on Blakeley Island, which is across Mobile River from the main docks complex, at a total cost of $8.5 million. An existing warehouse was reworked in order to handle steel at a cost of more than a quarter of a million dollars. Railroad tracks and facilities have been upgraded and reworked and environmental projects have been completed.

A 21-acre site adjacent to the new Blakeley Terminal has been purchased for future expansion. The Docks now owns 1,400 feet of waterfront on that side of the Mobile River. All of it is near the Federal Turning Basin.

In addition, the Docks owns about 650 acres of property available for development at Theodore Industrial Park. Many industries have located there, including DeGussa and Kerr-McGee, and there is a turning basin and ship channel that accommodates ocean-going vessels. CSX provides rail service to the park.

C- FUNDING SOURCES FOR PORT IMPROVEMENTS

In two previous AAPA surveys on principal financing methods used by U.S. public ports (1973-1978 survey, 1979-1989 survey - results shown below) a clear trend to more self-efficiency, could be seen through the reliance of port generated revenues to support expansion.

Figure 7-1

Principal Financing Methods

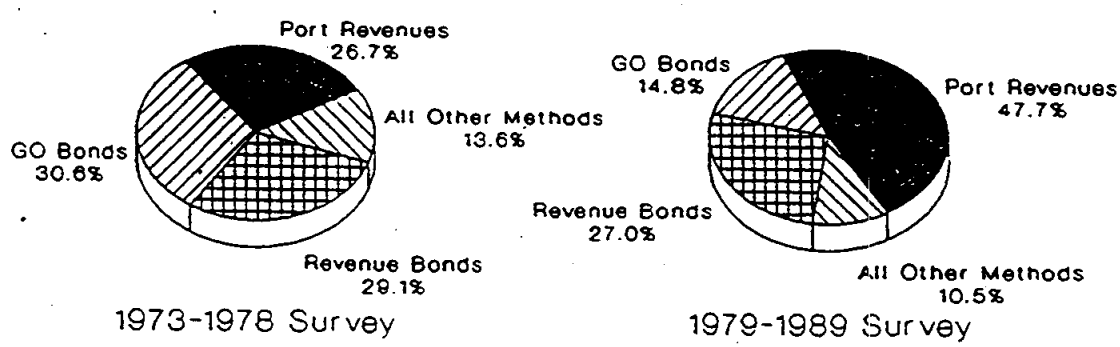


Table 7-9 summarizes facility expenditures by financing method used by U.S. ports during 1991. Port revenues still accounted for 47% of funding with revenue bonds accounting for 20.5% and general obligation bonds as the third most likely source at almost 16%. The use of funding mechanisms, however, varies considerably within port regions (i.e. Gulf and South Atlantic ports used direct loans much more frequently to expand).

Table 7-9
U.S. Port Capital Expenditures By Types Of Financing Method -1991
(Thousand of Dollars) 1/

Facility Financing Methods

Region	Port Rev.	Pct.	G/O Bonds	Pct.	Rev. Bonds	Pct.	Loans	Pct.	Grants	Pct.	Other	Pct.	Total
North Atlantic	61,950	20.2%	2,586	22.0%	22,567	17.0%	–	–	13,330	40.3%	3,966	8.2%	124,399
South Atlantic	13,756	4.5%	5,338	14.9%	53,322	40.1%	16,404	60.5%	3,299	10.0%	7,520	15.6%	109,639
Gulf	73,657	24.1%	4,076	42.9%	5,160	3.9%	8,468	31.2%	6,280	19.0%	18,450	38.3%	156,091
South Pacific	28,659	42.9%	1,434	1.4%	50,926	38.3%	2,237	8.3%	4,958	15.0%	18,192	37.8%	206,406
North Pacific	27,880	9.1%	9,263	18.8%	1,052	0.8%	–	–	4,656	14.1%	–	–	52,851
Great Lakes	117	0.0%	–	–	–	–	–	–	536	1.6%	–	–	653
AK,HI,PR,VI	–	–	–	–	–	–	–	–	–	–	–	–	–
Guam, Saipan	–	–	–	–	–	–	–	–	–	–	–	–	–
Total	$306,019	100.0%	102,697	100.0%	133,027	100.0%	$27,109	100.0%	$33,059	100.0%	$48,128	100.0%	$650,039
% by Funding Source		47.1%		15.8%		20.5%		4.2%		5.1%		7.4%	

1/ Excludes expenditures of $32,000,000 for which there was no information on funding source.
Source: AAPA Annual Port Expenditure Survey

The port industry's choice of funding methods to finance current and proposed capital expenditure programs is reflective of the economic conditions faced by industry and government. The financial and budgetary constraints that exist today mean that the pressure for individual ports to maintain or become more self-sufficient will persist into the foreseeable future.

For this reason, port revenues and revenue bonds were the predominate forms of financing used by the port industry to fund their current and proposed expenditure plans. In both cases, these financing methods accounted for approximately two-thirds of the total expenditures with the use of general obligation bonds growing in usage to roughly 18%.

Finally, *Table 7-10* highlights forecasted future financing methods by port region for the future periods 1993-1998.

TABLE 7-10
U.S. Port Capital Expenditures By Type Of Financing Method For 1993-98
(Thousands of Dollars) 1/

	Facility Financing Methods												
Region	Port Rev.	Pct.	G/O Bonds	Pct.	Rev. Bonds	Pct.	Loans	Pct.	Grants	Pct.	Other	Pct.	Total
North Atlantic	112,005	7.7%	19,053	2.4%	41,509	2.7%	–	–	35,738	25.4%	118,040	26.9%	326,345
South Atlantic	60,747	4.2%	439,858	54.5%	263,710	17.4%	206,000	97.1%	41,844	29.7%	86,619	19.8%	1,098,778
Gulf	289,515	20.0%	269,345	33.4%	54,750	3.6%	–	–	26,180	18.6%	82,029	18.7%	721,819
South Pacific	851,414	58.9%	2,988	0.4%	1,071,406	70.5%	4,138	2.0%	10,639	7.6%	125,326	28.6%	2,065,911
North Pacific	128,322	8.9%	19,912	2.5%	87,748	5.8%	2,055	1.0%	26,350	18.7%	26,344	6.0%	290,731
Great Lakes	4,373	0.3%	56,000	6.9%	–	–	–	–	–	–	–	–	60,373
AK,HI,PR,VI	–	–	–	–	–	–	–	–	–	–	–	–	–
Guam, Saipan	–	–	–	–	–	–	–	–	–	–	–	–	–
Total	$1,446,376	100.0%	$807,156	100.0%	$1,519,123	100.0%	$212,193	100.0%	$140,751	100.0%	$438,358	100.0%	$4,563,957
% by Funding Source		31.7%		17.7%		33.3%		4.6%		3.1%		9.6%	100%

1/ Excludes expenditures of $ 955,282,000 for which no information on funding source.

Conclusions

U.S. port capital expenditures for new construction or modernization/rehabilitation of existing port facilities has slowed considerably since the first half of the 1980s. Throughout the 1970s and early 1980s the port industry was rebuilding terminal infrastructure and adding to cargo handling equipment in response to containerization. This expansion of port capital improvements was generally financed via debt obligations (i.e. general obligation bonds, revenue bonds, or direct loans from state or municipal governments) or grants. Recent trends toward more port financial self-sufficiency have required ports to rely heavily on port revenues to fund infrastructure improvements. This dynamic investment policy shift, combined with a downward pressure on port revenues from: (1) increased port competition (i.e. deregulation of the mid-1980s) and (2) world-wide economic slow-down and recession of the 1990s, are factors that have contributed to the declining rate of capital investment by ports seen in recent years.

Ports are attempting to shift needed capital investments to landside access/egress areas (i.e. road access, removal of at grade rail crossings, land-banking of surrounding properties for future expansion) and away from marine terminal infrastructure (i.e. added berthage, cargo sheds, cargo handling equipment, etc.). A new emphasis on infrastructure investments that are land-side driven and integrated with water transportation activities (i.e. inland terminals, intermodal container transfer facilities, removal of at grade crossings, improved highway access, etc.) may be the most direct

and best long term solution to improving the productivity and capacity of the existing U.S. port system.

Port investment in the United States has in the past been concentrated among the largest ports and population centers on the East and West Coasts of the United States. The same trend prevails for projected future port expenditures. This maritime investment concentration reflects historical waterborne trade and cargo movements. However, this current investment trend might not be the best pattern or direction for meeting the cargo handling needs from expanded North American trade (North-South movements) between Canada, the United States, and Mexico. Investments in smaller port facilities for relatively small vessels operating in the Gulf and along the Mid-America Waterway System to handle the appropriate cargoes (dry bulk and general cargoes) may be more productive maritime investments for responding to increased North American trade.

8. SUMMARY OF FINDINGS AND CONCLUSIONS

The following analysis and observations pertain to the ports of the East Coast regions: the Gulf of Mexico, the Great Lakes, and the Atlantic Coast. The analysis focused on ports servicing significant trade with Mexico and Canada.

Capacity of Port Facilities and their Current Utilization

- Canadian trade is dominated by dry bulk commodities (ores, coke and coal, fertilizers, cement, etc.) across the Great Lakes, and is usually shipped by small and mid-size vessels, (including barges). The dry bulk commodities average about 70% of the U.S.-Canadian commerce.

- Trade with Mexico is dominated by petroleum crude and petroleum products (about 75% of Mexican trade), followed by dry bulk commodities (12%).

- In general, the U.S. port facilities have excess capacity that can absorb an additional increase of foreign trade of about 30%. Given the current levels of commerce with Canada and Mexico (94 million tons), which represent about 14% of the total waterborne foreign trade for these regions (671 million tons), such ports can handle a substantial annual increase in North American commerce with their current capabilities.

- A significant part of the waterborne trade with Canada and Mexico is handled by either smaller public ports or private facilities, which generally have less congested landside access. About 93% of the cargo traded with both countries are bulk cargos (46% of petroleum products, 40% of dry bulk and 6% of grain). The bulk cargo is handled predominantly at private facilities, which have demonstrated flexibility for expansion whenever needed. Excess capacity estimates are about 35% for liquid bulk terminals, 25% for Grain elevators and 30% for other dry bulk terminals .

- The general cargo terminals, mostly located at public ports, have somewhat lower amounts of excess capacity (about 20%). These facilities still appear capable of accommodating significantly larger share of the Canadian and Mexican general cargo which currently is only 6.6% of the total foreign general cargo tonnage handled by these ports.

- The ports of Mexico are still in their developing stage. The ongoing privatization of Mexican ports promises a reasonable expectation for improved operation and expansion through private financing in response to increased commerce. The ability of Mexican ports to meet future demands depends mainly on the conditions of inland transportation systems. The Mexican railroad and highway systems linking the Mexican ports on the Gulf to the Mexican hinterland (East-West) are in a poor condition and may limit the prospects of those Mexican Ports and their cargo market share.

- Current available capacity of U.S. ports can be utilized to relieve the land border crossings between the United States and both Canada and Mexico, which are heavily congested at present.

♦ The capabilities of U.S. port facilities are expected to further grow as a response to the following current trends: (1) increased port productivity due to the recent implementation of system automation, and computerized cargo tracking, (2) additional land access connectors currently being built or planned for near future construction to bypass downtown congestion areas, (3) more cargos in trade with Mexico and South America are switching to containerized shipping which in turn increases the port productivity, (4) increased trend of port privatization which tends to reduce operating costs by enhancing efficiency and maximizing terminal throughput, (5) continuing trends of improved port utilization, by converting obsolete or inactive terminals into added storage facilities, light industries and processing plants, and Free Trade Zones, and (6) expected increase of commercial port resources as a consequence of military base closures.

♦ Existing U.S. Customs facilities for inspection and cargo release (i.e. Centralized Examination Stations "CES") appear adequate to handle increases in North American trade. Through advances in automation and electronic data interchange (EDI) capabilities of Customs which relates to maritime ports, the number of CES stations required may actually decline despite increases in cargo volumes.

♦ Uniform enforcement of Customs regulations as well as integration of enforcement and control requirements with shippers, carriers and terminal operators (i.e. to offset reduced Federal hiring and staffing of Customs facilities) are two long term efficiency goals that should be seriously considered. Additionally, the facilitation of traffic should be an expressed objective of Customs inspection and control activities.

Intermodal Connections of Maritime Ports

♦ The trade between Mexico, Canada and the U.S. that involves intermodal, ship-to-rail connection ("bridge"), is insignificant at present. If this trade develops, U.S. ports, that already handle intermodal cargo of other trades, have, in general, sufficient capacity to handle expected volumes with no immediate constraints.

Mexico - U.S. Trade:

♦ The trade can potentially be served by the three water-rail bridges:

(a) Midwest -- the most likely;

(b) Atlantic Coast -- less likely because of competition by all-water, direct call; and

(c) Pacific Coast -- likely since there is no water service along the Mexican West Coast.

♦ New Orleans and Houston are likely to serve as the U.S. bridge ports. Both ports have excellent rail connections to major U.S. railroads, and well-developed intermodal yards that currently serve non-Mexico cargo.

♦ New Orleans has connections to both Eastern, Western and Midwest railroads, but does not have on-dock intermodal yards.

♦ Houston has connection to Western railroads as well as a large intermodal yard located adjacent to the Port's major container terminal. The yard has expansion potential.

♦ Galveston is the only smaller Gulf port with an intermodal yard inside its container terminal. The yard is only partially utilized.

Canada - U.S. Trade:

♦ The prospects for bridge services through Great Lake ports are unlikely.

♦ The Mexican Midwest bridge can be extended to include Canada and to provide a combined water-rail connection between Mexico and Canada.

Trends, Impediments, and Implications for Trade

♦ Although it appears that port terminal capacities and equipment handling inventories are sufficient to meet increased general cargo trade forecasted for North America, for many ports the weakest links in their logistics chain to handle more general cargo are now beyond the ports' property gates. These impediments brought on by the growth of multi-modalism in cargo movements include: (1) inadequate rail linkage to marine terminals with numerous at-grade rail crossings that create congestion near port facilities, (2) bridge and tunnel restrictions, particularly in the North East Region of the United States, that impede savings from the use of technology improvements (i.e. high-cube double stack trains), (3) congested access and egress with truck routes often in residential areas, (4) inadequate signage to marine terminal facilities on the interstate highway system, and (5) limited rights-of-way for ports to improve access/egress constraints.

♦ A new emphasis on infrastructure investments that are land-side driven and integrated with water transportation activities (i.e. inland terminals, intermodal container transfer facilities, removal of at-grade crossings, improved highway access, etc.) may be the most direct and best long term solution to improving the productivity and capacity of the existing U.S. port system.

♦ Complexities of current and future intermodal transportation planning will require better coordination and cooperation between ports and the federal, state and local agencies that influence the permit, compliance and funding processes related to port development. Environmental regulations (i.e. related to dredging and disposal sites) have multiplied as have the federal, state and local regulatory agencies, all slowing down the decision making process. As a result, ports cannot predict resolution of related development projects, and port exposure to environmental liabilities has increased. This has created significant new financial burdens and risks for port authorities, and will affect the competitive position of the U.S. water transportation industry.

♦ Implementation of new water transportation technologies such as River/Ocean Vessels and short sea-river barges currently being used in Europe and Russia, would allow the Mid-America Waterway System to be utilized as a cost effective and environmentally sound

alternative to rail and truck transportation as North American trade between Canada, the United States and Mexico expands during the 1990's.

