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April 11, 2007

Mr. Alan H. Sisselman, Chief Ohio Application Evaluation Section
Ms. Michele L. Hope, Architect/Project Manager
Mr. Mark Scalabrino
U.S. Army Corps of Engineers
Buffalo District
1776 Niagara Street
Buffalo, NY 14207-3199

2007 APR 16 AM 11:12

RE: Cleveland-Cuyahoga County Port Authority
Application for Department of Army Permit
Application No. 1999-0147 (4)
Cleveland Bulk Terminal

SUBJECT: Intentional Adverse Effects Determination
Pursuant to 36 CFR 800.9(c)

Dear Mr. Sisselman, Ms. Hope and Mr. Scalabrino:

We are in receipt of Mr. Sisselman's March 30, 2007 letter to consulting parties seeking comments of consulting parties to the intentional adverse effects determination letter to the Advisory Council on Historic Preservation. Please be advised that, for the reasons set forth in the letter from Dennis R. Wilcox to Mr. Scalabrino dated June 2, 2006, the Cleveland-Cuyahoga County Port Authority (the "Port Authority") hereby objects to the intentional adverse effects determination.

Although we do not wish to engage in time consuming debates over the background of the permit application and the alleged intentional adverse effect, we wish to emphasize herein the extensive public deliberations involving the Port Authority, the City of Cleveland and the Community over CBT, which we have detailed in the June 2, 2006 letter and in the Cleveland Bulk Terminal Section 106 Review Report prepared by Ted Sande, AIA, on 12 September 2005. We would also like to emphasize the economic impact which the Port Authority has on Cleveland, Cuyahoga County and Northeast Ohio.

Since our June 2, 2006 letter, throughput at CBT has continued to increase due to market conditions, as the following figures demonstrate:

YEAR	SHORT TONS at CBT
1999	1,196,652
2000	977,394
2001	736,669
2002	1,232,072
2003	1,889,494
2004	2,967,026
2005	2,918,043
2006	3,659,931

I attach at Tab A the Port of Cleveland, Year to Date, Short Ton tables for 1993-2003, 2004, 2005 and 2006 for your reference.

According to an Economic Impact Study of the Great Lakes St. Lawrence Seaway system, dated August 1, 2001, prepared by Martin Associates, the Port of Cleveland, supported by Port Authority activities, averages 13.1 million tons of cargo per year. Additionally, some 90% of cargo is produced or consumed within a 75-mile radius, which together with Port Authority activities provides our area with:

- 11,000 jobs,
- $882 million in revenue,
- $570 million in personal income, and
- $200 million in local, state and federal taxes.

I attach for your consideration the Economic Impact Study (Tab B) and a Capacity Assessment dated February 2003 prepared by TranSystems Corporation. (Tab C) which, at page 18-20 further discusses the economic impact of the Port of Cleveland.

By way of this Permit Application, the Port Authority fully supports Oglebay Norton Company's efforts to fulfill its contract with First Energy and American Electric Power (AEP). As detailed in Mr. Siragusas' letter to Councilman Zone, dated 11 December 2006, a copy of

which is also attached at Tab D for your reference, these contracts will result in additional limestone shipments through CBT of nearly 1,000,000 tons annually.

Consistent with my letter dated February 27, 2007, I enclose a draft Memorandum of Agreement by and among the United States Army Corps of Engineers ("USACE"), the Ohio State Historic Preservation Office, the Advisory Counsel on Historic Preservation, the Cleveland-Cuyahoga County Port Authority and Oglebay Norton Company, Inc. Please note that I have not included the referenced attachments as they are quite lengthy and already in your possession.

On behalf of the Port Authority, we submit the draft Memorandum of Agreement ("MOA") in order to resolve the outstanding issues regarding the Port Authority's application for a Department of the Army Permit. We request that the USACE review the draft MOA and contact us to discuss this in more detail. We further request that this proposed MOA be adopted by the USACE and forwarded to the Advisory Council along with the Determination Letter and this correspondence.

In the meantime, should you have any questions, please feel free to contact the undersigned.

Very truly yours,

David M. Cuppage

DMC/ct
Enclosure
cc w/encl.: Rose Ann DeLeon
E.M. Jacobsen
Councilman Matt Zone
Michael Siragusa
Ted Sande
Dennis R. Wilcox, Esq.

PORT OF CLEVELAND

Cleveland-Cuyahoga County Port Authority
One Cleveland Center
1375 East Ninth St., #2300
Cleveland, Ohio 44114
216-241-8004

Contact: Jeri Waters
Communications Manager

Cleveland Port Authority Traffic Shows Increase in 2006
Posted: 2/7/2007

CLEVELAND - The Cleveland-Cuyahoga County Port Authority is pleased to announce that it experienced an 8.1 percent surge in waterborne traffic in 2006 over 2005.

"The year 2006 was one of the best years in the 39-year history of the Port Authority," said Steve Pfeiffer, vice president of maritime for the Cleveland-Cuyahoga County Port Authority. "This increase demonstrates high local demand for commodities such as steel, iron ore and limestone and is representative of what's going on in terms of our region's manufacturing needs. The Port of Cleveland continues to help the region's manufacturing and construction industries and put more people to work. We look forward to another strong start to our maritime season in March."

The St. Lawrence Seaway's 48th season closed on December 30, setting a record for days of operation with 283, exceeding the previous record set in 2004 by two days. Below is a snapshot of last year's stats:

More than 14.9 million tons of cargo in 1,053 vessels passed through Port of Cleveland in 2006 compared to 13.8 million tons in 2005 on 1,026 vessels.

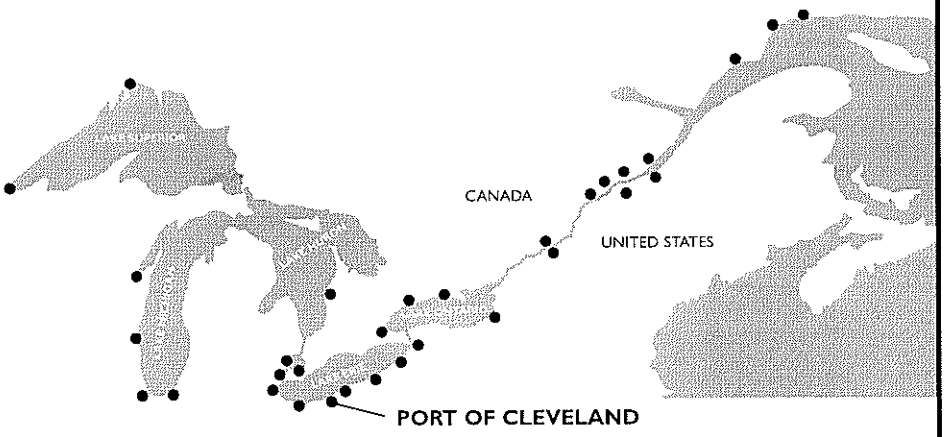
584,071 tons of steel came through the Port Authority in 2006 compared to 451,743 in 2005, representing a 29 percent increase. The steel was distributed to local steel service centers where it is cut, slit and coated before traveling on to manufacturers of various products such as vehicles and appliances.

Iron ore shipments through the Cleveland Bulk Terminal experienced a 17 percent increase in 2006 (3.4 million tons) over 2005 (2.9 million tons). Once the iron ore pellets arrived at Cleveland Bulk Terminal, they were transshipped to Mittal Steel to be converted into steel.

Thirty percent of all waterborne traffic moved across Port Authority-owned facilities compared to just five percent 20 years ago. The Port Authority's role of providing transfer sites to move cargo from vessel to land continues to increase at the public-owned facilities.

"The Port Authority's Cleveland Bulk Terminal is an essential component of the raw materials delivery system that annually supplies million of tons of iron ore to our blast furnaces," said Terry Fedor, general manager, Mittal Steel USA – Cleveland. "This world-class port facility helps keep Mittal's Cleveland facility the most efficient integrated steel mill in the world and supports our growth and investment in new products and markets."

The Cleveland-Cuyahoga County Port Authority helps the regional economy grow and keeps local industries connected to the world by supporting thousands of jobs and providing area businesses a competitive advantage through maritime and development finance partnerships. The port averages 13.1 million tons of cargo per year, while generating more than $570 million in personal incomes through the 11,000 jobs supported by port activities.



We've got a good thing flowing

The Port of Cleveland and the Great Lakes St. Lawrence Seaway System, also called Highway H_2O (HWY H_2O), combine to bring economic vitality to our region through environmentally responsible, fuel-efficient water transportation.