Public Port Development and Financing

- U.S. port capital expenditures for new construction or modernization/rehabilitation of existing port facilities has slowed considerably since the first half the 1980's. Throughout the 1970's and early 1980's the port industry was rebuilding terminal infrastructure and adding to cargo handling equipment in response to containerization. This expansion of port capital improvements was generally financed via debt obligations (i.e. general obligation bonds, revenue bonds, or direct loans from state or municipal governments) or grants. Recent trends toward more port financial self-sufficiency required ports to rely heavily on port revenues to fund infrastructure improvements. This dynamic investment policy shift, combined with a downward pressure on port revenues from: (1) increased port competition (i.e. deregulation of the mid-1980's), and (2) world-wide economic slow-down and recession of the 1990's, are factors that have contributed to the declining rate of capital investment by ports seen in recent years.

- Ports are attempting to shift needed capital investments to landside access/egress areas (i.e. road access, removal of at grade rail crossings, land-banking of surrounding properties for future expansion), and away from marine terminal infrastructure (i.e. added berthage, cargo sheds, cargo handling equipment, etc.)

- Port investment in the United States has in the past been concentrated among the largest ports and population centers on the East and West Coasts of the United States. The same trend prevails for projected future port expenditures. This maritime investment concentration reflects historical waterborne trade and cargo movements. However, this current investment trend might not be the best pattern or direction for meeting the cargo handling needs from expanded North American trade (North-South movements) between Canada, the United States, and Mexico. Investments in smaller port facilities for relatively small vessels operating in the Gulf and along the Mid-America Waterway System to handle the appropriate cargos (dry bulk and general cargos) may be more productive maritime investments for responding to increased North American trade.

Recommendations for Further Efforts

- The scope of this study was limited to U.S. Gulf, Atlantic and Great Lakes ports actively trading with Mexico and Canada. From a transportation perspective, the future of waterborne trade with Mexico is dependent upon the capability of the Mexican ports in the Gulf and the highway and railroad systems connecting these ports to the Mexican population and economic

centers. Future analysis is recommended for the Mexican ports in the Gulf region, including the assessment of institutional and intermodal impediments.

♦ Another important aspect influencing the future of North America's waterborne trade is the potential markets in each country and the specific transportation requirements of different commodities (e.g. transportation cost, handling requirements, transportation time sensitivity, charter services, vessel accessibility to smaller terminals, etc..). A "*Market Evaluation and Assessment*" is recommended to provide more insight about the trends affecting future trade patterns, and the possible incentives to promote larger role of the water transportation in the North America's trade.

♦ As indicated in previous discussions, the need for standardization is critical for future analysis of U.S. port facilities, particularly whenever a more accurate assessment is needed (e.g. for prioritization of needed improvements and their cost-benefit analysis). Data standardization can be accomplished by adopting a modified form of the port profile developed for this report. Other data items may be added to provide details of cargo (domestic vs. foreign), refrigerated facilities, storage tanks and silo capabilities, etc. This research has established an automated and coherent database for port facilities that can be used as a prototype for a nation-wide port facilities database accessible by microcomputers. The current system performs data retrieval of all facilities for a selected port from a master database and produces spread sheets for port summaries.

♦ The present classification of foreign commerce data using the commodity harmonized codes (as collected by the Census Bureau, and MARAD) may be sufficient for similar scopes of analysis, however data standardization is needed for other sources (Corps of Engineers) which provide details about domestic commerce. A stratification of cargo by terminal can be of substantial value for future analysis, however such stratification may hinder the confidentiality of detailed trade data.

♦ Another critical element for future port analysis is graphical schematics for port and terminal layouts, as well as land access railroad and highway layouts. Such data are not readily available for some ports (particularly for private terminals). A computerized system for such schematics would be very helpful for future assessments of ports and intermodal connections.

♦ Domestic trade was identified and found to be significant for those ports actively trading with Canada and Mexico. These ports provide additional facilities serving small vessels and barges for domestic cargo. Such facilities can serve the North American trade as well. In order to realistically assess port capabilities, detailed cargo activities are needed for each of those facilities, which in turn may raise some confidentiality concerns.

Appendix A

Trade Tables and Additional Analysis

Waterborne Canadian and Mexican Trade with U.S. Eastern Regions, 1991 . . . . . A- 1
Total Waterborne Foreign Trade (by Port), 1991 . . . . . A- 2
Total U.S. Waterborne Foreign Trade Tonnage, 1991 . . . . . A- 5
Total U.S. Waterborne Foreign Trade Value, 1991 . . . . . A- 9

Appendix A Waterborne Canadian and Mexican Trade with U.S. Eastern Regions, 1991

U.S. Ports Trading with Canada and Mexico					% Canada	%of Trade	% Mexico	%of Trade
Code	U S Port	Port tonnage	Canadian	Mexican	to Port Total	with Canada	to Port Total	with Mexico
5301	HOUSTON TEX.	60,973,889	903,933	7,038,507	1.48	1.93	11.54	14.83
2010	GRAMERCY LA.	54,727,433		4,812,443			8.79	10.21
2002	NEW ORLEANS LA.	42,570,710	227,374	4,076,049	0.53	0.49	9.57	8.65
1001	NEW YORK N.Y.	41,291,117	1,970,805	1,460,538	4.77	4.20	3.54	3.10
1401	NORFOLK VA.	39,194,871	435,722	5,094	1.11	0.93	0.01	0.01
2004	BATON ROUGE LA.	34,211,651	709,819	1,798,887	2.07	1.51	5.26	3.82
5312	CORPUS CHRISTI, TEXAS	32,291,107	542,341	2,584,243	1.68	1.16	8.00	5.48
1402	NEWPORT NEWS VA.	25,322,980		578,188			2.28	1.23
5306	TEXAS CITY	21,454,603	235,714	3,522,589	1.10	0.50	16.42	7.47
1101	PHILADELPHIA PA.	21,432,042	1,979,402	1,234,921	9.24	4.22	5.76	2.62
1303	BALTIMORE MD.	21,315,402	2,488,050	153,800	11.67	5.31	0.72	0.33
2017	LAKE CHARLES, LA.	21,191,580	431,425	4,650,665	2.04	0.92	21.95	9.87
1801	TAMPA FL.	19,041,403	595,298	2,005,301	3.13	1.27	10.53	4.25
1901	MOBILE AL.	18,416,626	1,169,848	396,749	6.35	2.50	2.15	0.84
2101	PORT ARTHUR TEX.	18,314,697	193,192	1,587,349	1.05	0.41	8.67	3.37
1903	PASCAGOULA MISS.	17,334,283		5,861,182			33.81	12.44
2013	ST. ROSE LA.	13,161,878		335,962			2.55	0.71
1105	PAULSBORO N.J.	11,552,965		1,438,966			12.46	3.05
1703	SAVANNAH GA.	9,738,039	542,942	49,631	5.58	1.16	0.51	0.11
2009	DESTREHAN LA.	8,553,274		428,420			5.01	0.91
1102	CHESTER PA.	8,542,221	117,165		1.37	0.25		
0401	BOSTON MA.	8,409,378	2,098,840	35,645	24.96	4.48	0.42	0.08
1601	CHARLESTON S.C.	7,912,093	152,543	24,606	1.93	0.33	0.31	0.05
1118	MARCUS HOOK PA	7,811,810		72,178			0.92	0.15
1803	JACKSONVILLE FL.	7,231,958	843,460	427,957	11.66	1.80	5.92	0.91
5311	FREEPORT, TEXAS	6,874,671	103,154	16,745	1.50	0.22	0.24	0.04
5310	GALVESTON, TEXAS	6,724,375	97,866	1,026,015	1.46	0.21	15.26	2.18
0101	PORTLAND ME.	6,558,105	981,893	129,647	14.97	2.09	1.98	0.28
2104	BEAUMONT TEX.	5,678,067		336,190			5.92	0.71
1103	WILMINGTON DEL.	5,508,956	347,819	32,995	6.31	0.74	0.60	0.07
4105	TOLEDO OHIO	5,465,210	4,661,051		85.29	9.94		
5313	PORT LAVACA, TEXAS	4,112,378		101,405			2.47	0.22
5203	PORT EVERGLADES FL.	4,043,884		71,568			1.77	0.15
4108	ASHTABULA OHIO	3,988,837	3,838,313		96.23	8.19		
5201	MIAMI FL.	3,670,280		31,993			0.87	0.07
3608	SUPERIOR WIS.	2,959,833	2,251,429		76.07	4.80		
1501	WILMINGTON N.C	2,724,338	413,213	98,058	15.17	0.88	3.60	0.21
3601	DULUTH MINN.	2,575,301	2,280,485		88.55	4.86		
4101	CLEVELAND OHIO	2,518,425	2,064,095		82.75	4.45		
1511	BEAUFORT-MOREHEAD CITY	2,500,999		175,542			7.02	0.37
3801	DETROIT MICH.	2,280,039	1,484,671	22	65.12	3.17	0.00	0.00
0131	PORTSMOUTH N.H	2,251,077	619,708	29,526	27.53	1.32	1.31	0.06
1107	CAMDEN N.J.	2,128,361	359,825		16.91	0.77		
0412	NEW HAVEN	2,009,629	397,257	69,860	19.77	0.85	3.48	0.15
0502	PROVIDENCE R.I	1,807,580	179,241	3,064	9.92	0.38	0.17	0.01
3901	CHICAGO ILL.	1,600,197	878,011		54.87	1.87		
3905	GARY IND.	1,517,255	765,616		50.46	1.63		
1701	BRUNSWICK GA.	1,417,793	356,523	2,173	25.15	0.76	0.15	0.00
1816	PORT CANAVERAL	1,381,000	355,146	4,488	25.72	0.76	0.32	0.01
3802	SAULT ST. MARIE MICH.	1,369,959	1,351,797		98.67	2.88		
1002	ALBANY N.Y.	1,177,621	209,206	20,678	17.77	0.45	1.76	0.04
2014	GOOD HOPE LA.	1,076,312		195,539			18.17	0.41
1113	GLOUCESTER CITY N.J.	881,234		75,487			8.57	0.16
3701	MILWAUKEE WIS.	847,367	678,369		80.06	1.45		
1602	GEORGETOWN S.C	816,907	261,228		31.98	0.56		
1902	GULFPORT MISS.	766,316		76,717			10.01	0.16
0904	OSWEGO N.Y.	706,542	704,004		99.64	1.50		
1821	PORT MANATEE	635,478		7,620			1.20	0.02
0901	BUFFALO-NIAGARA FALLS N	604,623	579,514		95.85	1.24		
3804	SAGINAW-BAY CITY MICH.	532,759	532,762		100.00	1.14		
0152	SEARSPORT,ME	487,238	180,932		37.13	0.39		
0903	ROCHESTER N.Y.	429,888	429,296		99.86	0.92		
3809	MARQUETTE MICH.	426,567	426,536		100.00	0.91		
1406	HOPEWELL VA.	375,810		25,189			6.70	0.05
3803	SAULT ST.MARIE	338,159	337,930		99.93	0.72		
1819	PENSACOLA, FLA.	332,026		1,081			0.33	0.00
3843	ALPENA MICH.	319,256	319,256		100.00	0.68		
3818	ROGERS CITY MICH.	309,912	309,533		99.88	0.66		
2301	BROWNSVILLE TEX.	299,935		3,436			1.15	0.01
4107	SANDUSKY OHIO	266,645	261,910		98.22	0.56		
4106	ERIE PA.	253,892	200,414		78.94	0.43		
2012	AVONDALE LA.	213,889		1,043			0.49	0.00
3703	GREEN BAY WIS.	166,323	142,100		85.44	0.30		
3815	MUSKEGON MICH.	160,501	157,548		98.16	0.34		
3842	PRESQUE ISLE MICH.	143,231	143,230		100.00	0.31		
0712	CHAMPLAIN-ROUSES POINT N	141,824	139,411		98.30	0.30		
0701	OGDENSBURG N.Y.	131,958	116,052		87.95	0.25		
5402	ALEXANDRIA VA.	124,854	119,427		95.65	0.25		
2001	MORGAN CITY LA.	42,567		11,256			26.44	0.02
	All Others		1,184,524	794		2.53		0.00
	Total 1000 tons	670,556	46,878	47,128				

Notes: Values are rounded to the nearest 1000 ton, a zero indicates tonnage less than 500
Source of raw data: US DOT- MARAD 1991 Harmonized commodities trade data

Appendix A — Total Waterborne Foreign Trade (By Port), 1991

Code		Tot. Weight	Total Value ($)
3003	ABERDEEN-HOQUIAM WASH.	2,238,127	570,165,557
4601	AGUADILLA PR.	239	198,718
2813	ALAMEDA CAL.	37,189	28,038,924
1002	ALBANY N.Y.	1,177,621	244,447,171
0708	ALEXANDRIA BAY N.Y.	3,482	2,044,649
5402	ALEXANDRIA VA.	124,854	73,702,505
3843	ALPENA MICH.	319,256	5,666,132
3010	ANACORTES WASH.	1,448,819	171,419,054
3126	ANCHORAGE ALASKA	5,970,998	2,319,684,322
1301	ANNAPOLIS MD.	8,049	31,631,874
3602	ASHLAND WIS.	11,692	7,902,581
4108	ASHTABULA OHIO	3,988,837	180,804,119
2901	ASTORIA OREG.	382,397	51,216,712
2012	AVONDALE LA.	213,889	93,071,848
1303	BALTIMORE MD.	21,315,402	16,612,106,488
0102	BANGOR ME.	6	12,799
0112	BAR HARBOR ME.	6	31,480
2004	BATON ROUGE LA.	34,211,851	4,655,733,262
1511	BEAUFORT-MOREHEAD CITY	2,500,999	307,325,427
2104	BEAUMONT TEX.	5,678,067	826,400,732
0132	BELFAST, ME.	614,254	72,673,432
3005	BELLINGHAM WASH.	1,926,520	565,002,912
3004	BLAINE WASH.	23,377	7,027,413
0401	BORTON MA.	1	20,988
0401	BOSTON MA.	8,409,377	3,907,679,773
0410	BRIDGEPORT	329,813	153,045,586
2301	BROWNSVILLE TEX.	299,935	110,488,893
1701	BRUNSWICK GA.	1,417,793	1,237,023,560
0901	BUFFALO-NIAGARA FALLS N	604,623	70,491,813
0115	CALAIS ME.	351	247,129
1302	CAMBRIDGE MD.	1,685	8,823,153
1107	CAMDEN N.J.	2,128,361	516,602,877
1406	CAPE CHARLES VA.	16,495	1,015,411
0706	CAPE VINCENT N.Y.	36	30,742
2830	CAROUINEZ STRAIT CAL.	1,017,288	1,824,433,674
0712	CHAMPLAIN-ROUSES POINT N	141,824	19,134,642
1601	CHARLESTON S.C.	7,912,093	13,963,344,878
5101	CHARLOTTE AMALIE V.I.	170,557	167,168,889
1102	CHESTER PA.	8,542,221	2,355,552,405
3901	CHICAGO ILL.	1,600,197	443,703,668
5104	CHRISTIANSTED V.I.	11,311,828	1,649,561,865
0714	CLAYTON N.Y.	20,986	916,089
4101	CLEVELAND OHIO	2,518,425	299,635,392
4109	CONNEAUT OHIO	102,521	4,669,555
2903	COOS BAY OREG.	4,208,000	545,536,076
5312	CORPUS CHRISTI, TEXAS	32,291,107	3,966,308,615
2815	CROCKETT CAL.	27,164	12,333,670
5102	CRUZ BAY V.I.	5,993	751,925
3106	DALTON CACHE, ALASKA	99,328	16,041,228
3819	DE TOUR VILLAGE MICH.	33,174	680,337
2009	DESTREHAN LA.	8,553,274	1,215,526,539
3801	DETROIT MICH.	2,280,039	1,471,178,314
3601	DULUTH MINN.	2,575,301	151,592,719
3904	E. CHICAGO IND.	60,775	7,680,887
0103	EASTPORT ME	171,729	86,984,488
2711	EL SEGUNDO CAL.	376,729	44,942,334
4106	ERIE PA.	253,892	17,247,001
3806	ESCANABA MICH.	4,726	93,845
2802	EUREKA CAL.	945,998	236,927,685
3006	EVERETT WASH.	1,569,946	223,981,005
3111	FAIRBANKS ALASKA	4,238	3,107,327
4904	FAJARDO PR.	21,248	4,076,210
0407	FALL RIVER MA.	279,669	29,506,330
1805	FERNANDINA BEACH FL.	258,132	244,486,214
3844	FERRSBURG MICH.	80,912	3,855,043
5205	FORT PIERCE FL.	59,367	4,602,842
5105	FREDERIKSTED V.I.	3,853	1,511,922
5311	FREEPORT, TEXAS	6,874,671	1,414,412,124
3014	FRIDAY HARBOR WASH.	695,913	5,063,149