Cleveland's Port Boosts Local Economy
Cleveland's port handles an average of 13.1 million tons of cargo per year, which equates to 6,202 miles of cargo or the round-trip distance from New York to California. Additionally, some 90 percent of cargo is produced or consumed within a 75-mile radius, which in turn provides our area with:

- 11,000 good paying jobs
- $882 million in business revenues
- $570 million in personal incomes
- $200 million in local, state and federal taxes

PORT OF CLEVELAND

HWY H_2O Serves Nearly One-Quarter of North America's Population
HWY H_2O is a 2,340-mile marine highway that flows directly into the United States and Canada's commercial, industrial and agricultural heartland. The waterway carried more than 300 million metric tons of cargo in 2004, valued in excess of $300 billion. HWY H_2O ports are often closer to European markets than East Coast or Gulf ports. For example, the distance between Cleveland and Hamburg, Germany, is shorter than the distance between Baltimore and Hamburg.

HWY H_2O

Marine Transportation: Fuel Efficient, Environmentally Responsible
When comparing major transportation modes, ships use the least amount of fuel to move a ton of cargo, and they have lower emissions per ton. A single ship carrying 60,000 tons of cargo equates to some 3,000 truckloads or 685 rail cars, making marine transport by far the least expensive and most efficient transportation method.

The Port of Cleveland and the Great Lakes St. Lawrence Seaway System (HWY H_2O): Together, ***we've got a good thing flowing.***

PORT OF CLEVELAND
YTD - SHORT TONS
2006

	12/31/2005(YTD)	1/31/06	3/31/06	4/30/06	5/31/06	6/30/06	7/31/06	8/31/06	9/30/06	10/31/06	11/30/06	12/31/06	GRAND TOTAL
STEEL	*448,738.759*		4,441	52,950	56,095	61,485	71,856	69,819	67,803	56,263	96,851	46,503	*584,066*
GENERAL	*14,907.708*			87	43		33	224	178	150	325		*1,040*
CONTAINERS													
BULK DOCK 20	*333,046.000*			64,460	19,700	44,071	27,229	35,453	123,679	119,824	69,488	33,181	*537,085*
CEMENT (ESSROC)	*106,554.410*		8,157	4,129	16,353	7,776	13,285	11,942	9,684	16,300	4,008	11,287	*102,921*
BULK CBT	*2,918,043.825*	278,074	283,273	273,080	137,563	467,634	616,980	462,332	307,935	417,276	196,833	218,951	*3,659,931*
BULK INTERLAKE	*9,026,260.851*			948,105	1,149,421	1,249,600	1,406,451	841,089	987,160	1,053,857	879,358	772,708	*9,287,749*
TOTAL	*12,847,551.553*		*4,441*	*1,001,142*	*1,205,559*	*1,311,085*	*1,478,340*	*911,132*	*1,055,141*	*1,110,270*	*976,534*	*819,211*	*9,872,855*
			(Total does not include Dock 20, CBT, or Essroc)										
INTERNATIONAL SHIPS	*71*		1	9	8	9	11	9	10	7	14	5	*83*
CLEVE. BULK TERMINAL	*150*	14	1	18	11	19	17	16	13	18	9	15	*151*
INTERLAKE SHIPS	*685*			69	84	90	106	72	69	76	71	65	*702*
DRY BULK - DOCK 20	*35*			5	4	5	4	3	10	10	7	3	*51*
DRY BULK - ESSROC	*18*		1	1	2	2	2	2	2	2	1	2	*17*
PASSENGER SHIPS													
VISITING SHIPS					1								*1*
TOTAL	*959*	14	3	102	110	125	140	102	104	113	102	90	*1005*

YEAR-TO-DATE - SHORT TONS

Dec 2004 - Dec 2005

	12/31/2004(YTD)	1/31/05	3/31/05	4/30/05	5/31/05	6/30/05	7/31/05	8/31/05	9/30/05	10/31/05	11/30/05	12/31/05	*GRAND TOTAL*
STEEL	**683,286.552**			52,393.599	59,471.409	46,705.557	21,383.225	32,804.678	48,143.943	65,760.143	71,023.917	51,052.288	***448,738.759***
GENERAL	**28,861.758**				106.923	9.466	3,022.253	349.408	288.251	201.009	10,323.715	606.683	***14,907.708***
CONTAINERS													
BULK DOCK 20	**453,763.984**				15,701.000	35,479.000	43,836.000	68,652.000	26,230.000	55,625.000	29,182.000	58,341.000	***333,046.000***
CEMENT (ESSROC)	**109,925.366**			4,934.910	21,247.440	14,593.400	10,166.960	13,067.830	5,668.890	13,691.000	12,567.640	10,616.340	***106,554.410***
BULK CBT	**2,967,026.000**	187,246.598	64,200.156	321,609.252	288,051.933	249,784.486	216,660.371	313,506.243	398,921.267	304,579.819	285,308.309	288,175.391	***2,918,043.825***
BULK INTERLAKE	**9,150,470.100**			951,277.249	1,202,403.627	1,175,278.114	939,610.590	1,070,656.927	927,691.843	1,038,616.181	849,547.051	871,179.269	***9,026,260.851***
TOTAL	***13,393,333.760***			***1,003,670.848***	***1,261,981.959***	***1,221,993.137***	***964,016.068***	***1,103,811.013***	***976,124.037***	***1,104,577.333***	***930,894.683***	***922,838.240***	***12,847,551.553***
		(Total does not include Dock 20, Essoc, CBT)											
INTERNATIONAL SHIPS	**79**			8	7	9	7	5	6	9	12	8	***71***
CLEVE. BULK TERMINAL	**179**	12	2	18	14	13	12	11	17	16	15	20	***150***
INTERLAKE SHIPS	**649**			73	94	87	71	77	72	72	61	78	***685***
DRY BULK - DOCK 20	**40**				3	4	6	6	4	5	4	3	***35***
DRY BULK - ESSROC	**18**			1	3	3	2	2	1	2	2	2	***18***
PASSENGER SHIPS													
VISITING SHIPS													
TOTAL	***965***	12	2	100	121	116	98	101	100	104	94	111	***959***

PORT OF CLEVELAND
TONNAGES
2004

	January	March	April	May	June	July	August	September	October	November	December	*GRAND TOTAL*
STEEL			24,806.472	87,370.467	77,412.571	54,192.046	85,921.928	102,811.178	97,901.034	75,163.748	77,707.108	***683,286.552***
GENERAL				11.334	9.160	1,942.743	3,886.859	4,752.680	5,155.665	1,269.046	11,834.271	***28,861.758***
CONTAINERS												
BULK DOCK 20			15,941.462	88,529.018	61,399.209	63,887.100	139,144.428	38,125.249		38,686.319	8,051.199	***453,763.984***
CEMENT (ESSROC)		4,731.630		12,662.400	11,381.470	17,635.940	19,305.990	13,088.050	13,445.226	7,986.790	9,687.870	***109,925.366***
BULK CBT	192,397.000		422,395.000	284,511.000	360,008.000	371,731.000	237,191.000	268,585.000	237,762.000	303,167.000	289,279.000	***2,967,026.000***
BULK INTERLAKE *			849,220.538	1,002,522.074	1,250,486.559	1,237,075.960	1,145,274.582	1,149,524.701	767,856.774	959,420.891	789,088.021	***9,150,470.100***
TOTAL			***874,027.010***	***1,089,903.875***	***1,327,908.290***	***1,293,210.749***	***1,235,083.369***	***1,257,088.559***	***870,913.473***	***1,035,853.685***	***878,629.400***	***13,393,333.760***
	(Total does not include Dock 20, Essoc, CBT)											
INTERNATIONAL SHIPS			2	11	11	8	9	11	9	10	8	***79***
CLEVE. BULK TERMINAL	14		17	17	20	23	17	19	16	16	20	***179***
INTERLAKE SHIPS *			51	73	93	88	85	83	51	73	52	***649***
DRY BULK - DOCK 20			1	5	6	7	10	4	3	3	1	***40***
DRY BULK - ESSROC			0	2	2	3	3	2	2	1	3	***18***
PASSENGER SHIPS												***0***
VISITING SHIPS												***0***
TOTAL	14		71	108	132	129	124	119	81	103	84	***965***

* Interlake Tonnage and CBT include January 2004 through Season End

PORT OF CLEVELAND
1993-2003
SHORT TONS

COMMODITIES	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
GENERAL	3,489	3,178	6,294	2,106	3,457	10,000	2,785	2,911	3,685	2,640.144	3,200.064
STEEL	757,509	865,547	699,058	940,410	931,154	1,172,792	718,584	309,738	360,915	441,561.541	527,396.147
BULK DOCK 20	2,845	944	32,198	199,986	105,181			336,793	323,218	318,485.982	469,100.284
CEMENT									79,951	90,925.529	96,768.050
BULK CBT						1,323,864	1,196,652	977,394	736,069	1,232,072.000	1,889,494.000
TOTAL PORT PROPERTIES	***763,843***	***869,669***	***737,550***	***1,142,502***	***1,039,792***	***2,506,656***	***1,918,021***	***1,626,836***	***1,503,838***	***2,085,685.196***	***2,985,958.545***
INTERLAKE	12,683,184	13,508,989	14,050,985	15,222,000	15,744,918	16,932,992	12,330,135	11,964,189	11,447,456	9,327,778.000	9,722,811.000
TOTAL CLEVELAND	***13,447,027***	***14,378,658***	***14,788,535***	***16,364,502***	***16,784,710***	***19,439,648***	***14,248,156***	***13,591,025***	***12,951,294***	***11,413,463.196***	***12,708,769.545***