Port Name		Total Value
HOUSTON TEX.	60,973,889	24,918,140,485
GRAMERCY LA.	54,727,433	7,538,558,022
NEW ORLEANS LA.	42,570,710	11,443,281,652
NEW YORK N.Y.	41,291,117	49,595,054,614
NORFOLK VA.	39,194,871	17,543,000,478
BATON ROUGE LA.	34,211,851	4,655,733,262
CORPUS CHRISTI, TEXA	32,291,107	3,966,308,615
NEWPORT NEWS VA.	25,322,980	1,648,117,378
LONG BEACH CAL.	23,385,894	48,678,211,773
LOS ANGELES CAL.	22,545,344	57,392,721,406
TEXAS CITY	21,454,603	2,964,794,851
PHILADELPHIA PA.	21,432,042	5,714,103,044
BALTIMORE MD.	21,315,402	16,612,106,488
LAKE CHARLES, LA.	21,191,580	2,743,420,915
TAMPA FL.	19,041,403	2,617,623,778
MOBILE AL.	18,416,626	2,259,870,842
PORT ARTHUR TEX.	18,314,697	2,588,255,830
PASCAGOULA MISS.	17,334,283	2,214,146,148
PORTLAND OREG.	15,010,206	7,039,938,940
ST. ROSE LA.	13,161,878	2,023,730,244
SEATTLE WASH.	13,056,634	26,029,280,682
TACOMA WASH.	12,907,678	23,524,906,571
PAULSBORO N.J.	11,552,965	1,571,298,844
CHRISTIANSTED V.I.	11,311,828	1,649,561,865
SAVANNAH GA.	9,738,039	10,607,717,389
DESTREHAN LA.	8,553,274	1,215,526,539
CHESTER PA.	8,542,221	2,355,552,405
BOSTON MA.	8,409,377	3,907,679,773
CHARLESTON S.C.	7,912,093	13,963,344,878
MARCUS HOOK PA	7,811,810	1,271,257,046
JACKSONVILLE FL.	7,231,958	7,502,706,241
FREEPORT, TEXAS	6,874,671	1,414,412,124
GALVESTON, TEXAS	6,724,375	2,606,269,375
PORTLAND ME.	6,558,105	1,078,528,144
OAKLAND CAL.	6,292,274	18,416,186,204
ANCHORAGE ALASKA	5,970,998	2,319,684,322
BEAUMONT TEX.	5,678,067	826,400,732
WILMINGTON DEL	5,508,956	3,298,914,237
TOLEDO OHIO	5,465,210	403,652,072
LONGVIEW WASH.	5,343,492	996,031,586
RICHMOND CAL.	4,837,070	2,071,061,613
SAN JUAN PR.	4,820,738	3,735,116,754
KALAMA WASH.	4,749,559	591,121,696
COOS BAY OREG.	4,208,000	545,536,076
VANCOUVER WASH.	4,127,590	695,833,672
PORT LAVACA, TEXAS	4,112,378	196,308,779
PORT EVERGLADES FL.	4,043,884	4,885,220,106
ASHTABULA OHIO	3,988,837	180,804,119
GUAYANILLA PR.	3,866,225	581,961,941
SAN FRANCISCO CAL.	3,808,801	5,814,127,491
MIAMI FL.	3,670,280	9,622,155,193
SUPERIOR WIS.	2,959,833	358,180,497
HUMACAO PR.	2,922,419	405,993,625
WILMINGTON N.C	2,724,338	3,097,281,587
DULUTH MINN.	2,575,301	151,592,719
CLEVELAND OHIO	2,518,425	299,635,392
BEAUFORT-MOREHEAD	2,500,999	307,325,427
JOBOS PR.	2,345,431	528,726,679
DETROIT MICH.	2,280,039	1,471,178,314
PORTSMOUTH N.H	2,251,077	278,636,694
ABERDEEN-HOQUIAM W	2,238,127	570,165,557
CAMDEN N.J.	2,128,361	516,602,877
NEW HAVEN	2,009,629	582,525,890
BELLINGHAM WASH.	1,926,520	565,002,912
PROVIDENCE R.I	1,807,580	872,400,232
CHICAGO ILL.	1,600,197	443,703,668
EVERETT WASH.	1,569,946	223,981,005
GARY IND.	1,517,255	116,415,211
PORT ANGELES WASH.	1,472,224	162,121,565

Port Name	Tot.Weight	
LOS ANGELES CAL.	22,545,344	57,392,721,406
NEW YORK N.Y.	41,291,117	49,595,054,614
LONG BEACH CAL.	23,385,894	48,678,211,773
SEATTLE WASH.	13,056,634	26,029,280,682
HOUSTON TEX.	60,973,889	24,918,140,485
TACOMA WASH.	12,907,678	23,524,906,571
OAKLAND CAL.	6,292,274	18,416,186,204
NORFOLK VA.	39,194,871	17,543,000,478
BALTIMORE MD.	21,315,402	16,612,106,488
CHARLESTON S.C.	7,912,093	13,963,344,878
NEW ORLEANS LA.	42,570,710	11,443,281,652
SAVANNAH GA.	9,738,039	10,607,717,389
MIAMI FL.	3,670,280	9,622,155,193
GRAMERCY LA.	54,727,433	7,538,558,022
JACKSONVILLE FL.	7,231,958	7,502,706,241
PORTLAND OREG.	15,010,206	7,039,938,940
SAN FRANCISCO CAL.	3,808,801	5,814,127,491
SAULT ST. MARIE MICH.	1,369,959	5,739,110,856
PHILADELPHIA PA.	21,432,042	5,714,103,044
PORT EVERGLADES FL.	4,043,884	4,885,220,106
BATON ROUGE LA.	34,211,851	4,655,733,262
CORPUS CHRISTI, TEXAS	32,291,107	3,966,308,615
BOSTON MA.	8,409,377	3,907,679,773
SAN JUAN PR.	4,820,738	3,735,116,754
WILMINGTON DEL	5,508,956	3,298,914,237
WILMINGTON N.C	2,724,338	3,097,281,587
NORF-NEWPORT NEWS VALUE		3,094,715,978
TEXAS CITY	21,454,603	2,964,794,851
LAKE CHARLES, LA.	21,191,580	2,743,420,915
TAMPA FL.	19,041,403	2,617,623,778
GALVESTON, TEXAS	6,724,375	2,606,269,375
PORT ARTHUR TEX.	18,314,697	2,588,255,830
CHESTER PA.	8,542,221	2,355,552,405
ANCHORAGE ALASKA	5,970,998	2,319,684,322
MOBILE AL.	18,416,626	2,259,870,842
PASCAGOULA MISS.	17,334,283	2,214,146,148
RICHMOND CAL.	4,837,070	2,071,061,613
ST. ROSE LA.	13,161,878	2,023,730,244
CAROUINEZ STRAIT CAL.	1,017,288	1,824,433,674
RICHMOND-PETERSBUR	438,917	1,706,114,353
CHRISTIANSTED V.I.	11,311,828	1,649,561,865
NEWPORT NEWS VA.	25,322,980	1,648,117,378
PAULSBORO N.J.	11,552,965	1,571,298,844
DETROIT MICH.	2,280,039	1,471,178,314
FREEPORT, TEXAS	6,874,671	1,414,412,124
PORT HUENEME CAL.	330,128	1,397,037,203
W. PALM BEACH FL.	868,682	1,378,686,864
MARCUS HOOK PA	7,811,810	1,271,257,046
GLOUCESTER CITY N.J.	881,234	1,255,009,844
BRUNSWICK GA.	1,417,793	1,237,023,560
DESTREHAN LA.	8,553,274	1,215,526,539
PONCE PR.	648,775	1,178,754,048
PORTLAND ME.	6,558,105	1,078,528,144
LONGVIEW WASH.	5,343,492	996,031,586
PROVIDENCE R.I	1,807,580	872,400,232
BEAUMONT TEX.	5,678,067	826,400,732
HONOLULU HAWAII	1,022,699	733,757,032
VANCOUVER WASH.	4,127,590	695,833,672
KALAMA WASH.	4,749,559	591,121,696
NEW HAVEN	2,009,629	582,525,890
GUAYANILLA PR.	3,866,225	581,961,941
ABERDEEN-HOQUIAM W	2,238,127	570,165,557
BELLINGHAM WASH.	1,926,520	565,002,912
COOS BAY OREG.	4,208,000	545,536,076
JOBOS PR.	2,345,431	528,726,679
CAMDEN N.J.	2,128,361	516,602,877
CHICAGO ILL.	1,600,197	443,703,668
GULFPORT MISS.	766,316	415,523,261
HUMACAO PR.	2,922,419	405,993,625

Source: MARAD electronic database (for raw data) ** Data is sorted by Highlighted Column

Appendix A

Total Waterborne Foreign Trade (By Port), 1991

Code	[illegible]	Tot. Weight	Total Value ($)
5310	GALVESTON, TEXAS	6,724,375	2,808,289,375
3905	GARY IND.	1,517,255	116,415,211
1602	GEORGETOWN S.C	816,907	57,783,777
1113	GLOUCESTER CITY N.J.	881,234	1,255,009,844
0404	GLOUCESTER MA.	62,332	95,694,474
2014	GOOD HOPE LA.	1,076,312	99,722,539
2010	GRAMERCY LA.	54,727,433	7,538,558,022
3703	GREEN BAY WIS.	166,323	14,373,998
4905	GUANICA PR.	17,990	4,582,612
4912	GUAYANILLA PR.	3,866,225	581,981,941
1902	GULFPORT MISS.	766,316	415,523,261
0411	HARTFORD	11	56,433
3202	HILO HAWAII	32,199	5,396,511
3201	HONOLULU HAWAII	1,022,699	733,757,032
1408	HOPEWELL VA.	375,810	20,483,735
5301	HOUSTON TEX.	60,973,889	24,918,140,465
4906	HUMACAO PR.	2,922,419	405,993,625
4117	HURON OHIO	63,395	7,829,602
3604	INT. FALLS MINN.	126	17,954
1803	JACKSONVILLE FL.	7,231,958	7,502,706,241
4911	JOBOS PR.	2,345,431	528,726,679
3101	JUNEAU ALASKA	269,120	62,902,183
3203	KAHULUI HAWAII	49,060	14,488,212
2909	KALAMA WASH.	4,749,559	591,121,696
3102	KETCHIKAN ALASKA	1,443,596	316,892,431
5202	KEY WEST FL.	726	2,497,012
3127	KODIAK ALASKA	321,882	102,975,902
2017	LAKE CHARLES, LA.	21,191,580	2,743,420,915
2709	LONG BEACH CAL.	23,385,894	48,878,211,773
2905	LONGVIEW WASH.	5,343,492	996,031,586
4121	LORAIN OHIO	96,927	6,397,819
2704	LOS ANGELES CAL.	22,545,344	57,392,721,406
4115	LOUISVILLE KY.	36	215,990
3820	MACKINAC ISLAND MICH.	65,987	15,750,082
1118	MARCUS HOOK PA	7,811,810	1,271,257,046
3702	MARINETTE WIS.	18,376	6,929,394
3809	MARQUETTE MICH.	426,557	16,084,697
2820	MARTINEZ CAL.	1,301,962	194,468,882
0704	MASSENA N.Y.	5	6,108
4907	MAYAGUEZ PR.	242,317	153,525,860
2006	MEMPHIS TENN.	50	562,265
5201	MIAMI FL.	3,670,280	9,622,155,193
3701	MILWAUKEE WIS.	847,367	117,127,007
1901	MOBILE AL.	18,416,626	2,259,870,842
2805	MONTEREY CAL.	131,046	15,198,971
2001	MORGAN CITY LA.	42,567	62,035,158
2719	MORRO CAL.	1	3,453
3815	MUSKEGON MICH.	160,501	2,462,967
3204	NAWILIWILI HAWAII	7,386	5,721,592
0405	NEW BEDFORD MA	76,029	165,503,565
0412	NEW HAVEN	2,009,629	582,525,890
0413	NEW LONDON	63,768	41,325,542
2002	NEW ORLEANS LA.	42,570,710	11,443,281,852
1001	NEW YORK N.Y.	41,291,117	49,585,054,614
1402	NEWPORT NEWS VA.	25,322,960	1,648,117,378
2902	NEWPORT OREG.	151,437	17,531,053
0501	NEWPORT R.I.	320,222	60,304,552
5901	NORF-NEWPORT NEWS VALUE		3,094,715,978
1401	NORFOLK VA.	39,194,871	17,543,000,478
2811	OAKLAND CAL.	6,292,274	18,416,186,204
0701	OGDENSBURG N.Y.	131,958	9,160,842
3026	OLYMPIA WASH.	506,822	96,921,577
2103	ORANGE TEX.	151,708	45,246,450
0904	OSWEGO N.Y.	706,542	51,488,772
2829	PABLO BAY CAL.	371,988	61,682,681
1818	PANAMA CITY, FLA.	598,876	265,587,806
1903	PASCAGOULA MISS.	17,334,283	2,214,146,148
1105	PAULSBORO N.J.	11,552,965	1,571,298,844
3124	PELICAN ALASKA	194	50,435

Port Name	[illegible]	Total Value
ANACORTES WASH.	1,448,819	171,419,054
KETCHIKAN ALASKA	1,443,596	316,892,431
BRUNSWICK GA.	1,417,793	1,237,023,560
PORT CANAVERAL	1,381,000	235,182,468
SAULT ST. MARIE MICH.	1,369,959	5,739,110,856
SAN JOAQUIN RIVER CA	1,322,339	209,703,477
MARTINEZ CAL.	1,301,962	194,468,882
STOCKTON CAL.	1,178,983	285,304,541
ALBANY N.Y.	1,177,621	244,447,171
PLYMOUTH MA.	1,104,775	89,272,587
GOOD HOPE LA.	1,076,312	99,722,539
HONOLULU HAWAII	1,022,699	733,757,032
CARQUINEZ STRAIT CAL	1,017,288	1,824,433,674
EUREKA CAL.	945,998	236,927,685
GLOUCESTER CITY N.J.	881,234	1,255,009,844
W. PALM BEACH FL.	868,682	1,378,686,664
MILWAUKEE WIS.	847,367	117,127,007
GEORGETOWN S.C	816,907	57,783,777
SACRAMENTO CAL.	771,082	143,957,522
GULFPORT MISS.	766,316	415,523,261
OSWEGO N.Y.	706,542	51,488,772
FRIDAY HARBOR WASH.	695,913	5,063,149
PONCE PR.	648,775	1,178,754,048
PORT MANATEE	635,478	161,537,037
BELFAST, ME.	614,254	72,673,432
BUFFALO-NIAGARA FAL	604,623	70,491,813
PANAMA CITY, FLA.	598,876	265,587,806
SUISUN BAY CAL.	536,811	102,926,990
SAGINAW-BAY CITY MIC	532,759	21,317,632
OLYMPIA WASH.	506,822	96,921,577
SKAGWAY ALASKA	502,561	121,755,120
SEARSPORT,ME	487,238	60,885,811
RICHMOND-PETERSBUR	438,917	1,706,114,353
ROCHESTER N.Y.	429,888	17,506,777
MARQUETTE MICH.	426,557	16,084,697
SAN DIEGO CAL.	420,935	293,078,825
SALEM MA.	408,955	29,771,547
ASTORIA OREG.	382,397	51,216,712
EL SEGUNDO CAL.	376,729	44,942,334
HOPEWELL VA.	375,810	20,483,735
PABLO BAY CAL.	371,988	61,682,681
SAULT ST.MARIE	338,159	22,374,176
PENSACOLA, FLA.	332,026	92,385,507
PORT HUENEME CAL.	330,128	1,397,037,203
BRIDGEPORT	329,813	153,045,586
KODIAK ALASKA	321,882	102,975,902
NEWPORT R.I.	320,222	60,304,552
ALPENA MICH.	319,256	5,666,132
ROGERS CITY MICH.	309,912	5,395,491
BROWNSVILLE TEX.	299,935	110,488,893
FALL RIVER MA.	279,669	29,506,330
JUNEAU ALASKA	269,120	62,902,183
SANDUSKY OHIO	266,645	13,407,051
FERNANDINA BEACH FL	258,132	244,486,214
ERIE PA.	253,892	17,247,001
MAYAGUEZ PR.	242,317	153,525,860
SITKA ALASKA	215,815	117,988,330
AVONDALE LA.	213,889	93,071,848
REDWOOD CITY CAL.	206,496	18,224,483
PORT TOWNSEND WAS	195,987	14,956,248
EASTPORT ME	171,729	98,984,488
CHARLOTTE AMALIE V.I.	170,557	167,168,889
GREEN BAY WIS.	166,323	14,373,998
MUSKEGON MICH.	160,501	2,462,967
ORANGE TEX.	151,708	45,246,450
NEWPORT OREG.	151,437	17,531,053
PRESQUE ISLE MICH.	143,231	7,055,666
CHAMPLAIN-ROUSES P	141,824	19,134,642
SAND POINT ALASKA	136,384	35,342,478

Port Name	Tot.Weight	[illegible]
TOLEDO OHIO	5,465,210	403,652,072
SUPERIOR WIS.	2,959,833	358,180,497
KETCHIKAN ALASKA	1,443,596	316,892,431
BEAUFORT-MOREHEAD	2,500,999	307,325,427
CLEVELAND OHIO	2,518,425	299,635,392
SAN DIEGO CAL.	420,935	293,078,825
STOCKTON CAL.	1,178,983	285,304,541
PORTSMOUTH N.H	2,251,077	278,636,694
PANAMA CITY, FLA.	598,876	265,587,806
FERNANDINA BEACH FL.	258,132	244,486,214
ALBANY N.Y.	1,177,621	244,447,171
EUREKA CAL.	945,998	236,927,685
PORT CANAVERAL	1,381,000	235,182,468
EVERETT WASH.	1,569,946	223,981,005
SAN JOAQUIN RIVER CAL	1,322,339	209,703,477
PORT LAVACA, TEXAS	4,112,378	196,308,779
MARTINEZ CAL.	1,301,962	194,468,882
ASHTABULA OHIO	3,988,837	180,804,119
ANACORTES WASH.	1,448,819	171,419,054
CHARLOTTE AMALIE V.I.	170,557	167,168,889
NEW BEDFORD MA	76,029	165,503,565
PORT ANGELES WASH.	1,472,224	162,121,565
PORT MANATEE	635,478	161,537,037
MAYAGUEZ PR.	242,317	153,525,860
BRIDGEPORT	329,813	153,045,586
DULUTH MINN.	2,575,301	151,592,719
SACRAMENTO CAL.	771,082	143,957,522
SKAGWAY ALASKA	502,561	121,755,120
SITKA ALASKA	215,815	117,988,330
MILWAUKEE WIS.	847,367	117,127,007
GARY IND.	1,517,255	116,415,211
BROWNSVILLE TEX.	299,935	110,488,893
KODIAK ALASKA	321,882	102,975,902
SUISUN BAY CAL.	536,811	102,926,990
GOOD HOPE LA.	1,076,312	99,722,539
EASTPORT ME	171,729	98,984,488
OLYMPIA WASH.	506,822	96,921,577
GLOUCESTER MA.	62,332	95,694,474
AVONDALE LA.	213,889	93,071,848
PENSACOLA, FLA.	332,026	92,385,507
PLYMOUTH MA.	1,104,775	89,272,587
ALEXANDRIA VA.	124,854	73,702,505
BELFAST, ME.	614,254	72,673,432
BUFFALO-NIAGARA FALL	604,623	70,491,813
JUNEAU ALASKA	269,120	62,902,183
MORGAN CITY LA.	42,567	62,035,158
PABLO BAY CAL.	371,988	61,682,681
SEARSPORT,ME	487,238	60,885,811
NEWPORT R.I.	320,222	60,304,552
GEORGETOWN S.C	816,907	57,783,777
OSWEGO N.Y.	706,542	51,488,772
ASTORIA OREG.	382,397	51,216,712
ORANGE TEX.	151,708	45,246,450
EL SEGUNDO CAL.	376,729	44,942,334
NEW LONDON	63,768	41,325,542
SAND POINT ALASKA	136,384	35,342,478
ANNAPOLIS MD.	8,049	31,631,874
SALEM MA.	408,955	29,771,547
FALL RIVER MA.	279,669	29,506,330
ALAMEDA CAL.	37,189	28,038,924
SAULT ST.MARIE	338,159	22,374,176
SAGINAW-BAY CITY MICH	532,759	21,317,632
HOPEWELL VA.	375,810	20,483,735
SABINE TEX.	3,243	19,333,177
CHAMPLAIN-ROUSES POI	141,824	19,134,642
REDWOOD CITY CAL.	206,496	18,224,483
NEWPORT OREG.	151,437	17,531,053
ROCHESTER N.Y.	429,888	17,506,777
ERIE PA.	253,892	17,247,001

Source: MARAD electronic database (for raw data) ** Data is sorted by Highlighted Column

Appendix A — Total Waterborne Foreign Trade (By Port), 1991

Code	[illegible]	Tot. Weight	Total Value ($)
1619	PENSACOLA, FLA.	332,028	92,385,507
1101	PHILADELPHIA PA.	21,432,042	5,714,103,044
0406	PLYMOUTH MA.	1,104,775	89,272,587
3017	POINT ROBERTS WASH.	63	685,014
4908	PONCE PR.	648,775	1,178,754,048
3007	PORT ANGELES WASH.	1,472,224	162,121,565
2101	PORT ARTHUR TEX.	18,314,697	2,588,255,830
1816	PORT CANAVERAL	1,381,000	235,182,468
5203	PORT EVERGLADES FL.	4,043,884	4,885,220,106
2713	PORT HUENEME CAL.	330,128	1,397,037,203
5313	PORT LAVACA, TEXAS	4,112,378	196,308,779
1821	PORT MANATEE	635,478	161,537,037
2707	PORT SAN LUIS CAL.	232	1,424,964
2005	PORT SULPHUR LA.	2	364,420
3008	PORT TOWNSEND WASH.	195,987	14,956,248
0101	PORTLAND ME.	6,558,105	1,078,528,144
2904	PORTLAND OREG.	15,010,206	7,039,938,940
0131	PORTSMOUTH N.H	2,251,077	278,636,694
3842	PRESQUE ISLE MICH.	143,231	7,055,666
0502	PROVIDENCE R.I	1,807,580	872,400,232
0409	PROVINCETOWN MA.	63	38,115
3708	RACINE WIS.	1	27,588
2621	REDWOOD CITY CAL.	206,496	18,224,483
1407	REEDVILLE VA.	11	521,754
2812	RICHMOND CAL.	4,837,070	2,071,061,613
1404	RICHMOND-PETERSBURG VA.	438,917	1,706,114,353
0903	ROCHESTER N.Y.	429,888	17,506,777
0121	ROCKLAND ME.	11,627	1,406,233
3618	ROGERS CITY MICH.	309,912	5,395,491
2102	SABINE TEX.	3,243	19,333,177
2816	SACRAMENTO CAL.	771,082	143,957,522
3604	SAGINAW-BAY CITY MICH.	532,759	21,317,832
0408	SALEM MA.	408,955	29,771,547
2501	SAN DIEGO CAL.	420,935	293,076,825
2809	SAN FRANCISCO CAL.	3,808,801	5,814,127,491
2828	SAN JOAQUIN RIVER CAL.	1,322,339	209,703,477
4909	SAN JUAN PR.	4,820,738	3,735,116,754
3125	SAND POINT ALASKA	136,384	35,342,478
4107	SANDUSKY OHIO	266,645	13,407,051
3602	SAULT ST. MARIE MICH.	1,369,959	5,739,110,856
3803	SAULT ST.MARIE	338,159	22,374,176
5801	SAVAN-WILM, COTLNTRS	4	6,494,946
1703	SAVANNAH GA.	9,738,039	10,607,717,389
0152	SEARSPORT,ME	487,238	60,885,811
3001	SEATTLE WASH.	13,056,634	26,029,280,662
2827	SELBY CAL.	14,748	3,466,942
3115	SITKA ALASKA	215,815	117,968,330
3103	SKAGWAY ALASKA	502,561	121,755,120
4503	ST. LOUIS MO.	19,508	3,450,927
1814	ST. PETERSBURG FL.	5,942	1,147,723
2013	ST. ROSE LA.	13,161,878	2,023,730,244
2810	STOCKTON CAL.	1,178,983	285,304,541
2831	SUISUN BAY CAL.	536,811	102,926,990
3606	SUPERIOR WIS.	2,959,833	358,180,497
0906	SYRACUSE N.Y.	55,140	4,462,716
3002	TACOMA WASH.	12,907,678	23,524,906,571
1801	TAMPA FL.	19,041,403	2,617,623,778
5306	TEXAS CITY	21,454,603	2,964,794,851
4105	TOLEDO OHIO	5,465,210	403,652,072
3107	VALDEZ, ALASKA	35,524	13,624,847
2908	VANCOUVER WASH.	4,127,590	695,833,672
2015	VICKSBURG MISS.	4	78,108
5204	W. PALM BEACH FL.	868,682	1,378,686,864
5401	WASHINGTON D.C.	99	507,797
1103	WILMINGTON DEL.	5,508,956	3,298,914,237
1501	WILMINGTON N.C	2,724,338	3,097,281,587
3105	WRANGELL ALASKA	84,045	16,724,110
	Total in 1000 tons	851,616	465,581,984

Port Name	[illegible]	Total Value
OGDENSBURG N.Y.	131,958	9,180,842
MONTEREY CAL.	131,046	15,198,971
ALEXANDRIA VA.	124,854	73,702,505
CONNEAUT OHIO	102,521	4,889,555
DALTON CACHE, ALASK	99,328	16,041,228
LORAIN OHIO	96,927	6,397,819
WRANGELL ALASKA	84,045	16,724,110
FERRSBURG MICH.	80,912	3,855,043
NEW BEDFORD MA	76,029	165,503,565
MACKINAC ISLAND MIC	65,987	15,750,082
NEW LONDON	63,768	41,325,542
HURON OHIO	63,395	7,829,602
GLOUCESTER MA.	62,332	95,694,474
E. CHICAGO IND.	60,775	7,680,887
FORT PIERCE FL.	59,367	4,802,842
SYRACUSE N.Y.	55,140	4,462,716
KAHULUI HAWAII	49,080	14,488,212
MORGAN CITY LA.	42,567	62,035,158
ALAMEDA CAL.	37,189	28,038,924
VALDEZ, ALASKA	35,524	13,624,847
DE TOUR VILLAGE MICH	33,174	680,337
HILO HAWAII	32,199	5,396,511
CROCKETT CAL.	27,164	12,333,670
BLAINE WASH.	23,377	7,027,413
FAJARDO PR.	21,248	4,076,210
CLAYTON N.Y.	20,986	916,089
ST. LOUIS MO.	19,508	3,450,927
MARINETTE WIS.	18,376	6,929,394
GUANICA PR.	17,990	4,562,612
CAPE CHARLES VA.	16,495	1,015,411
SELBY CAL.	14,748	3,466,942
ASHLAND WIS.	11,692	7,902,581
ROCKLAND ME.	11,627	1,406,233
ANNAPOLIS MD.	8,049	31,631,874
NAWILIWILI HAWAII	7,386	5,721,592
CRUZ BAY V.I.	5,993	751,925
ST. PETERSBURG FL.	5,942	1,147,723
ESCANABA MICH.	4,726	93,845
FAIRBANKS ALASKA	4,238	3,107,327
FREDERIKSTED V.I.	3,853	1,511,922
ALEXANDRIA BAY N.Y.	3,482	2,044,649
SABINE TEX.	3,243	19,333,177
CAMBRIDGE MD.	1,685	8,823,153
KEY WEST FL.	726	2,497,012
CALAIS ME.	351	247,129
AGUADILLA PR.	239	198,718
PORT SAN LUIS CAL.	232	1,424,964
PELICAN ALASKA	194	50,435
INT. FALLS MINN.	126	17,954
WASHINGTON D.C.	99	507,797
POINT ROBERTS WASH.	63	685,014
PROVINCETOWN MA.	63	38,115
MEMPHIS TENN.	50	562,265
LOUISVILLE KY.	36	215,990
CAPE VINCENT N.Y.	36	30,742
REEDVILLE VA.	11	521,754
HARTFORD	11	56,433
BANGOR ME.	6	12,799
BAR HARBOR ME.	6	31,480
MASSENA N.Y.	5	6,108
SAVAN-WILM, COTLNTR	4	6,494,946
VICKSBURG MISS.	4	78,108
PORT SULPHUR LA.	2	364,420
MORRO CAL.	1	3,453
BORTON MA.	1	20,968
RACINE WIS.	1	27,588
NORF-NEWPORT NEWS VALUE		3,094,715,978