B

Economic Impact Study of the Great Lakes St. Lawrence Seaway System

Prepared for
The U.S. Saint Lawrence Seaway
Development Corporation

August 1, 2001

Martin Associates
2938 Columbia Avenue, Suite 602
Lancaster, Pennsylvania 17603

TABLE OF CONTENTS

EXECUTIVE SUMMARY

Martin Associates was retained by the Saint Lawrence Seaway Development Corporation (SLSDC) to estimate the economic impacts of the Great Lakes St. Lawrence Seaway System on 16 representative U.S. port communities throughout the eight states bordering the Great Lakes St. Lawrence Seaway System. The impacts were measured for activity at both public facilities and private facilities at each of the 16 U.S. ports. Also, the impacts were estimated for all cargo moving via each of the ports, including trans-lake and inter-lake cargo, as well as cargo moving through the St. Lawrence Seaway. Although a study of the economic impacts in Canada was beyond the scope of this study, industry located along the Canadian portion of the Great Lakes St. Lawrence Seaway System represents a significant portion of total Canadian industrial output.

The analysis is designed to provide the SLSDC with a realistic assessment of the contributions made by the Great Lakes St. Lawrence Seaway System and the individual ports to the local, state, regional, and national economies. In order to ensure defensibility and accuracy, the analysis was developed from a comprehensive telephone interview program of more than 380 individual firms providing maritime services at the ports. Separate impact analyses were conducted for each of the ports, and the results have been aggregated to the Great Lakes St. Lawrence Seaway System level for presentation purposes. Finally, a computerized model was developed for each port that can be used to update the port's specific impacts on a regular basis and to evaluate the sensitivity of impacts to changes in tonnage levels, commodity mix, the number of vessel calls (dockings) at the port, labor and port productivity, changes in inland distribution patterns (inland markets served by rail vs. truck) of the waterborne commodities and Great Lakes St. Lawrence Seaway System policy issues.

For the most part, the same methodology was used in 1992 to estimate the economic impacts of the Great Lakes St. Lawrence Seaway System. As a result, a direct comparison can be made with the 1991 economic impacts and the current economic impacts created by cargo and vessel activity on the Great Lakes.[1] In addition, the same methodology has been used by Martin Associates to estimate the economic impacts of seaport activity at more than 95 seaports in the U.S. and Canada.

The economic impacts generated by cargo and vessel activity in 2000 on the Great Lakes St. Lawrence Seaway System are summarized in the following table. The 1991 economic impacts are also included for comparison purposes.

[1] Martin Associates conducted an interim update of the economic impacts of the Great Lakes in 1994, but this update was not based on a comprehensive survey of port tenants, terminal operators, and members of the maritime communities at each of the 16 U.S. ports. Therefore, comparisons will be made with the 1992 study, since this earlier study was based on a comprehensive interim program similar to the 2000 study.

In 2000, 192.0 million tons moved on the U.S. Great Lakes St. Lawrence Seaway System, an increase from the 123.8 million moving on the system in 1991. International cargo moving to and from the 16 U.S. Great Lakes ports and passing through the St. Lawrence Seaway grew from 5.9 million tons in 1991 to 8.8 million tons in the year 2000.

Summary of Economic Impacts
2000 and 1991

IMPACTS				PERCENT
JOBS	2000	1991	CHANGE	CHANGE
DIRECT	43,968	33,716	10,252	30.41%
INDUCED	27,392	10,912	16,480	151.03%
SUB TOTAL	71,360	44,628	26,732	59.90%
INDIRECT	26,757	NA	NA	
TOTAL JOBS	**98,117**	**44,628**	**26,732**	
RELATED SHIPPER JOBS	**54,391**	NA	NA	
	ALL DOLLAR VALUES IN 1,000 DOLLARS			
PERSONAL INCOME (1000)				
DIRECT	$1,623,014	$1,050,128	$572,886	54.55%
INDUCED	$1,889,837	$854,180	$1,856,393	121.25%
INDIRECT	$820,736	NA	NA	
TOTAL INCOME IMPACT	**$4,333,586**	**$1,904,308**	**$2,429,278**	
REVENUE (1000)	**$3,385,243**	**$1,724,883**	**$1,660,360**	96.26%
FEDERAL, STATE, LOCAL TAXES (1000)	**$1,336,290**	NA	NA	

In 2000, the Great Lakes St. Lawrence Seaway System generated the following impacts:

- A total of 152,508 jobs are in some way related to the 192.0 million tons of cargo moving on the U.S. Great Lakes St. Lawrence Seaway System in 2000. Of the 152,508 jobs, 43,968 jobs are directly created as the result of Great Lakes St. Lawrence Seaway System activity. This represented an increase of 30 percent from the 1991 figures, surpassing the national increase in employment for that same period by 50 percent. The majority of the direct employees are with shippers/consignees and terminal operators directly dependent upon the Great Lakes St. Lawrence Seaway System for the receipt and shipment of raw materials (iron ore, limestone, sand and gravel, salt, etc.) and finished products (primarily steel products). As the result of supplying goods and services to the directly employed workers, another 27,392 induced jobs were supported in the local economy. The firms providing the transportation services and cargo handling services made $1.3 billion of

purchases in the Great Lakes region, which supported 26,757 indirect jobs.[2] Finally, 54,391 jobs are with shippers and consignees using the Great Lakes St. Lawrence Seaway System. These jobs do not have the same degree of dependency as do the direct, induced and indirect jobs, since the shippers and consignees using the Great Lakes St. Lawrence Seaway System can and do use other ports for shipment and receipt of cargo. However, if the Great Lakes St. Lawrence Seaway System were to shutdown, these related shippers and consignees would experience some degree of dislocation. Such a penalty would vary from a loss of employment opportunities in some cases to an increase in total transportation costs in other cases, which could, in turn, result in employment reductions.

- The movement of iron ore on the Great Lakes St. Lawrence Seaway System creates the largest job impact, followed by the shipment and receipt of coal, iron and steel products, and sand and gravel/aggregates.

- Iron and steel products generate the greatest job impact on a per 1,000 ton basis impact. For every 1,000 tons of steel moving on the Great Lakes St. Lawrence Seaway System, one job is directly generated.[3] Overall, general cargo commodities such as iron and steel products and project cargo (pieces/ units of cargo longer, taller, wider and/or heavier than cargo handling equipment such as boilers, specialized machines, modular buildings, etc.) create greater job impacts per 1,000 tons than do dry bulk cargoes (large volume shipments of non-packaged/contained dry products) and liquid bulk cargoes (large volume shipments of non-packaged/contained liquid products), due to the relatively greater labor intensive handling of the cargoes, particularly in the vessel load and discharge process and with terminal handling and storage at the ports.

- The maritime activity on the U.S. Great Lakes St. Lawrence Seaway System generated $3.4 billion of business revenue to firms providing transportation and cargo handling services. This excludes the value of the commodities moving on the Great Lakes St. Lawrence Seaway System.

  - The movement of iron ore created $982 million of business revenue, followed by iron and steel products ($786 million) and coal ($635 million).

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[2] Direct jobs are jobs directly generated by port activity; Induced jobs are jobs created due to the purchases of goods and services by those individuals directly dependent upon port activity; Indirect jobs are created due to the purchases of goods and services by firms, not individuals.

[3] It is to be emphasized that the job per ton measure is a static measure. The jobs per ton ratio should not be used to estimate the impacts for an increase in steel tonnage, since a large percentage of the steel generated jobs (i.e., forwarders, agents, chandlers (those who supply vessels with ship supplies), etc.) are fixed over the short term. To estimate incremental impacts of changes in tonnage, the individual port impact models should be used, as this is the designed purpose of the impact models.

- On a per ton basis, for every one ton of steel, $250 of business revenue is created. For every one ton of other general cargo commodities, $156 of business revenue is generated. Bulk commodities generate significantly less revenue per ton than do the general cargo commodities.

- The 43,968 directly employed residents of the U.S. Great Lakes region received $1.6 billion of direct wages and salaries. As the result of purchases by these directly employed workers, an additional $1.9 million of local purchases and consumption expenditures were created, supporting the 27,392 induced jobs.

- The firms providing the cargo handling and transportation services spent $1.3 billion on purchases for supplies, business services and maintenance and repair services, utilities, etc. These local purchases supported the 26,757 indirect jobs.

- The maritime activity on the U.S. Great Lakes St. Lawrence Seaway System created $1.3 billion of federal, state and local tax revenue in 2000.