Port Name	Tot.Weight	[illegible]
WRANGELL ALASKA	84,045	16,724,110
MARQUETTE MICH.	428,557	16,084,697
DALTON CACHE, ALASKA	99,328	16,041,228
MACKINAC ISLAND MICH.	65,987	15,750,082
MONTEREY CAL.	131,046	15,198,971
PORT TOWNSEND WASH	195,987	14,956,248
KAHULUI HAWAII	49,080	14,488,212
GREEN BAY WIS.	166,323	14,373,998
VALDEZ, ALASKA	35,524	13,624,847
SANDUSKY OHIO	266,645	13,407,051
CROCKETT CAL.	27,164	12,333,670
OGDENSBURG N.Y.	131,958	9,180,842
CAMBRIDGE MD.	1,685	8,823,153
ASHLAND WIS.	11,692	7,902,581
HURON OHIO	63,395	7,829,602
E. CHICAGO IND.	60,775	7,680,887
PRESQUE ISLE MICH.	143,231	7,055,666
BLAINE WASH.	23,377	7,027,413
MARINETTE WIS.	18,376	6,929,394
SAVAN-WILM, COTLNTRS	4	6,494,946
LORAIN OHIO	96,927	6,397,819
NAWILIWILI HAWAII	7,386	5,721,592
ALPENA MICH.	319,256	5,666,132
HILO HAWAII	32,199	5,396,511
ROGERS CITY MICH.	309,912	5,395,491
FRIDAY HARBOR WASH.	695,913	5,083,149
CONNEAUT OHIO	102,521	4,889,555
FORT PIERCE FL.	59,367	4,802,842
GUANICA PR.	17,990	4,562,612
SYRACUSE N.Y.	55,140	4,462,716
FAJARDO PR.	21,248	4,076,210
FERRSBURG MICH.	80,912	3,855,043
SELBY CAL.	14,748	3,466,942
ST. LOUIS MO.	19,508	3,450,927
FAIRBANKS ALASKA	4,238	3,107,327
KEY WEST FL.	726	2,497,012
MUSKEGON MICH.	160,501	2,462,967
ALEXANDRIA BAY N.Y.	3,482	2,044,649
FREDERIKSTED V.I.	3,853	1,511,922
PORT SAN LUIS CAL.	232	1,424,964
ROCKLAND ME.	11,627	1,406,233
ST. PETERSBURG FL.	5,942	1,147,723
CAPE CHARLES VA.	16,495	1,015,411
CLAYTON N.Y.	20,986	916,089
CRUZ BAY V.I.	5,993	751,925
DE TOUR VILLAGE MICH.	33,174	680,337
POINT ROBERTS WASH.	63	685,014
MEMPHIS TENN.	50	562,265
REEDVILLE VA.	11	521,754
WASHINGTON D.C.	99	507,797
PORT SULPHUR LA.	2	364,420
CALAIS ME.	351	247,129
LOUISVILLE KY.	36	215,990
AGUADILLA PR.	239	198,718
ESCANABA MICH.	4,726	93,845
VICKSBURG MISS.	4	78,108
HARTFORD	11	56,433
PELICAN ALASKA	194	50,435
PROVINCETOWN MA.	63	38,115
BAR HARBOR ME.	6	31,480
CAPE VINCENT N.Y.	36	30,742
RACINE WIS.	1	27,588
BORTON MA.	1	20,968
INT. FALLS MINN.	126	17,954
BANGOR ME.	6	12,799
MASSENA N.Y.	5	6,108
MORRO CAL.	1	3,453

Source: MARAD electronic database (for raw data) ** Data is sorted by Highlighted Column

Total U.S. Waterborne Foreign Trade Tonnage, 1991

U.S. Ports total trade		1991 Trade 1000 ton/yr			General Cargo			Non-petroleum liquids			Petroleum oil & products			Bulk Grain			Dry Bulk		
code	In 1000 tons	Total	Exports	Imports	Total	Exports	Imports	Total	Exports	Imports	Total	Exports	Imports	Total	Exports	Imports	Total	Exports	Imports
0101	PORTLAND ME.	6,558	113	6,445	1,506	60	1,447	24		24	4,944	0	4,944				84	54	30
0102	BANGOR ME.	0		0	0		0												
0103	EASTPORT ME	172	142	30	136	108	28	0	0		1	1		0	0		35	33	2
0112	BAR HARBOR ME.	0	0	0	0	0	0												
0115	CALAIS ME.	0	0		0	0													
0121	ROCKLAND ME.	12	11	1	12	11	1												
0131	PORTSMOUTH N.H	2,251	294	1,957	263	25	238	0	0	0	1,085		1,085				903	270	633
0132	BELFAST, ME.	614	4	610	4	4					585		585				25		25
0152	SEARSPORT, ME	487	12	475	21	12	9				351		351				115	0	115
0401	BOSTON MA.	8,409	577	7,832	1,267	157	1,110	45	0	45	6,342	82	6,260	1	1	0	754	337	417
0404	GLOUCESTER MA.	62	3	60	34	3	31				28		28						
0405	NEW BEDFORD MA	76	2	74	48	2	47	0		0	0		0	0		0	28		28
0406	PLYMOUTH MA.	1,105		1,105							1,105		1,105						
0407	FALL RIVER MA.	280	1	279	12	1	11	0		0	213		213				55		55
0408	SALEM MA.	409	0	409	0	0					409		409						
0409	PROVINCETOWN MA.	0		0	0		0												
0410	BRIDGEPORT	330	15	315	183	15	168				147		147						
0411	HARTFORD	0	0		0	0													
0412	NEW HAVEN	2,010	300	1,710	283	9	273	52	0	52	1,328	87	1,241				347	204	143
0413	NEW LONDON	64	4	60	55	4	51	9	0	9	0	0							
0501	NEWPORT R.I.	320	0	320	1	0	1				319		319				0	0	
0502	PROVIDENCE R.I	1,808	212	1,596	230	7	223				1,277		1,277				301	204	96
0701	OGDENSBURG N.Y.	132	107	25	13	13											119	94	25
0704	MASSENA N.Y.	0		0	0		0												
0706	CAPE VINCENT N.Y.	0	0		0	0													
0708	ALEXANDRIA BAY N.Y.	3	3	0	0	0	0	0	0								3	3	
0712	CHAMPLAIN-ROUSES POINT	142	139	3	7	4	3				127	127					9	9	
0714	CLAYTON N.Y.	21	21														21	21	
0901	BUFFALO-NIAGARA FALLS N	605	361	244	9	2	7	0		0	229	103	126	97	0	97	269	256	13
0903	ROCHESTER N.Y.	430	271	159	1	1	0							9		9	421	270	150
0904	OSWEGO N.Y.	707	91	616	56	1	55				287	31	256				363	58	305
0906	SYRACUSE N.Y.	55		55							45		45				10		10
1001	NEW YORK N.Y.	41,291	6,977	34,314	12,206	4,522	7,684	519	31	488	24,288	566	23,722	60	27	33	4,218	1,831	2,388
1002	ALBANY N.Y.	1,178	404	774	65	21	44	77		77	430		430	299	299		307	84	223
1101	PHILADELPHIA PA.	21,432	1,121	20,311	1,872	336	1,536	6	2	4	15,636	66	15,571	2	2	0	3,915	715	3,200
1102	CHESTER PA.	8,542	211	8,332	677	198	479	2	0	2	7,822	1	7,821				41	12	29
1103	WILMINGTON DEL	5,509	525	4,984	1,569	426	1,142	0	0	0	3,323	66	3,257	0	0		617	32	585
1105	PAULSBORO N.J.	11,553	171	11,382	33	13	20				11,350	98	11,252				170	59	110
1107	CAMDEN N.J.	2,128	995	1,133	555	43	513	0	0	0	128	0	128	0	0		1,445	952	493
1113	GLOUCESTER CITY N.J.	881	69	812	667	64	603	0	0	0	209	1	208	0	0		5	3	2
1118	MARCUS HOOK PA	7,812	242	7,570	247	75	172	42		42	7,515	159	7,356	0	0		8	8	
1301	ANNAPOLIS MD.	8	8	0	5	5	0	0	0		0	0					3	3	
1302	CAMBRIDGE MD.	2	2		2	2		0	0										
1303	BALTIMORE MD.	21,315	12,908	8,407	4,323	1,865	2,458	98	6	93	877	77	800	1,990	1,933	57	14,027	9,027	5,000
1401	NORFOLK VA.	39,195	34,953	4,242	5,294	3,077	2,217	180	82	98	367	24	343	1,135	1,134	0	32,219	30,636	1,584
1402	NEWPORT NEWS VA.	25,323	22,106	3,217	628	258	371	10	9	1	2,667	0	2,667	0	0	0	22,018	21,839	179
1404	RICHMOND-PETERSBURG V	439	249	190	325	183	142	0	0	0	0	0	0	0	0		114	66	48
1406	CAPE CHARLES VA.	16		16							16		16						
1407	REEDVILLE VA.	0	0		0	0													
1408	HOPEWELL VA.	376	351	25	0	0											376	351	25
1501	WILMINGTON N.C	2,724	925	1,800	1,323	875	448	281	3	278	238	2	236	5	5	0	877	40	837
1511	BEAUFORT-MOREHEAD CITY	2,501	2,020	481	367	319	48				55	0	55				2,079	1,700	378
1601	CHARLESTON S.C.	7,912	5,317	2,595	5,272	3,575	1,698	62	19	43	301	10	291	177	174	3	2,100	1,540	560
1602	GEORGETOWN S.C	817	80	737	88	80	8										729	0	729
1701	BRUNSWICK GA.	1,418	498	920	581	479	102	0		0	0	0	0	87	2	85	749	17	732
1703	SAVANNAH GA.	9,738	5,344	4,394	5,002	2,603	2,399	64	26	38	860	16	844	103	102	1	3,710	2,598	1,112
1801	TAMPA FL.	19,041	13,986	5,056	1,753	997	756	0	0		247	1	246	33	0	33	17,008	12,987	4,021
1803	JACKSONVILLE FL.	7,232	2,401	4,831	2,526	1,549	977	9	6	3	1,247	127	1,119	3	1	2	3,448	717	2,731
1805	FERNANDINA BEACH FL.	258	238	20	246	227	19	2	1	1	1	1		0	0		10	9	0
1814	ST. PETERSBURG FL.	6	6	0	0		0										6	6	
1816	PORT CANAVERAL	1,381	257	1,124	230	22	208				453	60	393	19	0	19	678	175	503
1818	PANAMA CITY, FLA.	599	490	109	599	490	109	0		0							0	0	

Total U.S. Waterborne Foreign Trade Tonnage, 1991

U.S. Ports total trade		1991 Trade 1000 ton/yr			General Cargo			Non-petroleum liquids			Petroleum oil & products			Bulk Grain			Dry Bulk		
code	in 1000 tons	Total	Exports	Imports	Total	Exports	Imports	Total	Exports	Imports	Total	Exports	Imports	Total	Exports	Imports	Total	Exports	Imports
1819	PENSACOLA, FLA.	332	307	25	278	274	4	1	1		21		21	15	15		17	17	
1821	PORT MANATEE	635	179	456	277	23	254				92		92				266	156	110
1901	MOBILE AL.	18,417	12,129	6,287	2,999	2,378	621	9	0	8	1,911	231	1,680	257	257	0	13,242	9,263	3,978
1902	GULFPORT MISS.	766	194	572	704	172	532	0	0	0	7	7		6	6		49	9	40
1903	PASCAGOULA MISS.	17,334	3,035	14,299	523	463	60				15,291	1,102	14,189	159	159		1,362	1,311	51
2001	MORGAN CITY LA.	43	37	5	31	26	5	0	0	0	0	0		5	5		7	7	
2002	NEW ORLEANS LA.	42,571	26,696	15,875	6,013	2,832	3,181	522	295	227	11,209	1,121	10,088	11,709	11,654	55	13,117	10,794	2,323
2004	BATON ROUGE LA.	34,212	16,452	17,760	5,263	4,228	1,036	263	139	124	12,790	1,410	11,380	2,338	1,884	454	13,557	8,790	4,766
2005	PORT SULPHUR LA.	0	0		0	0													
2006	MEMPHIS TENN.	0	0	0	0	0	0												
2009	DESTREHAN LA.	8,553	8,477	76	3,114	3,114	0				0	0		5,298	5,298		141	65	76
2010	GRAMERCY LA.	54,727	35,580	19,147	3,888	3,284	603	111	41	71	15,543	611	14,932	31,252	31,231	21	3,933	412	3,521
2012	AVONDALE LA.	214	83	131	53	41	13	156	40	116	4	1	3				0	0	
2013	ST. ROSE LA.	13,162	11,419	1,742	2,725	2,710	15	458	432	25	2,523	826	1,697	7,344	7,344		113	108	5
2014	GOOD HOPE LA.	1,076	618	459	5	5		11	1	9	1,061	612	449						
2015	VICKSBURG MISS.	0		0	0		0												
2017	LAKE CHARLES, LA.	21,192	5,275	15,916	1,294	817	478	10	10	0	16,072	1,358	14,714	363	363		3,451	2,726	725
2101	PORT ARTHUR TEX.	16,315	2,653	15,661	575	284	291	67	64	3	15,650	564	15,086	569	569		1,454	1,173	281
2102	SABINE TEX.	3	3	0	3	3	0												
2103	ORANGE TEX.	152	78	73	49	49					79	6	73	0	0		23	23	
2104	BEAUMONT TEX.	5,678	1,735	3,943	296	262	34	20	19	0	4,113	225	3,887	1,210	1,210		40	19	21
2301	BROWNSVILLE TEX.	300	73	227	73	4	70	89	4	85	69	54	14				69	11	58
2501	SAN DIEGO CAL.	421	48	373	105	1	103				0	0		83	39	44	233	7	226
2704	LOS ANGELES CAL.	22,545	10,847	11,698	12,850	4,915	7,936	136	24	113	5,203	2,279	2,924	75	41	34	4,280	3,588	692
2707	PORT SAN LUIS CAL.	0	0	0	0	0	0										0	0	
2709	LONG BEACH CAL.	23,386	13,672	9,714	12,133	4,719	7,414	129	22	108	2,975	2,027	949	203	166	37	7,945	6,738	1,207
2711	EL SEGUNDO CAL.	377	242	135	1	1	0				376	241	135						
2713	PORT HUENEME CAL.	330	12	319	330	11	319	0	0		0	0					0	0	
2719	MORRO CAL.	0		0	0		0												
2802	EUREKA CAL.	946	917	29	380	363	17										566	554	12
2805	MONTEREY CAL.	131		131							131		131						
2809	SAN FRANCISCO CAL.	3,609	1,904	1,905	2,125	928	1,198	18	7	11	1,497	884	613	48	26	22	120	59	61
2810	STOCKTON CAL.	1,179	530	649	284	59	226	14	0	14	15	15		138	22	116	728	435	294
2811	OAKLAND CAL.	6,292	4,095	2,197	5,556	3,529	2,026	49	22	27	38	16	22	55	43	12	595	485	110
2812	RICHMOND CAL.	4,837	2,941	1,896	376	126	250	243	48	195	3,435	2,291	1,144	0	0		783	475	307
2813	ALAMEDA CAL.	37	0	37	37	0	37												
2815	CROCKETT CAL.	27		27	27		27												
2816	SACRAMENTO CAL.	771	652	119	75	42	33				1	1		196	196		499	414	86
2820	MARTINEZ CAL.	1,302	1,046	256	47	29	18	3	1	1	1,231	994	237				21	21	
2821	REDWOOD CITY CAL.	206	206		0	0								10	10		197	197	
2827	SELBY CAL.	15	15								15	15							
2828	SAN JOAQUIN RIVER CAL.	1,322	332	991	521	16	505				102	46	56				699	269	430
2829	PABLO BAY CAL.	372	184	188	0		0				372	184	188						
2830	CARQUINEZ STRAIT CAL.	1,017	807	210	203	49	154				500	444	56				315	315	
2831	SUISUN BAY CAL.	537	483	53	1	1					536	482	53						
2901	ASTORIA OREG.	382	368	14	17	3	14							3	3		363	363	
2902	NEWPORT OREG.	151	151														151	151	
2903	COOS BAY OREG.	4,208	4,206	2	479	477	2							4	4		3,725	3,725	0
2904	PORTLAND OREG.	15,010	12,370	2,641	2,382	1,663	719	143	2	141	452	1	451	7,363	7,362	1	4,670	3,342	1,329
2905	LONGVIEW WASH.	5,343	4,437	907	554	537	17				72		72	570	570		4,147	3,329	818
2908	VANCOUVER WASH.	4,128	3,473	655	304	227	76	0	0		15		15	2,930	2,930		878	316	562
2909	KALAMA WASH.	4,750	4,724	26	291	266	26							4,401	4,401		57	57	
3001	SEATTLE WASH.	13,057	7,583	5,474	7,719	4,451	3,268	13	7	6	661	104	558	2,249	2,243	6	2,414	778	1,636
3002	TACOMA WASH.	12,908	8,532	4,375	4,583	2,273	2,310	6	3	3	592	33	560	2,907	2,904	2	4,820	3,320	1,500
3003	ABERDEEN-HOQUIAM WASH	2,238	2,235	4	68	67	1										2,170	2,168	2
3004	BLAINE WASH.	23	23	1	1	1	1				5	5					17	17	
3005	BELLINGHAM WASH.	1,927	1,108	819	239	229	10				659	501	157				1,029	378	651
3006	EVERETT WASH.	1,570	1,330	240	27	26	1										1,543	1,303	240
3007	PORT ANGELES WASH.	1,472	1,215	258	37	20	17				155	21	134				1,280	1,174	106
3008	PORT TOWNSEND WASH.	196	22	174	23	22	0										173		173

Appendix A

Total U.S. Waterborne Foreign Trade Tonnage, 1991

U.S. Ports total trade	1991 Trade 1000 ton/yr			General Cargo			Non-petroleum liquids			Petroleum oil & products			Bulk Grain			Dry Bulk		
code in 1000 tons	Total	Exports	Imports	Total	Exports	Imports	Total	Exports	Imports	Total	Exports	Imports	Total	Exports	Imports	Total	Exports	Imports
3010 ANACORTES WASH.	1,449	1,088	361	8	1	6	3	3		815	461	355				623	623	
3014 FRIDAY HARBOR WASH.	696	693	2	5	4	1										691	690	1
3017 POINT ROBERTS WASH.	0	0		0	0													
3026 OLYMPIA WASH.	507	503	4	5	1	4				0		0				502	502	
3101 JUNEAU ALASKA	269	267	2	3	3	0				0	0					266	264	2
3102 KETCHIKAN ALASKA	1,444	1,399	44	307	302	5	0	0		34		34				1,103	1,097	6
3103 SKAGWAY ALASKA	503	423	79	5		5	0		0	58		58				440	423	16
3105 WRANGELL ALASKA	84	84	0	67	67	0				0		0				16	16	
3106 DALTON CACHE, ALASKA	99	93	6	20	20					6		6				73	73	
3107 VALDEZ, ALASKA	36	14	21	9	2	8				14		14				12	12	
3111 FAIRBANKS ALASKA	4	0	4	2		2				0	0					2		2
3115 SITKA ALASKA	216	205	11	144	144											72	62	11
3124 PELICAN ALASKA	0	0								0	0							
3125 SAND POINT ALASKA	136	136		2	2											135	135	
3126 ANCHORAGE ALASKA	5,971	5,569	402	1,704	1,661	43	31		31	2,028	1,796	231				2,209	2,112	97
3127 KODIAK ALASKA	322	322		8	8											314	314	
3201 HONOLULU HAWAII	1,023	463	560	223	75	147	0	0	0	421	328	93	13	2	11	366	57	308
3202 HILO HAWAII	32	2	30	7	2	5										25		25
3203 KAHULUI HAWAII	49	38	11	4		4										45	38	7
3204 NAWILIWILI HAWAII	7		7	2		2										5		5
3601 DULUTH MINN.	2,575	2,302	273	40	20	20				7	0	7	573	554	19	1,956	1,728	227
3602 ASHLAND WIS.	12		12													12		12
3604 INT. FALLS MINN.	0	0		0	0													
3608 SUPERIOR WIS.	2,960	2,590	370	281	77	204	0		0	29		29	1,542	1,416	125	1,108	1,096	12
3701 MILWAUKEE WIS.	847	304	543	113	25	88	0		0	0	0		272	272		462	7	455
3702 MARINETTE WIS.	18		18	18		18												
3703 GREEN BAY WIS.	166	15	151	24	15	9				17		17				125		125
3708 RACINE WIS.	0		0	0		0												
3801 DETROIT MICH.	2,280	596	1,684	781	139	642	0	0	0	126	45	82	0	0		1,372	412	961
3802 SAULT ST. MARIE MICH.	1,370	147	1,223	1,046	12	1,033	0	0	0	5	2	2	0	0		319	132	188
3803 SAULT ST.MARIE	338	262	76	3	0	3				55	5	51				280	257	23
3804 SAGINAW-BAY CITY MICH.	533	89	444	0		0				3		3				529	89	440
3808 ESCANABA MICH.	5		5													5		5
3809 MARQUETTE MICH.	427	427	0	0		0										427	427	
3815 MUSKEGON MICH.	161	3	158													161	3	158
3818 ROGERS CITY MICH.	310	294	16	0	0		0	0								310	294	16
3819 DE TOUR VILLAGE MICH.	33	33		0	0											33	33	
3820 MACKINAC ISLAND MICH.	66		66							66		66						
3842 PRESQUE ISLE MICH.	143	142	1	1	0	0										143	142	0
3843 ALPENA MICH.	319	299	21	0		0				5		5				315	299	16
3844 FERRSBURG MICH.	81		81													81		81
3901 CHICAGO ILL.	1,600	235	1,365	598	8	591	23		23	141	5	136				838	223	615
3904 E. CHICAGO IND.	61	27	34	17	17	0										43	9	34
3905 GARY IND.	1,517	255	1,262	181	164	17										1,336	90	1,245
4101 CLEVELAND OHIO	2,518	93	2,425	399	35	364	0		0	52	33	18				2,068	25	2,044
4105 TOLEDO OHIO	5,465	4,765	700	142	0	142				91	52	39	852	805	47	4,360	3,907	473
4106 ERIE PA.	254	31	222	6	0	6										248	31	217
4107 SANDUSKY OHIO	267	217	50										30		30	237	217	20
4108 ASHTABULA OHIO	3,989	3,633	356	0		0										3,989	3,633	356
4109 CONNEAUT OHIO	103	103		4	4											98	98	
4115 LOUISVILLE KY.	0		0	0		0	0		0									
4117 HURON OHIO	63	0	63	0	0	0							63		63			
4121 LORAIN OHIO	97	3	94	4		4										93	3	90
4503 ST. LOUIS MO.	20	19	1	1	1	1				18	18							

Appendix A

Total U.S. Waterborne Foreign Trade Tonnage, 1991

U.S. Ports total trade		1991 Trade 1000 ton/yr			General Cargo			Non-petroleum liquids			Petroleum oil & products			Bulk Grain			Dry Bulk		
code	In 1000 tons	Total	Exports	Imports	Total	Exports	Imports	Total	Exports	Imports	Total	Exports	Imports	Total	Exports	Imports	Total	Exports	Imports
4901	AGUADILLA PR.	0		0	0		0												
4904	FAJARDO PR.	21	12	9	7	7	0				9	0	9				5	5	
4905	GUANICA PR.	18	3	15	7	0	6										11	3	8
4906	HUMACAO PR.	2,922	183	2,739	61	61					2,861	122	2,739						
4907	MAYAGUEZ PR.	242	16	226	163	2	161	0		0	0	0		5		5	74	14	60
4908	PONCE PR.	649	71	578	243	50	193	12	0	12	168	19	149	0	0	0	226	2	224
4909	SAN JUAN PR.	4,821	569	4,251	1,324	421	904	148	6	142	2,831	58	2,773	20	5	15	498	80	418
4911	JOBOS PR.	2,345	477	1,869	77	77		64	0	64	2,201	396	1,805				4	4	
4912	GUAYANILLA PR.	3,866	350	3,516	96	44	52	17	0	17	3,656	302	3,354	0		0	97	4	93
5101	CHARLOTTE AMALIE V.I.	171	63	108	73	52	21	5	2	3	7	6	0	1	1	0	84	1	83
5102	CRUZ BAY V.I.	6		6	1		1	0		0							5		5
5104	CHRISTIANSTED V.I.	11,312	1,003	10,309	161	145	16	11	0	11	9,636	452	9,184	0		0	1,504	405	1,099
5105	FREDERIKSTED V.I.	4	0	4	0	0	0	3	0	3							0		0
5201	MIAMI FL.	3,670	2,040	1,630	2,988	1,781	1,207	25	13	12	369	48	321	70	69	1	219	130	89
5202	KEY WEST FL.	1	1	0	1	1	0												
5203	PORT EVERGLADES FL.	4,044	936	3,108	1,464	658	806	24	4	19	1,862	28	1,834	16	16	0	678	230	448
5204	W. PALM BEACH FL.	869	529	340	308	256	52	246	244	2	92	7	85	8	8	0	214	15	200
5205	FORT PIERCE FL.	59	3	57	19	1	18				0	0					41	2	39
5301	HOUSTON TEX.	60,974	24,308	36,666	13,297	8,997	4,300	1,493	704	789	35,869	5,573	30,296	7,313	7,163	150	3,002	1,872	1,130
5306	TEXAS CITY	21,455	2,798	18,656	547	476	71	173	59	114	19,530	1,081	18,449	88	65	23	1,116	1,116	0
5310	GALVESTON, TEXAS	6,724	3,491	3,234	1,041	536	505	27	6	21	2,440	153	2,287	2,092	2,092		1,124	703	420
5311	FREEPORT, TEXAS	6,875	1,051	5,824	797	544	253	47	34	13	5,557	9	5,548	161	161		312	303	9
5312	CORPUS CHRISTI, TEXAS	32,291	5,018	27,273	726	696	30	3	3	0	24,930	1,674	23,256	649	649		5,984	1,996	3,988
5313	PORT LAVACA, TEXAS	4,112	178	3,935	79	70	9										4,033	107	3,926
5401	WASHINGTON D.C.	0	0	0	0	0	0												
5402	ALEXANDRIA VA.	125	0	125	125	0	125												
5801	SAVAN-WILM, COTLNTRS	0		0	0		0												
5901	NORF-NEWPORT NEWS VAL																		
	Total (million tons)	852	403	449	160	86	74	6	2	4	328	33	295	100	98	2	257	183	74

Notes Values are rounded to the nearest 1000 ton, a zero indicates tonnage less than 500
Source of raw data: US DOT- MARAD 1991 Harmonized commodities trade data

Appendix A

Total U.S. Waterborne Foreign Trade Value, 1991

U.S. Ports total trade		1991 Trade 1000$/yr			General Cargo			Non-petroleum liquids			Petroleum oil & products			Bulk Grain			Dry Bulk		
code	in 1000$	Total	Exports	Imports	Total	Exports	Imports	Total	Exports	Imports	Total	Exports	Imports	Total	Exports	Imports	Total	Exports	Imports
0101	PORTLAND ME.	1,078,528	1,029,351	49,177	120,652	71,477	49,175	3,537	3,537	0	953,354	953,351	3	0	0	0	985	985	0
0102	BANGOR ME.	13	13	0	13	13	0	0	0	0	0	0	0	0	0	0	0	0	0
0103	EASTPORT ME	96,984	22,407	74,577	95,987	22,095	73,893	264	0	264	308	0	308	104	0	104	321	312	9
0112	BAR HARBOR ME.	31	16	16	31	16	16	0	0	0	0	0	0	0	0	0	0	0	0
0115	CALAIS ME.	247	7	241	247	7	241	0	0	0	0	0	0	0	0	0	0	0	0
0121	ROCKLAND ME.	1,406	74	1,332	1,406	74	1,332	0	0	0	0	0	0	0	0	0	0	0	0
0131	PORTSMOUTH N.H	278,637	235,685	42,952	85,433	42,488	42,945	167	159	7	176,624	176,624	0	0	0	0	16,414	16,414	0
0132	BELFAST, ME.	72,673	71,443	1,231	1,231	0	1,231	0	0	0	71,151	71,151	0	0	0	0	292	292	0
0152	SEARSPORT,ME	60,886	52,627	8,059	10,388	2,329	8,059	0	0	0	45,879	45,879	0	0	0	0	4,619	4,619	0
0401	BOSTON MA.	3,907,701	3,311,580	596,121	2,718,071	2,134,441	583,630	37,775	37,642	133	1,133,437	1,122,627	10,809	353	11	342	16,065	16,858	1,207
0404	GLOUCESTER MA.	95,694	94,267	1,427	88,933	87,506	1,427	0	0	0	6,761	6,761	0	0	0	0	0	0	0
0405	NEW BEDFORD MA	165,504	158,894	6,609	153,089	146,480	6,609	221	221	0	7,993	7,993	0	4	4	0	4,197	4,197	0
0406	PLYMOUTH MA.	89,273	89,273	0	0	0	0	0	0	0	89,273	89,273	0	0	0	0	0	0	0
0407	FALL RIVER MA.	29,506	28,502	1,005	13,395	12,390	1,005	45	45	0	13,948	13,948	0	0	0	0	2,116	2,116	0
0408	SALEM MA.	29,772	29,725	47	49	2	47	0	0	0	29,723	29,723	0	0	0	0	0	0	0
0409	PROVINCETOWN MA.	38	38	0	38	38	0	0	0	0	0	0	0	0	0	0	0	0	0
0410	BRIDGEPORT	153,046	147,636	5,410	104,087	98,678	5,410	0	0	0	48,958	48,958	0	0	0	0	0	0	0
0411	HARTFORD	56	0	56	56	0	56	0	0	0	0	0	0	0	0	0	0	0	0
0412	NEW HAVEN	582,526	528,508	54,018	264,638	225,646	38,992	9,552	9,520	32	254,514	239,551	14,963	0	0	0	53,822	53,790	32
0413	NEW LONDON	41,326	24,079	17,247	40,532	23,325	17,207	776	753	23	18	0	18	0	0	0	0	0	0
0501	NEWPORT R.I.	60,305	58,613	1,692	11,314	9,623	1,692	0	0	0	48,990	48,990	0	0	0	0	0	0	0
0502	PROVIDENCE R.I	872,400	821,490	50,910	577,578	526,668	50,910	0	0	0	291,056	291,056	0	0	0	0	3,767	3,767	0
0701	OGDENSBURG N.Y.	9,161	442	8,719	8,719	0	8,719	0	0	0	0	0	0	0	0	0	442	442	0
0704	MASSENA N.Y.	6	6	0	6	6	0	0	0	0	0	0	0	0	0	0	0	0	0
0706	CAPE VINCENT N.Y.	31	0	31	31	0	31	0	0	0	0	0	0	0	0	0	0	0	0
0708	ALEXANDRIA BAY N.Y.	2,045	1,166	879	2,037	1,166	872	7	0	7	0	0	0	0	0	0	0	0	0
0712	CHAMPLAIN-ROUSES POINT N	19,135	6,213	10,922	11,443	8,209	3,234	4	4	0	7,688	0	7,688	0	0	0	0	0	0
0714	CLAYTON N.Y.	916	0	916	916	0	916	0	0	0	0	0	0	0	0	0	0	0	0
0901	BUFFALO-NIAGARA FALLS N	70,492	40,788	29,704	22,977	6,459	16,517	7	7	0	36,095	22,952	13,142	10,999	10,959	40	415	411	4
0903	ROCHESTER N.Y.	17,507	8,063	9,443	9,812	369	9,443	0	0	0	0	0	0	991	991	0	6,704	6,704	0
0904	OSWEGO N.Y.	51,489	41,889	9,600	13,369	6,861	6,508	0	0	0	25,756	22,664	3,092	0	0	0	12,364	12,364	0
0906	SYRACUSE N.Y.	4,463	4,463	0	3	3	0	0	0	0	3,844	3,844	0	0	0	0	616	616	0
1001	NEW YORK N.Y.	49,585,055	31,720,182	17,864,872	45,151,246	27,532,599	17,618,647	635,861	594,783	41,078	3,581,164	3,414,651	166,513	46,486	20,979	25,508	170,298	157,171	13,127
1002	ALBANY N.Y.	244,447	62,943	181,504	165,839	18,273	147,566	4,343	4,343	0	37,612	37,612	0	33,938	0	33,938	2,716	2,716	0
1101	PHILADELPHIA PA.	5,714,103	4,880,608	833,495	3,337,282	2,520,702	816,580	13,072	10,952	2,120	2,226,568	2,216,993	9,576	4,608	1,329	3,280	132,573	130,633	1,939
1102	CHESTER PA.	2,355,552	2,010,831	344,722	927,180	584,870	342,310	7,578	6,535	1,043	1,222,124	1,220,912	1,212	0	0	0	198,670	198,513	157
1103	WILMINGTON DEL	3,298,914	1,398,994	1,899,921	2,918,984	1,034,076	1,884,908	894	128	766	348,755	334,813	13,942	255	0	255	30,025	29,976	49
1105	PAULSBORO N.J.	1,571,299	1,530,968	40,331	26,524	6,809	19,715	0	0	0	1,534,231	1,513,618	20,613	0	0	0	10,544	10,541	3
1107	CAMDEN N.J.	516,603	343,395	173,208	489,922	317,334	172,588	48	29	18	17,242	17,055	187	387	0	387	9,005	8,977	27
1113	GLOUCESTER CITY N.J.	1,255,010	1,031,147	223,863	1,219,398	997,284	222,114	735	537	198	32,912	32,032	880	124	0	124	1,840	1,294	547
1118	MARCUS HOOK PA	1,271,257	1,180,876	90,381	77,012	31,144	45,868	3,050	3,050	0	1,191,176	1,146,682	44,494	19	0	19	0	0	0
1301	ANNAPOLIS MD.	31,632	184	31,447	31,529	184	31,345	54	0	54	49	0	49	0	0	0	0	0	0
1302	CAMBRIDGE MD.	8,623	0	8,623	8,730	0	8,730	93	0	93	0	0	0	0	0	0	0	0	0
1303	BALTIMORE MD.	16,612,106	9,111,946	7,500,160	15,705,106	8,571,995	7,133,111	81,669	68,040	13,629	102,893	80,891	22,001	334,569	8,080	326,489	387,869	382,939	4,930
1401	NORFOLK VA.	17,543,000	7,950,708	9,592,293	16,846,207	7,516,021	9,330,187	251,452	182,802	68,650	37,745	26,680	11,065	175,984	294	175,690	231,612	224,911	6,701
1402	NEWPORT NEWS VA.	1,648,117	933,020	715,097	1,297,591	596,652	700,939	13,327	1,056	12,271	322,334	322,026	308	78	6	73	14,787	13,280	1,507
1404	RICHMOND-PETERSBURG VA.	1,706,114	472,181	1,233,933	1,702,990	469,479	1,233,511	1,368	993	375	130	109	21	9	0	9	1,617	1,599	18
1406	CAPE CHARLES VA.	1,015	1,015	0	0	0	0	0	0	0	1,015	1,015	0	0	0	0	0	0	0
1407	REEDVILLE VA.	522	0	522	522	0	522	0	0	0	0	0	0	0	0	0	0	0	0
1408	HOPEWELL VA.	20,484	2,392	18,092	18,092	0	18,092	0	0	0	0	0	0	0	0	0	2,392	2,392	0
1501	WILMINGTON N.C	3,097,282	879,314	2,217,968	2,977,255	767,307	2,209,948	40,371	37,918	2,453	17,475	15,813	1,662	1,444	10	1,435	60,737	58,266	2,471
1511	BEAUFORT-MOREHEAD CITY N	307,325	121,659	185,666	261,194	75,659	185,535	0	0	0	4,362	4,231	131	0	0	0	41,769	41,769	0
1601	CHARLESTON S.C.	13,963,345	6,753,075	7,210,270	13,624,766	6,534,469	7,090,299	106,115	59,285	46,829	43,641	38,832	4,809	58,666	2,263	56,403	130,156	118,225	11,931
1602	GEORGETOWN S.C	57,784	30,214	27,569	33,234	5,665	27,569	0	0	0	0	0	0	0	0	0	24,550	24,550	0
1701	BRUNSWICK GA.	1,237,024	919,613	317,410	1,209,971	892,884	317,088	654	654	0	71	8	63	7,108	6,849	259	19,219	19,219	0
1703	SAVANNAH GA.	10,607,717	5,480,734	5,126,983	10,316,715	5,284,388	5,032,328	82,030	26,681	55,349	71,097	64,252	6,845	20,181	794	19,387	117,693	104,618	13,075
1801	TAMPA FL.	2,617,624	598,008	2,019,616	2,290,113	271,280	2,018,833	126	0	126	39,345	38,798	547	2,524	2,459	65	285,615	285,470	45
1803	JACKSONVILLE FL.	7,502,706	4,909,452	2,593,254	7,278,089	4,718,112	2,559,978	22,621	6,085	16,536	117,527	106,136	11,392	2,478	237	2,241	81,990	78,883	3,108
1805	FERNANDINA BEACH FL.	244,486	50,893	193,593	240,200	49,716	190,484	3,389	866	2,523	478	0	478	56	0	56	364	311	53
1814	ST. PETERSBURG FL.	1,148	252	896	1,148	252	896	0	0	0	0	0	0	0	0	0	0	0	0
1816	PORT CANAVERAL	235,182	197,684	37,299	180,485	148,566	31,919	0	0	0	40,223	34,857	5,367	1,186	1,172	13	13,289	13,289	0
1818	PANAMA CITY, FLA.	265,588	55,146	210,442	264,910	54,468	210,442	678	678	0	0	0	0	0	0	0	0	0	0