- Between 1991 and 2000, tonnage on the U.S. Great Lakes St. Lawrence Seaway System increased from 123.8 million tons to 192.0 million tons. As a result of the growth in tonnage, direct jobs increased by more than 10,000 jobs, while induced jobs grew by nearly 16,500 jobs, reflecting higher earnings per direct job as well as a greater consumption multiplier effect. Direct personal income grew by 54.5 percent over the period, while induced income and consumption expenditures grew by 121.3 percent over the 1991-2000 period, far outstripping the rate of inflation for this period, which increased by 27.1 percent. Similarly, the revenue received by the businesses providing the transportation services as well as the cargo handling services nearly doubled, growing by 96.3 percent over the 1991-2000 period, compared to the 27.1 percent increase in inflation over the same time period:

  - The greatest growth in jobs was with truckers serving the Great Lakes St. Lawrence Seaway System (4,490 jobs), followed by a 4,188 increase with terminal operators and dependent shippers/consignees.

  - With respect to job growth by commodity, the largest growth was with jobs created by the movement of coal, 4,121 job increase, followed by growth in jobs created by stone and aggregates (2,204 direct job increase) and growth in jobs created by iron and steel products (1,367 direct jobs).

In 1991 indirect jobs and related jobs were not measured, and the tax impacts only included taxes paid by individuals. In this current study, the tax impact includes taxes generated from all sources at the federal, state and local levels. Therefore, comparisons of these tax impacts and indirect and related jobs cannot be made with the earlier study.

These summary findings, and the balance of the following report, highlight the importance of the Great Lakes St. Lawrence Seaway System as a key transportation system serving the United States. Further, the contribution of this transportation system to the national economy has continued to grow, providing jobs for nearly 100,000 direct, induced and indirectly held jobs.

I. INTRODUCTION AND OVERVIEW

Martin Associates was retained by the Saint Lawrence Seaway Development Corporation (SLSDC) to update the 1992 study of the economic impacts of the 16 U.S. ports on the Great Lakes St. Lawrence Seaway System.[1] The impacts are measured for activity at both public facilities and private facilities at each of the 16 U.S. ports. Also, the impacts are estimated for all cargo moving via each of the ports, including trans-lake and inter-lake cargo, as well as international overseas cargo moving through the St. Lawrence Seaway.

The analysis has been designed to provide the SLSDC with a realistic and defensible assessment of the contributions made by the Great Lakes St. Lawrence Seaway System and the ports to the local, state, regional, and national economies. In order to ensure defensibility and accuracy, the analysis was developed from a comprehensive telephone interview program of 380 individual firms providing maritime services at the ports. Separate impact analyses were conducted for each of the ports, and the results have been aggregated to a Lake/Regional level for presentation purposes. A computerized model was developed for each port that can be used to update the port's specific impacts on a regular basis and to evaluate the sensitivity of impacts to changes in tonnage levels, commodity mix, vessel call levels, labor and port productivity, changes in inland distribution patterns of the waterborne commodities and Great Lakes St. Lawrence Seaway System policy issues.

In addition to the 1992 study, an interim report was prepared in 1994.[2] The same methodology has been used by Martin Associates to estimate the economic impacts of more than 95 seaports. In the remainder of this chapter an overview of the analysis is presented.

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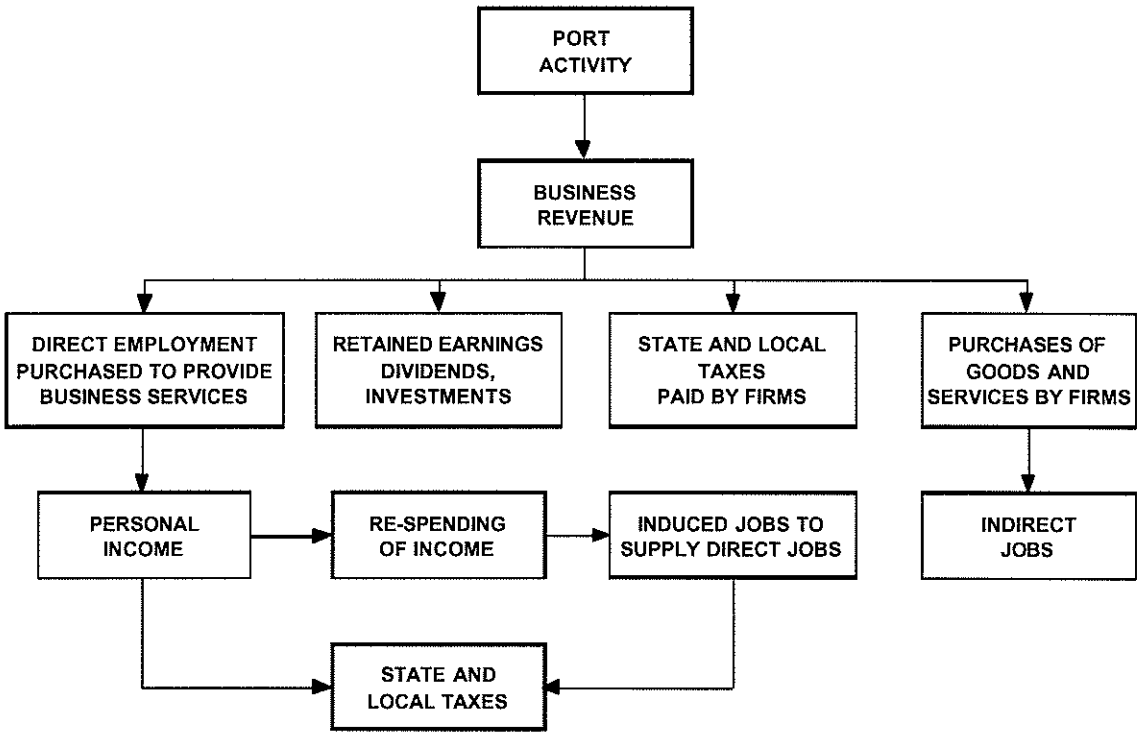
[1] "The Economic Impact of the Great Lakes St. Lawrence Seaway System", Prepared for the Saint Lawrence Seaway Development Corporation, by Martin Associates, September, 1992. The 1992 study is based on 1991 data.

[2] Martin Associates conducted an interim update of the economic impacts of the U.S. Great Lakes in 1994, but this update was not based on a comprehensive survey of port tenants, terminal operators, and members of the maritime communities at each of the 16 U.S. ports. Therefore, comparisons will be made with the 1991 study, since this earlier study was based on a comprehensive interim program similar to the 2000 study.

1. OVERVIEW OF IMPACT FLOWS

A port contributes to the local, regional, and national economies by providing employment and income to individuals, tax revenues to local, state, and federal governments, and revenue to businesses engaged in handling, shipping, and receiving cargo via the port. Exhibit I-1 illustrates the flows of economic impacts throughout the economy. As this figure shows, activity at a port (i.e., the handling of cargo and the servicing of vessels) initially creates business revenue to firms

Exhibit I-1
Flows of Economic Activity Through the Economy



providing those cargo handling and vessel services. This revenue is in turn used for several purposes:

- To hire employees to provide the services
- To pay stockholders dividends, retire debt, and invest
- To buy goods from other firms
- To pay federal, state, and local taxes

The hiring of employees generates personal income. This personal income is in turn spent throughout the local, state and national economies to purchase goods and services. This respending of income is known as the multiplier effect, which in turn creates induced jobs throughout the state, regional, and national economies. Finally, federal, state, and local taxes are paid by those directly employed due to port activity and those employed as a result of the purchases of goods and services by those individuals directly employed.

As can be seen from Exhibit I-1, and the previous discussion, the flow of economic impacts throughout an economy creates four *separate* and *non-additive* types of impacts. These are:

- Employment Impact - the number of full-time equivalent jobs generated by activity at the individual port. This consists of jobs directly generated by port activity as well as induced jobs, or jobs created due to the purchase of goods and services by those individuals directly dependent upon port activity. Indirect jobs are created due to the purchases of goods and services by firms, not individuals. Related jobs are jobs with users of the Great Lakes St. Lawrence Seaway System, and these users of the Great Lakes St. Lawrence Seaway System can and do use other ports and modes of transportation to ship and receive products.

- Income Impact - the level of wages and salaries associated with the jobs created by port activity, and adjusted to reflect respending throughout the regional economy. The income impact includes the income received by those directly employed due to port activity, as well as the income received by individuals holding induced jobs as well as the indirect jobholders.

- Revenue Impact - the sales generated by firms engaged in providing handling and transportation services to the cargo moving via the 16 U.S. ports on the Great Lakes St. Lawrence Seaway System. The value of shipments through a port is not included as a revenue impact for the purposes of this analysis, since the port is not responsible for such revenue. Instead, it is the demand for the product, which creates the value of the products.[3]

- Tax Impacts - the federal, state, and local tax revenues generated by the cargo activity at each of the 16 U.S. ports.