Appendix A

Total U.S. Waterborne Foreign Trade Value, 1991

U.S. Ports total trade		1991 Trade 1000$/yr			General Cargo			Non-petroleum liquids			Petroleum oil & products			Bulk Grain			Dry Bulk		
code	in 1000$	Total	Exports	Imports	Total	Exports	Imports	Total	Exports	Imports	Total	Exports	Imports	Total	Exports	Imports	Total	Exports	Imports
1819	PENSACOLA, FLA.	92,386	4,214	88,171	86,556	3,015	83,542	590	0	590	1,199	1,199	0	4,039	0	4,039	0	0	0
1821	PORT MANATEE	161,537	127,617	33,920	144,713	110,792	33,920	0	0	0	13,504	13,504	0	0	0	0	3,320	3,320	0
1901	MOBILE AL	2,259,871	900,164	1,359,707	1,769,216	492,825	1,276,391	5,183	3,762	1,420	192,146	146,481	45,665	34,427	3	34,424	258,899	257,093	1,806
1902	GULFPORT MISS.	415,523	204,699	210,824	386,510	181,019	205,491	130	4	126	3,013	0	3,013	1,893	0	1,893	23,978	23,676	302
1903	PASCAGOULA MISS.	2,214,146	1,618,822	595,324	413,929	50,583	363,347	0	0	0	1,770,704	1,567,141	203,562	28,415	0	28,415	1,098	1,098	0
2001	MORGAN CITY LA.	62,035	5,478	56,557	60,175	5,468	54,708	68	11	57	182	0	182	1,611	0	1,611	0	0	0
2002	NEW ORLEANS LA.	11,443,282	4,931,624	6,511,657	7,840,718	3,369,266	4,471,452	231,863	70,675	161,188	1,494,398	1,299,789	194,609	1,676,133	4,181	1,671,951	200,170	187,712	12,457
2004	BATON ROUGE LA.	4,655,733	2,287,633	2,368,101	2,136,929	321,555	1,815,374	61,471	9,575	51,896	1,701,571	1,515,148	186,423	348,167	35,097	313,071	407,594	406,258	1,337
2005	PORT SULPHUR LA.	364	0	364	364	0	364	0	0	0	0	0	0	0	0	0	0	0	0
2006	MEMPHIS TENN.	562	283	280	562	283	280	0	0	0	0	0	0	0	0	0	0	0	0
2009	DESTREHAN LA	1,215,527	3,127	1,212,400	523,478	332	523,146	0	0	0	350	0	350	688,904	0	688,904	2,795	2,795	0
2010	GRAMERCY LA	7,538,558	2,431,224	5,107,334	810,615	184,102	626,513	30,577	13,688	16,889	2,143,714	2,097,382	46,332	4,419,062	1,506	4,417,556	134,590	134,546	44
2012	AVONDALE LA	93,072	55,139	37,933	32,118	16,785	15,334	59,311	37,666	21,645	1,642	688	954	0	0	0	0	0	0
2013	ST. ROSE LA.	2,023,730	257,274	1,766,456	551,880	30,774	521,106	194,466	8,285	186,181	309,881	217,334	92,547	966,605	0	966,605	899	882	17
2014	GOOD HOPE LA.	99,723	48,422	51,300	3,082	0	3,082	4,546	3,234	1,312	92,095	45,189	46,906	0	0	0	0	0	0
2015	VICKSBURG MISS.	78	78	0	78	78	0	0	0	0	0	0	0	0	0	0	0	0	0
2017	LAKE CHARLES, LA.	2,743,421	1,716,238	1,027,182	692,542	86,465	606,077	6,110	45	6,064	1,889,875	1,619,904	269,971	114,490	0	114,490	40,404	9,824	30,581
2101	PORT ARTHUR TEX.	2,588,256	2,159,537	428,719	275,681	77,299	198,383	32,183	1,174	31,008	2,179,439	2,079,050	100,389	50,090	0	50,090	50,863	2,014	48,849
2102	SABINE TEX.	19,333	54	19,279	19,333	54	19,279	0	0	0	0	0	0	0	0	0	0	0	0
2103	ORANGE TEX.	45,246	8,485	36,761	35,207	0	35,207	0	0	0	10,020	8,485	1,535	20	0	20	0	0	0
2104	BEAUMONT TEX.	826,401	567,495	258,906	112,522	18,955	93,567	5,440	155	5,285	595,615	548,288	47,327	112,727	0	112,727	97	97	0
2301	BROWNSVILLE TEX.	110,489	93,750	16,739	44,970	39,313	5,657	38,137	36,869	1,268	19,199	9,385	9,814	0	0	0	8,182	8,182	0
2501	SAN DIEGO CAL.	293,079	187,078	106,000	264,703	166,748	97,955	0	0	0	56	0	56	12,527	4,538	7,989	15,793	15,793	0
2704	LOS ANGELES CAL.	57,392,721	45,134,281	12,258,440	56,071,681	44,229,209	11,842,472	142,263	90,177	52,086	1,055,608	717,589	338,018	30,833	20,407	10,426	92,336	76,899	15,438
2707	PORT SAN LUIS CAL.	1,425	284	1,141	1,425	284	1,141	0	0	0	0	0	0	0	0	0	0	0	0
2709	LONG BEACH CAL.	48,878,212	37,023,678	11,854,534	47,858,641	36,592,596	11,266,045	165,580	115,632	49,948	606,474	199,027	407,447	69,551	23,486	46,064	177,967	92,938	85,030
2711	EL SEGUNDO CAL.	44,942	17,276	27,666	2,812	40	2,772	0	0	0	42,130	17,236	24,894	0	0	0	0	0	0
2713	PORT HUENEME CAL.	1,397,037	1,370,517	26,520	1,396,861	1,370,517	26,344	125	0	125	51	0	51	0	0	0	0	0	0
2719	MORRO CAL.	3	3	0	3	3	0	0	0	0	0	0	0	0	0	0	0	0	0
2802	EUREKA CAL.	236,928	8,525	228,403	236,377	7,974	228,403	0	0	0	0	0	0	0	0	0	551	551	0
2805	MONTEREY CAL.	15,199	15,199	0	0	0	0	0	0	0	15,199	15,199	0	0	0	0	0	0	0
2809	SAN FRANCISCO CAL.	5,814,127	3,660,192	2,153,935	5,535,528	3,518,683	2,016,845	23,914	10,156	13,759	197,358	83,087	114,271	25,722	16,707	9,014	31,605	31,559	46
2810	STOCKTON CAL.	285,305	147,735	137,569	240,019	109,374	130,645	1,370	1,234	135	3,692	0	3,692	13,701	10,604	3,097	26,523	26,523	0
2811	OAKLAND CAL.	18,416,186	10,825,830	7,590,357	18,172,171	10,673,052	7,499,119	117,107	74,140	42,967	20,679	4,270	16,409	25,657	5,529	20,128	80,573	68,839	11,734
2812	RICHMOND CAL.	2,071,062	1,566,567	504,495	1,515,425	1,346,586	168,838	88,556	53,458	35,098	456,056	155,505	300,551	9	0	9	11,017	11,017	0
2813	ALAMEDA CAL.	28,039	27,930	109	28,039	27,930	109	0	0	0	0	0	0	0	0	0	0	0	0
2815	CROCKETT CAL.	12,334	12,334	0	12,334	12,334	0	0	0	0	0	0	0	0	0	0	0	0	0
2816	SACRAMENTO CAL.	143,958	24,837	119,121	71,523	13,851	57,671	0	0	0	560	0	560	60,890	0	60,890	10,985	10,985	0
2820	MARTINEZ CAL.	194,469	44,987	149,482	40,472	16,647	23,826	1,433	518	915	152,564	27,823	124,741	0	0	0	0	0	0
2821	REDWOOD CITY CAL.	18,224	0	18,224	16,797	0	16,797	0	0	0	0	0	0	1,427	0	1,427	0	0	0
2827	RELBY CAL.	3,467	0	3,467	0	0	0	0	0	0	3,467	0	3,467	0	0	0	0	0	0
2828	SAN JOAQUIN RIVER CAL.	209,703	188,208	21,496	188,062	170,173	17,889	0	0	0	10,224	6,617	3,606	0	0	0	11,418	11,418	0
2829	PABLO BAY CAL.	61,683	26,113	35,569	1,080	1,080	0	0	0	0	60,603	25,033	35,569	0	0	0	0	0	0
2830	CARQUINEZ STRAIT CAL.	1,824,434	1,245,791	578,643	1,761,176	1,238,575	522,601	0	0	0	63,257	7,215	56,042	0	0	0	0	0	0
2831	SUISUN BAY CAL.	102,927	7,233	95,694	41,298	0	41,298	0	0	0	61,629	7,233	54,396	0	0	0	0	0	0
2901	ASTORIA OREG.	51,217	9,802	41,415	50,879	9,802	41,078	0	0	0	0	0	0	337	0	337	0	0	0
2902	NEWPORT OREG.	17,531	0	17,531	17,531	0	17,531	0	0	0	0	0	0	0	0	0	0	0	0
2903	COOS BAY OREG.	545,536	1,869	543,667	544,328	1,178	543,149	0	0	0	0	0	0	518	0	518	691	691	0
2904	PORTLAND OREG.	7,039,939	3,743,065	3,296,874	5,744,904	3,536,500	2,208,404	39,871	31,823	8,048	57,701	56,636	1,065	885,588	502	885,086	311,874	117,604	194,270
2905	LONGVIEW WASH.	996,032	202,783	793,249	759,133	45,471	713,662	0	0	0	7,051	7,051	0	70,194	0	70,194	159,654	150,261	9,393
2908	VANCOUVER WASH.	695,834	153,078	542,756	211,449	47,215	164,234	5	0	5	1,245	1,245	0	367,514	0	367,514	115,620	104,617	11,003
2909	KALAMA WASH.	591,122	8,774	582,347	43,438	8,774	34,664	0	0	0	0	0	0	539,866	0	539,866	7,818	0	7,818
3001	SEATTLE WASH.	26,029,261	20,207,351	5,821,910	25,475,357	20,007,960	5,467,398	25,864	14,870	10,994	131,267	111,391	19,876	335,064	13,176	321,888	61,709	59,955	1,754
3002	TACOMA WASH.	23,524,907	17,450,543	6,074,364	22,677,246	17,040,343	5,636,902	14,641	7,969	6,672	180,375	174,150	6,225	445,208	23,735	421,473	207,436	204,344	3,092
3003	ABERDEEN-HOQUIAM WASH.	570,166	1,233	568,932	567,239	867	566,371	0	0	0	0	0	0	0	0	0	2,927	366	2,561
3004	BLAINE WASH.	7,027	2,761	4,266	6,005	2,760	3,245	2	2	0	1,021	0	1,021	0	0	0	0	0	0
3005	BELLINGHAM WASH.	565,003	147,773	417,230	350,401	7,004	343,397	0	0	0	101,884	28,131	73,753	0	0	0	112,716	112,637	81
3006	EVERETT WASH.	223,981	55,265	168,716	169,608	891	168,716	0	0	0	0	0	0	0	0	0	54,373	54,373	0
3007	PORT ANGELES WASH.	162,122	34,409	127,712	134,752	9,763	124,989	0	0	0	22,647	20,124	2,723	0	0	0	4,523	4,523	0
3008	PORT TOWNSEND WASH.	14,956	5,131	9,825	9,875	50	9,825	0	0	0	0	0	0	0	0	0	5,081	5,081	0