2. BUSINESS SECTORS ANALYZED

Shipments through a port generate economic activity in various business sectors of the state and local economy. The following distinct business sectors are involved in activity at each of the 16 U.S. ports. These are the:

- Transportation Sector
- Maritime Service Sector
- Port Organizations
- Dependent Shippers/Consignees
- Banking/Insurance/Admiralty Law Sector
- Related Users

Within each sector, various participants are involved. Separate impacts are estimated for each of the participants. A discussion of each of the economic impact business sectors is provided below, including a description of the major participants in each sector.

2.1 Transportation Sector

The transportation sector consists of the railroad and trucking industries. These industries are responsible for moving the various cargoes between the individual ports and their inland origins and destinations. The railroads are typically involved in moving bulk cargoes to and from the ports. These cargoes include grain, coal and iron ore.

[3] If shipment value were included, then a port would be given credit for the value of the product. This assumes that the product is not driven by final demand, and furthermore, that the shipment would not move via any other port or mode of transportation.

Many local and national trucking firms serve the individual ports, as do numerous individual owner-operators. The trucking industry's major involvement is in moving general cargo commodities (packaged/contained products handled one piece/unit at a time), primarily steel and break bulk cargo (such as products packed in crates, barrels, cartons, etc.), and in the local distribution of dry bulk commodities (large volume shipments of non-packaged/contained dry products), such as salt, limestone, cement, and liquid bulk commodities (large volume shipments of non-packaged/contained liquid products), including petroleum products.

2.2 Maritime Service Sector

This sector consists of numerous firms and participants performing functions related to the following maritime services:

- Cargo Marine Transportation
- Vessel Operations
- Cargo Handling
- Government Agencies

A brief description of the major participants in each of these categories is provided below:

- Cargo Marine Transportation

  Participants in this category are involved in arranging for inland and water transportation of freight through the 16 U.S. ports of the Great Lakes St. Lawrence Seaway System. The freight forwarder/customhouse broker is the major participant in this category. The freight forwarder/customhouse broker arranges for the freight to be delivered between the port and inland destinations, as well as the ocean transportation.

- Vessel Operations

  This category consists of several participants. The steamship agents provide a number of services for the vessel as soon as it enters the port; the agents arrange for pilot services and towing, for medical and dental care of the crew, and for ship supplies. The agents are also responsible for vessel documentation. In addition to the steamship agents arranging for vessel services, those providing the services include:

  - Chandlers - supply the vessels with ship supplies (food, clothing, nautical equipment, etc.).

  - Towing firms - provide the tug service to guide the vessel to and from port.

- Laker and barge services - include jobs with U.S. and Canadian laker fleets moving commodities between lake ports and between lake ports and the St. Lawrence River ports for transshipment to salties on the St. Lawrence River.

  Also, jobs with towing firms providing linehaul towing on the Lakes are included in this category.

- Bunkering firms - provide fuel to the vessels.

- Marine surveyors - inspect the vessels and the cargo.

- Launch services - provide transportation for the crew between land and vessel.

- Chemical testing services - test cargo, such as coal, for proper chemical composition, water content, etc.

- Shipyards/marine construction firms - provide repairs, either emergency or scheduled as well as marine pier construction and dredging.

- Cargo Handling

  This category involves the physical handling of the cargo at the port between the land and the vessel. Included in this category are the following participants:

  - Longshoremen - include members of the International Longshoremen's Association (ILA) as well as other dockworkers involved in the loading and unloading of cargo from the vessels, and the handling of the cargo prior to loading and after unloading.

  - Stevedoring firms - manage the longshoremen and cargo-handling activities.

  - Terminal operators - are often stevedoring firms who operate the maritime terminals where cargo is loaded and off-loaded. Terminal operators also include private marine terminals such as petroleum terminals, private stone and aggregate operations, limestone quarries, and cement terminals.

  - Warehouse operators - store cargo after discharge or prior to loading and consolidate cargo units into shipment lots.

- Government Agencies

  This service sector involves federal, state and local government agencies that perform services related to cargo handling and vessel operations at the port such as immigration, customs and grain inspection.

2.3 Port Organizations

This category includes those individuals employed by the local port authority whose purpose is to oversee port activity and to lease terminals, land and equipment to operators. Also included in this category are employees of the Saint Lawrence Seaway Development Corporation.

2.4 Dependent Shippers/Consignees

Shippers and consignees consist of private manufacturing plants that are dependent on the use of the Great Lakes St. Lawrence Seaway System for the receipt and shipment of raw materials and products. The shippers and consignees are dominated by steel mills dependent upon the U.S. Great Lakes ports for the receipt of iron ore and limestone. These plants were established on the Great Lakes because of the transportation cost advantage of using water transportation for the receipt of low value raw materials. It is likely that if the plants could no longer use the Great Lakes St. Lawrence Seaway System, the manufacturing facilities would cease operations in the long run. It is to be emphasized that the revenue impact associated with the value of the products produced by the dependent shippers/consignees is not included in this study, since the price for the products is based on the demand for the product, not the fact that the cargo and raw materials move on the Great Lakes.

2.5 Banking/Insurance/Admiralty Law Sector

While this sector is not directly involved in cargo or vessel operations, it nonetheless does provide services such as financing export/import transactions and insuring cargo and vessels.

2.6 Related Shippers/Consignees

Related jobs are jobs with shippers and consignees using the Great Lakes St. Lawrence Seaway System. These jobs do not have the same degree of dependency as do the direct, induced and indirect jobs, since the shippers and consignees using the Great Lakes St. Lawrence Seaway System can and do use other ports for shipment and receipt of cargo. However, if the system were to shutdown, these related shippers and consignees would experience some degree of dislocation. Such a penalty would vary from a loss of employment opportunities in some cases to an increase in total transportation costs in other cases, which could, in turn, result in employment reductions.

3. PORTS ANALYZED

The 16 U.S. ports included in the analysis are:

- Ashtabula, OH
- Buffalo, NY
- Burns Harbor, IN
- Chicago, IL
- Cleveland, OH
- Conneaut, OH
- Detroit, MI
- Duluth, MN/Superior, WI
- Erie, PA
- Gary, IN
- Green Bay, WI
- Lorain, OH
- Milwaukee, WI
- Ogdensburg, NY
- Oswego, NY
- Toledo, OH

A separate impact analysis has been conducted for each of these ports. The three separate impacts of jobs, income and revenue were estimated by detailed commodity handled and by detailed job category, and for each of the economic impact business sectors. The job impacts for each port consist of direct jobs and induced jobs. Indirect jobs are estimated at the regional level only. Similarly, the personal income impact for each port consists of the direct income received by those directly employed due to port activity, as well as that portion of the direct income re-spent within the 8-state Great Lakes region. Indirect income is estimated at the regional level only.

As stated previously, the revenue created by port activity is used for many purposes, such as retained earnings, purchases of goods and services, payment of labor, and taxes. The actual expenditure patterns by type and geographic region cannot be defensibly identified. Therefore, the revenue impact of each port should be treated as a national impact, a part of which can be attributed to the region, rather than just solely be attributed as a regional impact.

Taxes are not estimated at the commodity specific level of detail, but instead are based on the total income (including the respending impact) generated by the port in the state in which it is located. Per capita federal, state and local taxes from all sources are developed by state from the Tax Foundation.[4] The impacts generated by the individual ports are then aggregated to estimate total Great Lakes St. Lawrence Seaway System impacts.

[4] The Tax Foundation is an educational organization formed in 1937 to provide Americans with a better understanding of their tax system and the effects of the tax policy by using objective and reliable data.

The impacts associated with the Saint Lawrence Seaway Development Corporation are also included in the analysis at the total Great Lakes St. Lawrence Seaway System level.

4. COMMODITIES ANALYZED

A major use of an economic impact analysis is to provide a tool for port development planning. As a port grows, available land and other resources for port facilities become scarce, and decisions must be made as to how to develop the land and utilize the resources in the most efficient manner. Various types of facility configurations are associated with different commodities. For example, steel coils require a large covered area for storage with reinforced flooring, while certain types of dry bulk cargoes, e.g., fertilizer, require covered storage and reclamation systems.

An understanding of the commodity's relative economic value in terms of employment and income to the state, regional and national economies, the cost of providing the facilities, and the relative demand for the different commodities is essential in making future port development plans. Because of this need for understanding relative commodity impacts, economic impacts are estimated for the following commodities/commodity types handled via the Great Lakes St. Lawrence Seaway System:

- Steel
- General Cargo (excluding steel)
- Grain
- Ore
- Coal
- Cement
- Stone/Aggregates
- Petroleum
- Other Dry Bulk (including other ores and minerals, fertilizers and scrap)
- Salt
- Other Liquid Bulk (including liquid fertilizer, asphalt and tallow).

It should be emphasized that commodity-specific impacts are not estimated for each of the five business sectors described in the last section. Specific impacts by commodity could not be allocated with any degree of accuracy for the banking/insurance/law sector, shipyards and marine construction and the government sector.

Finally, an estimate of economic impacts for specific commodities and employment sectors can serve as a useful guide to assist with the evaluation and planning of new facilities construction, harbor dredging and government policies.

5. METHODOLOGY

The economic impacts created by the Great Lakes St. Lawrence Seaway System are estimated using a combination of multiple telephone interviews with 380 firms providing maritime services at the 16 U.S. Great Lakes ports, published economic data from the U.S. Department of Commerce, Census Bureau, Bureau of Economic Analysis, and the U.S. Department of Labor.

5.1 Direct Impact Methodology

The direct job, income and revenue impacts are estimated directly from the results of telephone surveys conducted with the members of the maritime community of each of the 16 U.S. ports. For each of the ports, members of the maritime community were identified from the Greenwood's Guide to Great Lakes Shipping, the Journal of Commerce Port Telephone "Tickler" Directory, and inputs from the individual ports. Telephone interviews were used to achieve a greater than 95 percent response rate in all categories for each port. In all, a total of more than 600 interviews with 380 firms and terminals were conducted to gather data for this study.

5.2 Induced Impact Methodology

Models were developed for each of the 16 U.S. ports to estimate the induced job impacts and the respending of the direct personal income (created directly by activity at each port). These models are based on data collected from the U.S. Bureau of Labor Statistics, U.S. Bureau of Economic Analysis, and the U.S. Census Bureau. The respending models include two basic components:

- The Respending Component; and
- The Induced Job Component.

The respending component uses a regional personal income multiplier developed from data supplied by the U.S. Bureau of Economic Analysis. The income multiplier measures the respending of the directly created income throughout the 8-state region in which the ports are located. The total income impact created by a specific port is the sum of the direct income impact received by those directly employed at the given port, plus the income re-spent in that state.[5]

It is the respending of the income, within the region that creates induced jobs which are

[5] The total income impact thus includes the income received by those directly employed by the port, the income received by those induced employees, as well as revenue received by firms supplying goods and services to meet the successive rounds of purchases by individuals. Indirect wages and salaries are also included in the total income impact at the Great Lakes St. Lawrence Seaway System level.

estimated in the induced job component of the models. The induced job component consists of typical expenditure patterns by individuals located in a port city and job to sales ratios corresponding to the sectors of the economy in which consumption occurs. Essentially, the respending of the direct income is converted into purchases by individuals in various consumption sectors of the economy. The job to sales ratios are then combined with estimated consumption expenditures, to estimate induced jobs created by activity at each Great Lakes St. Lawrence Seaway port.

Indirect jobs, or the jobs created by purchases by firms, not individuals are estimated from purchase data provided to Martin Associates by each firm during the interview process. These purchases are for retail goods, parts and equipment, office supplies, maintenance and repair activity, utilities, fuel, etc. The U.S. Bureau of Economic Analysis, Regional Input-Output Modeling System (RIMSII) was used to develop job multipliers to convert the local purchases into indirect jobs in the relevant supplying industries in the eight state region. Indirect personal income multipliers were also developed for each supplying industry located in the 8-state region of study.

5.3 Tax Impact Methodology

Tax impacts are estimated using per capita income indices developed by the Tax Foundation for each of the eight states in the region. Total taxes collected at the federal, state and local levels are included in this index. The total port-specific income impact (direct, induced and indirect income impacts are multiplied by the respective tax indices to estimate the tax impacts. These impacts are then aggregated across the ports in each Lake region.

5.4 Related Jobs

To estimate the related user impact, the types of commodities exported from the marine terminals at each port were identified from port records, U.S. Army Corps of Engineers Waterborne Commerce Statistics, and interviews with private terminal operators at each port. The average value per ton of each commodity type was then estimated using U.S. Bureau of Census, Foreign Trade Statistics and data collected from individual shippers and consignees and terminal operators. Employment to value of output coefficients for the producing industries related to the cargo shipped from each port were then computed from Bureau of Economic Analysis, Regional Input-Output Model for the 8-state region. To estimate the related jobs, the average value per ton of each cargo shipped was multiplied by the tons of that cargo handled at each of the 16 U.S. ports. The job coefficients corresponding to the shipped commodities were next multiplied by the value of the shipped cargo to estimate the related jobs.

II. EMPLOYMENT IMPACTS

In this chapter, the employment impacts created by the 16 U.S. ports located on the Great Lakes St. Lawrence Seaway System are presented.

1. TOTAL EMPLOYMENT IMPACTS

For the 2000 Great Lakes shipping season, 152,508 jobs were in some way related to the marine cargo and vessel activity of the Great Lakes St. Lawrence Seaway System. Of the 152,508 jobs:

- 43,968 were directly generated by activities of the Great Lakes St. Lawrence Seaway System (direct job impact), and if such activities should cease, these jobs would be discontinued over the short term. These are full-time equivalent jobs and include jobs in each of the business sectors such as with railroads, trucking firms, longshoremen, terminal operators and dependent shippers/consignees, vessel agents, freight forwarders, pilots, lakers, etc.[6]

- 27,392 were employed throughout the U.S. Great Lakes region (induced jobs) by providing goods and services to the 43,968 individuals who hold jobs created by port activity on the Great Lakes St. Lawrence Seaway System. Consequently, employment in this group is as directly dependent upon port activity as is the first group. These induced jobs include jobs involved with the production of consumer goods to supply the demand of those directly employed. Such jobs are in housing construction, retail trade, service industries, and wholesale trade.

- As the result of local purchases by the firms providing the direct services at the 16 U.S. ports, 26,757 indirect jobs were generated. These jobs are with suppliers of maintenance and repair services, suppliers of parts and equipment, business services providers, utilities, etc. in the eight-state region.

- Finally, 54,391 related jobs were with firms exporting international and shipping domestic cargo through the 16 U.S. ports. The majority of these jobs were with iron ore and coal mines, and the industries supporting the extraction of the ore and coal shipped on the Great Lakes St. Lawrence Seaway System. Related jobs were also created in the agricultural sector as the result of the production of export grain moving via the 16 U.S. ports.

[6] Based on the average number of hours worked annually in each category, the total person-hour impact for that category was converted into full-time equivalent jobs. For example, two workers who are involved with port activity only 50 percent of the year would be counted as only one full-time job.

2. DIRECT EMPLOYMENT IMPACTS

As a result of port activity in 2000, 43,968 full-time jobs were directly created. In this subsection the jobs are analyzed in terms of;

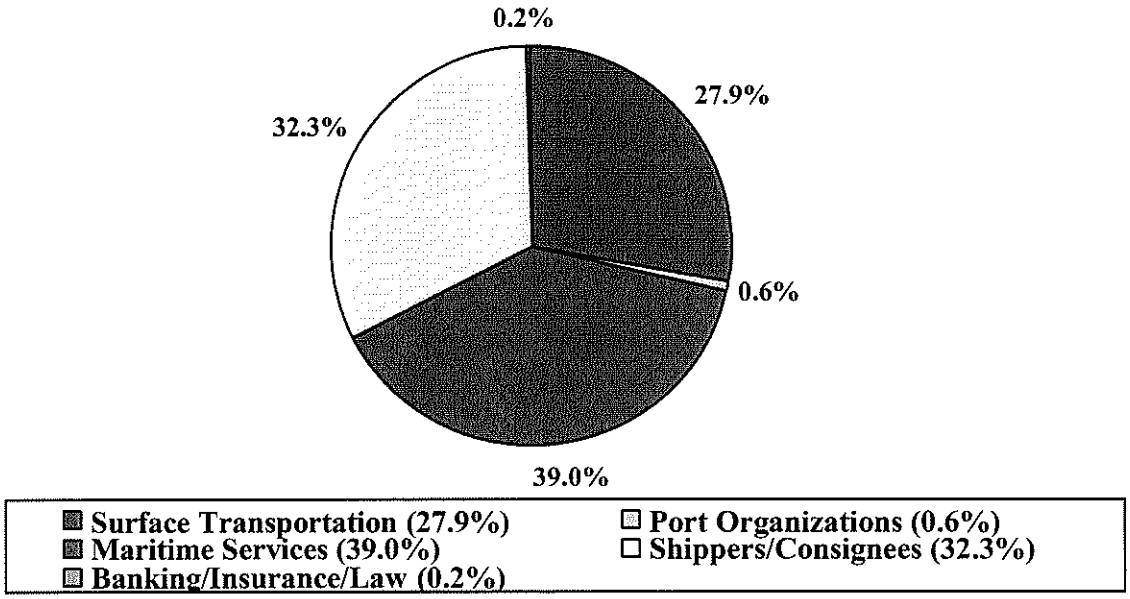
- Distribution by employer sector; and
- Distribution by commodity group.