Appendix A

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U.S. Ports total trade		1991 Trade 1000$/yr			General Cargo			Non-petroleum liquids			Petroleum oil & products			Bulk Grain			Dry Bulk		
code	In 1000$	Total	Exports	Imports	Total	Exports	Imports	Total	Exports	Imports	Total	Exports	Imports	Total	Exports	Imports	Total	Exports	Imports
3010	ANACORTES WASH.	171,419	58,884	112,535	55,305	2,963	52,342	217	0	217	115,897	55,921	59,975	0	0	0	0	0	0
3014	FRIDAY HARBOR WASH.	5,063	432	4,631	4,913	388	4,525	0	0	0	0	0	0	0	0	0	150	44	105
3017	POINT ROBERTS WASH.	665	0	665	665	0	665	0	0	0	0	0	0	0	0	0	0	0	0
3026	OLYMPIA WASH.	96,922	29,535	67,387	91,683	24,297	67,387	0	0	0	5,238	5,238	0	0	0	0	0	0	0
3101	JUNEAU ALASKA	62,902	226	62,676	62,745	94	62,652	0	0	0	25	0	25	0	0	0	132	132	0
3102	KETCHIKAN ALASKA	316,892	12,245	304,647	308,491	3,903	304,587	60	0	60	7,089	7,089	0	0	0	0	1,253	1,253	0
3103	SKAGWAY ALASKA	121,755	22,988	98,767	105,377	6,610	98,767	4	4	0	12,778	12,778	0	0	0	0	3,595	3,595	0
3105	WRANGELL ALASKA	16,724	234	16,490	16,659	169	16,490	0	0	0	65	65	0	0	0	0	0	0	0
3106	DALTON CACHE, ALASKA	16,041	1,178	14,863	14,863	0	14,863	0	0	0	1,178	1,178	0	0	0	0	0	0	0
3107	VALDEZ, ALASKA	13,625	10,530	3,095	10,759	7,664	3,095	0	0	0	2,866	2,866	0	0	0	0	0	0	0
3111	FAIRBANKS ALASKA	3,107	3,096	12	2,516	2,516	0	0	0	0	12	0	12	0	0	0	580	580	0
3115	SITKA ALASKA	117,968	78	117,891	117,891	0	117,891	0	0	0	0	0	0	0	0	0	78	78	0
3124	PELICAN ALASKA	50	0	50	0	0	0	0	0	0	50	0	50	0	0	0	0	0	0
3125	SAND POINT ALASKA	35,342	0	35,342	35,342	0	35,342	0	0	0	0	0	0	0	0	0	0	0	0
3126	ANCHORAGE ALASKA	2,319,684	102,418	2,217,266	2,048,162	55,397	1,992,765	4,815	4,815	0	262,995	38,494	224,501	0	0	0	3,712	3,712	0
3127	KODIAK ALASKA	102,976	0	102,976	102,976	0	102,976	0	0	0	0	0	0	0	0	0	0	0	0
3201	HONOLULU HAWAII	733,757	585,073	148,684	654,175	553,796	100,379	817	324	492	65,893	19,193	46,700	2,746	1,712	1,034	10,127	10,049	78
3202	HILO HAWAII	5,397	3,278	2,119	3,023	904	2,119	0	0	0	0	0	0	0	0	0	2,374	2,374	0
3203	KAHULUI HAWAII	14,488	5,178	9,310	14,081	4,771	9,310	0	0	0	0	0	0	0	0	0	407	407	0
3204	NAWILIWILI HAWAII	5,722	5,722	0	5,088	5,088	0	0	0	0	0	0	0	0	0	0	634	634	0
3601	DULUTH MINN.	151,593	13,856	137,737	86,103	7,256	78,847	0	0	0	495	490	5	60,594	1,709	58,885	4,401	4,401	0
3602	ASHLAND WIS.	7,903	7,903	0	0	0	0	0	0	0	0	0	0	0	0	0	7,903	7,903	0
3604	INT. FALLS MINN.	18	0	18	18	0	18	0	0	0	0	0	0	0	0	0	0	0	0
3608	SUPERIOR WIS.	358,180	128,893	229,287	178,588	112,628	65,960	43	43	0	2,732	2,732	0	176,443	13,115	163,328	375	375	0
3701	MILWAUKEE WIS.	117,127	66,888	50,239	77,921	54,535	23,387	93	93	0	41	0	41	26,811	0	26,811	12,260	12,260	0
3702	MARINETTE WIS.	6,929	6,929	0	6,929	6,929	0	0	0	0	0	0	0	0	0	0	0	0	0
3703	GREEN BAY WIS.	14,374	9,378	4,996	9,599	4,603	4,996	0	0	0	2,449	2,449	0	0	0	0	2,326	2,326	0
3708	RACINE WIS.	28	28	0	28	28	0	0	0	0	0	0	0	0	0	0	0	0	0
3801	DETROIT MICH.	1,471,178	1,379,840	91,338	1,409,909	1,328,745	81,165	1,295	1,131	164	26,487	18,177	8,310	108	0	108	33,379	31,787	1,591
3802	SAULT ST. MARIE MICH.	5,739,111	5,731,043	8,068	5,715,665	5,708,047	7,618	142	113	29	804	404	400	21	0	21	22,479	22,479	0
3803	SAULT ST.MARIE	22,374	12,610	9,764	9,901	1,063	8,838	0	0	0	12,268	11,342	926	0	0	0	205	205	0
3804	SAGINAW-BAY CITY MICH.	21,318	16,755	4,562	4,562	0	4,562	0	0	0	334	334	0	0	0	0	16,422	16,422	0
3808	ESCANABA MICH.	94	94	0	0	0	0	0	0	0	0	0	0	0	0	0	94	94	0
3809	MARQUETTE MICH.	16,085	2	16,083	16,085	2	16,083	0	0	0	0	0	0	0	0	0	0	0	0
3815	MUSKEGON MICH.	2,463	1,611	852	852	0	852	0	0	0	0	0	0	0	0	0	1,611	1,611	0
3818	ROGERS CITY MICH.	5,395	270	5,125	5,118	0	5,118	7	0	7	0	0	0	0	0	0	270	270	0
3819	DE TOUR VILLAGE MICH.	680	0	680	680	0	680	0	0	0	0	0	0	0	0	0	0	0	0
3820	MACKINAC ISLAND MICH.	15,750	15,750	0	0	0	0	0	0	0	15,750	15,750	0	0	0	0	0	0	0
3842	PRESQUE ISLE MICH.	7,056	167	6,889	6,977	88	6,889	0	0	0	0	0	0	0	0	0	79	79	0
3843	ALPENA MICH.	5,666	1,310	4,356	4,356	0	4,356	0	0	0	1,021	1,021	0	0	0	0	289	289	0
3844	FERRSBURG MICH.	3,855	3,855	0	0	0	0	0	0	0	0	0	0	0	0	0	3,855	3,855	0
3901	CHICAGO ILL.	443,704	391,615	52,088	374,447	326,193	48,254	11,025	11,025	0	33,732	32,963	769	0	0	0	24,500	21,435	3,065
3904	E. CHICAGO IND.	7,681	1,181	6,499	6,511	12	6,499	0	0	0	0	0	0	0	0	0	1,170	1,170	0
3905	GARY IND.	116,415	57,063	59,352	81,568	22,215	59,352	0	0	0	0	0	0	0	0	0	34,847	34,847	0
4101	CLEVELAND OHIO	299,635	278,395	21,240	224,657	211,331	13,325	75	75	0	10,558	2,643	7,915	0	0	0	64,346	64,346	0
4105	TOLEDO OHIO	403,652	120,253	283,399	222,069	53,374	168,696	0	0	0	14,489	6,683	7,806	111,331	4,433	106,897	55,763	55,763	0
4106	ERIE PA.	17,247	11,826	5,421	14,241	8,819	5,421	0	0	0	0	0	0	0	0	0	3,006	3,006	0
4107	SANDUSKY OHIO	13,407	3,881	9,526	9,526	0	9,526	0	0	0	0	0	0	3,669	3,669	0	212	212	0
4108	ASHTABULA OHIO	180,804	63,528	117,276	117,713	438	117,276	0	0	0	0	0	0	0	0	0	63,091	63,091	0
4109	CONNEAUT OHIO	4,670	0	4,670	4,670	0	4,670	0	0	0	0	0	0	0	0	0	0	0	0
4115	LOUISVILLE KY.	216	216	0	34	34	0	182	182	0	0	0	0	0	0	0	0	0	0
4117	HURON OHIO	7,830	7,693	137	330	193	137	0	0	0	0	0	0	7,500	7,500	0	0	0	0
4121	LORAIN OHIO	6,398	6,293	104	2,672	2,568	104	0	0	0	0	0	0	0	0	0	3,725	3,725	0
4503	ST. LOUIS MO.	3,451	900	2,551	1,295	900	395	0	0	0	2,156	0	2,156	0	0	0	0	0	0

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U.S. Ports total trade		1991 Trade 1000$/yr			General Cargo			Non-petroleum liquids			Petroleum oil & products			Bulk Grain			Dry Bulk		
code	In 1000$	Total	Exports	Imports	Total	Exports	Imports	Total	Exports	Imports	Total	Exports	Imports	Total	Exports	Imports	Total	Exports	Imports
4901	AGUADILLA PR.	199	199	0	199	199	0	0	0	0	0	0	0	0	0	0	0	0	0
4904	FAJARDO PR.	4,076	1,961	2,115	2,143	134	2,009	0	0	0	1,933	1,827	106	0	0	0	0	0	0
4905	GUANICA PR.	4,583	2,108	2,474	3,379	904	2,474	0	0	0	0	0	0	0	0	0	1,204	1,204	0
4906	HUMACAO PR.	405,994	355,704	50,290	18,440	0	18,440	0	0	0	387,554	355,704	31,850	0	0	0	0	0	0
4907	MAYAGUEZ PR	153,526	150,534	2,992	150,331	147,543	2,788	300	300	0	204	0	204	461	461	0	2,229	2,229	0
4908	PONCE PR.	1,178,754	736,848	441,906	1,113,540	683,981	429,558	21,575	18,285	3,291	32,149	23,114	9,035	2,555	2,533	22	8,936	8,936	0
4909	SAN JUAN PR.	3,735,117	1,995,122	1,739,995	3,306,552	1,590,946	1,715,606	25,925	19,542	6,383	367,237	351,956	15,281	4,949	2,269	2,679	30,454	30,409	45
4911	JOBOS PR.	528,727	367,916	160,810	48,226	0	48,226	3,853	3,781	72	476,648	364,136	112,512	0	0	0	0	0	0
4912	GUAYANILLA PR.	581,982	503,417	78,565	27,465	11,887	15,578	1,408	1,375	33	545,180	482,226	62,954	47	47	0	7,883	7,883	0
5101	CHARLOTTE AMALIE V.I.	167,169	67,424	99,745	131,368	38,989	92,379	14,081	9,232	4,849	2,007	207	1,800	785	69	717	18,928	18,928	0
5102	CRUZ BAY V.I.	752	752	0	679	679	0	8	8	0	0	0	0	0	0	0	65	65	0
5104	CHRISTIANSTED V.I.	1,649,562	1,460,681	188,681	56,060	20,598	35,462	1,486	1,313	173	1,483,019	1,398,962	84,056	41	41	0	108,956	39,967	68,990
5105	FREDERIKSTED V.I.	1,512	1,489	23	1,050	1,038	13	459	449	10	0	0	0	0	0	0	3	3	0
5201	MIAMI FL.	9,622,155	3,612,339	6,009,816	9,486,820	3,543,631	5,943,189	53,134	23,259	29,875	41,869	28,099	13,770	22,407	641	21,766	17,925	16,710	1,216
5202	KEY WEST FL.	2,497	189	2,308	2,497	189	2,308	0	0	0	0	0	0	0	0	0	0	0	0
5203	PORT EVERGLADES FL.	4,885,220	2,872,303	2,012,917	4,390,673	2,396,408	1,994,265	69,867	62,449	7,418	348,701	342,944	5,757	9,047	3,828	5,218	66,932	66,673	259
5204	W. PALM BEACH FL.	1,378,687	433,309	945,378	1,214,163	313,693	900,470	39,499	3,584	35,915	111,584	108,061	3,523	5,433	50	5,383	8,007	7,921	87
5205	FORT PIERCE FL.	4,603	2,645	1,958	4,512	2,559	1,953	0	0	0	4	0	4	0	0	0	88	88	0
5301	HOUSTON TEX.	24,918,140	10,625,883	14,292,257	18,288,857	6,152,809	12,136,049	627,341	249,085	378,256	5,104,039	4,139,268	964,771	813,924	12,189	801,735	83,960	72,533	11,447
5306	TEXAS CITY	2,964,795	2,325,280	639,515	408,754	26,079	382,675	64,797	31,735	33,062	2,471,556	2,265,689	205,868	7,700	1,755	5,945	11,988	23	11,965
5310	GALVESTON, TEXAS	2,606,269	1,197,314	1,408,956	2,056,471	902,594	1,153,877	22,068	18,266	3,802	300,629	269,597	31,032	217,565	0	217,565	9,536	6,856	2,680
5311	FREEPORT, TEXAS	1,414,412	866,547	547,866	552,413	98,680	453,733	28,357	4,973	23,384	765,319	761,621	3,698	66,919	0	66,919	1,404	1,272	132
5312	CORPUS CHRISTI, TEXAS	3,966,309	3,125,155	841,154	342,206	32,527	309,679	1,649	31	1,618	3,319,084	2,992,297	326,787	65,610	0	65,610	237,759	100,299	137,459
5313	PORT LAVACA, TEXAS	196,309	144,768	51,541	47,927	16,666	31,260	0	0	0	0	0	0	0	0	0	148,382	128,102	20,280
5401	WASHINGTON D.C.	508	174	334	508	174	334	0	0	0	0	0	0	0	0	0	0	0	0
5402	ALEXANDRIA VA.	73,703	73,522	181	73,703	73,522	181	0	0	0	0	0	0	0	0	0	0	0	0
5801	SAVAN-WILM, COTLNTRS	6,495	411	6,084	6,495	411	6,084	0	0	0	0	0	0	0	0	0	0	0	0
5901	NORF-NEWPORT NEWS VALUE	3,094,716	0	3,094,716	3,094,716	0	3,094,716	0	0	0	0	0	0	0	0	0	0	0	0
	Total Million US $	465,582	290,522	175,060	396,196	242,205	153,991	3,607	2,108	1,499	46,263	40,820	5,443	13,640	272	13,368	5,875	5,117	758

Notes:

Values are rounded to the nearest $1000, a zero indicates value less than $500

Source of raw data: US DOT- MARAD 1991 Harmonized commodities trade data