2.1 Employment Impact By Economic Sector

Exhibit II-1 presents the distribution of the 43,968 direct jobs among the following economic sectors:

- Maritime Services Sector
- Surface Transportation Sector
- Port Authorities
- Banking/Insurance/Law
- Direct Shippers/Consignees

Exhibit II-1
Distribution of Employment Impact
by Economic Sector



The exhibit indicates that 39 percent of the direct jobs are created with firms in the maritime services sector, the majority of which are with terminal operators. About one-third of the direct jobs are with shippers and consignees directly dependent upon the cargo moving via the 16 U.S. ports, while 28 percent of the direct jobs are with the surface transportation sector, of which the majority are jobs with trucking firms moving the cargo to and from the ports.

Exhibit II-2 shows the job impacts by detailed job category. As this exhibit shows, the largest job impacts, 14,208 are with the shippers/consignees directly dependent upon the Great Lakes for the shipment and receipt of cargo and raw materials. The majority of these jobs are dependent upon inter-lake movements of such commodities as iron ore, coal, stone and aggregates, salt and cement. The marine cargo activity supported 12,029 direct jobs with terminal operators, while 11,178 direct jobs are with trucking firms moving cargo to and from the ports, while 3,491 jobs are with the U.S. and Canadian laker fleets serving the 16 U.S. ports.

Exhibit II-2
Distribution of U.S. Employment Impacts
by Detailed Job Category

	Direct Jobs
SURFACE TRANSPORTATION	
RAIL	1,103
TRUCK	11,178
MARITIME SERVICES	
TERMINAL OPERATORS/SHIPPERS/CONSIGNEES	12,029
LONGSHOREMEN	420
PILOTS/TOWING	312
FORWARDERS/AGENTS/CHANDLERS/SURVEYORS	210
WAREHOUSE	154
GOV'T	381
SHIP REPAIR/MARINE CONSTRUCTION	149
LAKER	3,491
SHIPPER/CONSIGNEES	14,208
PORT ORGANIZATIONS	266
BANKING/INSURANCE/ADMIRALTY LAW	66
TOTALS	43,968

Totals may not add due to rounding

2.2 Employment Impact By Commodity

Most of the 43,968 jobs considered to be generated by port activity can be related to the handling of specific commodities or commodity groups. Certain employment sectors such as marine construction, federal and local government agencies, and the insurance and banking sectors are extremely difficult to assign to specific commodity groups, and if such an assignment is made, it is often done so arbitrarily. As a result, employment in these job categories and sectors was not allocated to commodity groups.

Exhibit II-3 presents the distribution of the direct employment impacts in terms of the key commodity groups handled by the 16 U.S. ports.

Exhibit II-3
Direct Job Impact by Commodity

COMMODITY	DIRECT JOBS
STEEL	5,422
GENERAL CARGO	342
GRAIN	1,467
ORE	19,034
COAL	6,393
CEMENT	1,136
STONE/AGGREGATES	4,645
PETROLEUM	1,373
OTHER DRY BULK	1,239
OTHER LIQUID BULK	317
SALT	782
NON ALLOCATED	1,818
TOTALS	**43,968**

Totals may not add due to rounding

This figure indicates that 43 percent of the direct jobs are generated by ore moving on the Great Lakes for use in the port dependent steel mills located on the Great Lakes. The shipment and receipt of coal creates 14.5 percent of the direct job impact, while the receipt of steel, mostly imported steel supported 12.3 percent of the direct jobs.

Exhibit II-4 presents the direct jobs created per 1,000 tons of each commodity handled at the 16 U.S. ports. Steel created the highest number of jobs per 1,000 tons, followed by general cargo (a large percentage is machinery and heavy lift cargo). The higher number of direct jobs created per 1,000 tons of steel and general cargo reflects the more labor intensive handling process associated with these cargoes and the higher incidence of the use of freight forwarders and warehousing. In contrast, bulk cargoes tend to create lower job impacts per 1,000 tons, reflecting the use of self-unloaders, as well as

a less reliance on the use of freight forwarders/customhouse brokers. Also, the rail is used to a greater extent for the movement of bulk cargoes to and from the ports, and rail transportation is less labor intensive than truck distribution, which is used for the majority of the inland distribution of steel and other general cargoes.

Exhibit II-4
Jobs per 1,000 Tons

COMMODITY	JOBS/ 1,000 TONS
STEEL	1.07
GENERAL CARGO	0.33
GRAIN	0.22
ORE	0.22
COAL	0.15
CEMENT	0.21
STONE/AGGREGATES	0.20
PETROLEUM	0.30
OTHER DRY BULK	0.11
OTHER LIQUID BULK	0.51
SALT	0.20

3. INDUCED JOBS

The regional purchases by the 43,968 direct jobholders with the direct income earned from port activity creates additional jobs throughout the U.S. Great Lakes region. In 2000, $1.6 billion was received by those 43,968 directly employed as a result of activity at the 16 U.S. Great Lakes ports. As the result of the re-spending of a portion of this income for purchases in the 8-state region, an additional 27,392 induced jobs were generated throughout the region.

These induced jobs are estimated based on the current expenditure profile of residents in the metropolitan areas in which each port is located, as estimated by the U.S. Bureau of Labor Statistics, "Consumer Expenditure Survey". This survey indicates the distribution of consumer expenditures over key consumption categories for residents of each key metropolitan area in the U.S. The consumption categories are:

- Housing
- Food
- Entertainment

- Health Care
- Apparel
- Transportation Equipment and Services

The estimated consumption expenditure generated as a result of the respending impact is distributed across these consumption categories. Associated with each consumption category is the relevant retail and wholesale industry. Jobs to sales ratios in each industry are then computed for each relevant metropolitan area in which the port is located, and induced jobs are estimated for the relevant consumption categories. It is to be emphasized that induced jobs are only estimated at the retail and wholesale level, since these jobs are most likely generated in the 8-state region. Further levels of induced jobs are not estimated since it is not possible to defensibly identify geographically where the subsequent rounds of purchasing occur.

4. INDIRECT JOBS

The firms directly dependent upon the vessel and cargo activity at the private and public marine terminals at the 16 U.S. Great Lakes ports made $1.3 billion of regional purchases from suppliers of parts and equipment, business services, maintenance and repair services, communications and utilities, office equipment, and fuel. These purchases supported 26,757 indirect jobs in the 8-state region. If maritime activity on the Great Lakes St. Lawrence Seaway System were to cease, these indirect jobs would also be lost. To estimate these indirect jobs, actual expenditures by port-dependent firms were collected from the telephone surveys. To estimate the indirect jobs, the expenditures were used as inputs into a regional input-output model developed for the 8-state region by the U.S. Bureau of Economic Analysis, Regional Input-Output Modeling System (RIMSII).

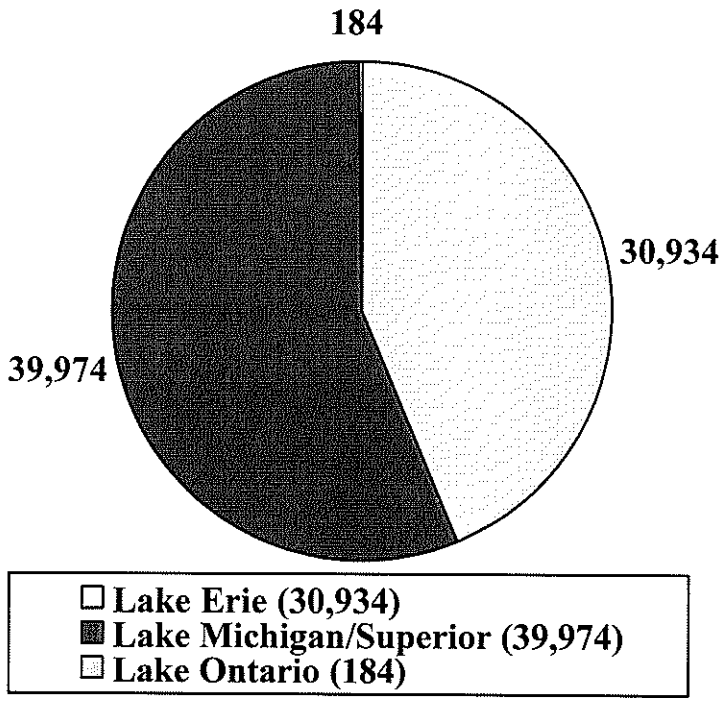
5. RELATED JOBS

During the 2000 shipping season, 54,391 jobs were related to the 192 million tons of cargo moving on the Great Lakes St. Lawrence Seaway System. The majority of these jobs are related to iron ore shipped on the Great Lakes and the firms supporting the mining activity. Related jobs are also created by the shipment of coal, grain, cement and stone and aggregates. It is to be emphasized that these jobs are related to the shipment of cargo on the Great Lakes, not directly dependent on the ports. If the Great Lakes St. Lawrence Seaway System were not available, the firms employing the related jobs would most likely use other modes to move the cargoes to end markets, albeit at a higher transportation cost. This increased transportation cost could in fact result in a loss of employment or shutdown of the production or mining operations.

6. EMPLOYMENT IMPACT BY REGION

Exhibit II-5 shows the direct and induced employment impacts by region, excluding the impacts of the Saint Lawrence Seaway Development Corporation. As this exhibit shows, 56 percent of the direct and induced jobs are created by activity on Lake Michigan and Lake Superior.[7] U.S. port activity on Lake Erie created 43.5 percent of the direct and induced jobs, while U.S. port activity on Lake Ontario created the balance of the direct and induced jobs.

Exhibit II-5
Distribution of Direct Jobs by U.S Great Lake Region



In the next chapter, business revenue, income and tax impacts are presented.

[7] The ports on Lake Michigan and Lake Superior are combined since only one port on Lake Superior (Duluth/Superior) was included in the analysis.

III. REVENUE IMPACTS

The movement of cargo via the public and private facilities at each of the 16 U.S. ports in the Great Lakes St. Lawrence Seaway System generates revenue for firms in each of the economic sectors. For example, revenue is received by transportation firms (railroads and truck operations) as a result of moving outbound cargo to the ports and distributing the in-bound commodities to inland destinations. The firms in the maritime service sector receive revenue from arranging for transportation services, cargo handling, providing services to vessels in port and repairs to vessels calling the ports. The banking, insurance and admiralty law sector receives revenue from financial and legal services provided to users of the transportation system. The local port authorities receive revenue from terminal and equipment leases at the various ports, as well as from terminal charges and port charges. In addition, revenue is received by shippers/consignees from the sales of cargo shipped or received via the ports and from the sales of products made with raw materials received through the port system. Since this chapter is concerned with the revenue generated from providing maritime services, the shipper/consignee revenue (i.e., the value of the cargo shipped or received through the port system) will be excluded from the remaining discussion.

As described in Chapter I, the revenue generated by port activity is used by firms to pay salaries, for retained earnings and the payment of dividends, to purchase equipment and maintenance services, and to pay taxes. Of these various uses of revenue, only three can be isolated as remaining in the 8-state region with any degree of accuracy. This is the personal income component of revenue, which can be traced to geographic locations based on the residence of those receiving the income; the state and local taxes paid, which are a portion of revenue remaining in the region; and purchases made in the 8-state region by the firms providing the direct services at the ports.

1. REVENUE IMPACT

As a result of activity at the 16 U.S. ports on the Great Lakes St. Lawrence Seaway System, $3.4 billion of business revenue was received by firms supplying cargo handling and vessel services and inland transportation services. Exhibit III-1 shows the distribution of this revenue by commodity. The movement of iron ore creates the greatest revenue impact overall, reflecting the volume of ore moving on the Great Lakes St. Lawrence Seaway System. Iron and steel products moving on the Great Lakes St. Lawrence Seaway System creates the second largest revenue impact, followed by coal, and stone and aggregates.

Exhibit III-1
Revenue Impacts by Commodity
(1000 Dollars)

COMMODITY	REVENUE $1,000
STEEL	$786,004
GENERAL CARGO	$74,852
GRAIN	$125,588
ORE	$982,561
COAL	$635,534
CEMENT	$87,335
STONE/AGGREGATES	$321,381
PETROLEUM	$74,129
OTHER DRY BULK	$157,552
OTHER LIQUID BULK	$30,507
SALT	$60,612
NON ALLOCATED	$49,187
TOTALS	**$3,385,243**

Totals may not add due to rounding

Exhibit III-2 shows that iron and steel products moving on the Great Lakes St. Lawrence Seaway System creates the greatest revenue per ton impact, followed by the movement of other general cargo commodities.

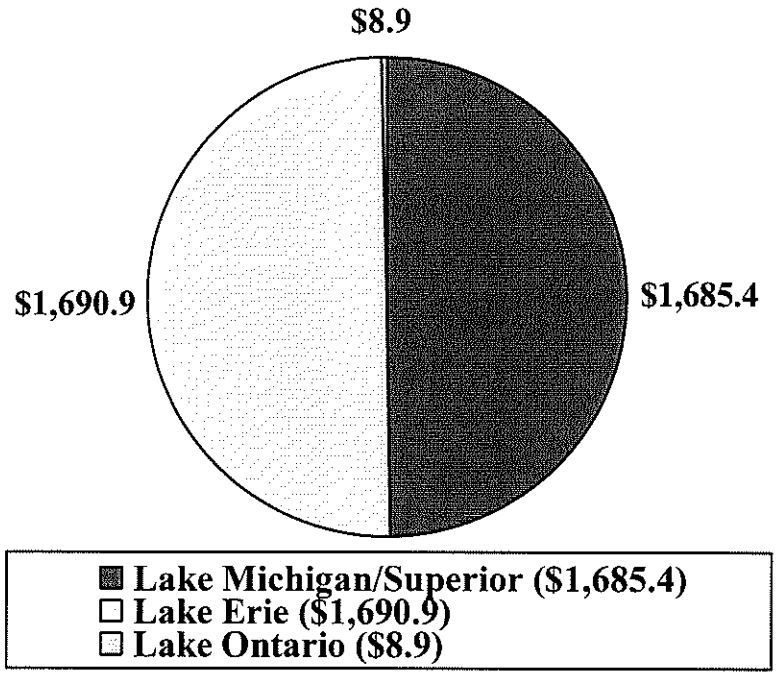
Exhibit III-2
Revenue Per Ton

COMMODITY	REVENUE $1,000
STEEL	$156
GENERAL CARGO	$73
GRAIN	$18
ORE	$11
COAL	$15
CEMENT	$16
STONE/AGGREGATES	$14
PETROLEUM	$16
OTHER DRY BULK	$14
OTHER LIQUID BULK	$49
SALT	$15

This reflects the greater labor intensity of terminal operations associated with iron and steel products, as well as the truck revenue and freight forwarding/brokerage revenue associated with these non-bulk cargoes. In contrast, a large percentage of bulk cargoes use self-unloaders to move the bulk cargoes, and, as a result, terminal charges are less than for the steel and other general cargoes.

Exhibit III-3 shows the distribution of the $3.4 billion of revenue by U.S. Great Lake region.

Exhibit III-3
Distribution of Revenue Impact
by U.S. Great Lake Region
(1,000 Dollars)



As indicated, the cargo activity at the Lake Erie ports and the Lake Michigan/Superior ports create nearly identical levels of revenue, while the ports on Lake Ontario create significantly less revenue. This reflects the volume of cargo moving via these ports compared to the ports on the other Lakes.

2. PURCHASES

During the 2000 shipping season, firms directly dependent on the cargo and vessel activity on the Great Lakes made $1.3 billion of purchases for parts, supplies, utilities, fuel, maintenance and repair services, retail supplies, and business services. These $1.3 billion of purchases supported the 26,757 indirect jobs in the 8-state region.

3. PERSONAL INCOME IMPACTS

The income impact is estimated by multiplying the average annual earnings of each port participant (i.e., railroad employees, truckers, longshoremen, dependent shippers/consignees, agents, freight forwarders, etc.) by the corresponding direct number of full-time equivalent jobs in each participant category. This procedure was followed at each of the 16 U.S. ports on the Great Lakes St. Lawrence Seaway System. In 2000, the activity on the Great Lakes St. Lawrence Seaway System created $1.6 billion of direct personal wage and salary income. This represents an average salary of nearly $37,000 per direct job.

As described in the methodology section of Chapter 1, the personal income multiplier for the 8-state Great Lakes region was developed from data supplied by Bureau of Economic Analysis, Regional Input-Output Modeling System. This income multiplier reflects the amount of purchases made by directly employed individuals within the region. The direct wage and salary income is multiplied by the 8-state regional income multiplier to estimate direct and induced income and consumption impact of $3.5 billion dollars.

In addition, those holding the indirect jobs received $820.7 million of indirect wages and salaries.

Combining the direct, induced and indirect income impacts, the cargo and vessel activity on the Great Lakes St. Lawrence Seaway System created a total personal income and consumption impact of $4.3 billion.

4. TAX IMPACT

The tax impact is estimated using the per capita tax burdens for federal, state and local taxes, as developed by state, by the Tax Foundation. The taxes include revenue from all sources, both personal and corporate. These tax burdens are multiplied by the direct and induced income created at each of the 16 U.S. ports.

Using this methodology, it is estimated that $1.3 billion of federal, state and local tax revenues were created during the 2000 shipping season at the 16 U.S. ports of the Great Lakes St. Lawrence Seaway System.

IV. COMPARISON OF ECONOMIC IMPACTS 1991-2000

This chapter compares the economic impacts generated by port activity at the 16 U.S. ports on the Great Lakes St. Lawrence Seaway System. The methodology used by Martin Associates to estimate the economic impacts generated by the marine cargo and vessel activity on the Great Lakes St. Lawrence Seaway System in 1991 is, for the most part, the same as the methodology used to measure the current 2000 economic impacts.[8] However, there are some key differences, which are addressed in the following section.

1. CHANGES IN IMPACT METHODOLOGY

The methodology used to estimate the current economic impacts differs from that used in the 1992 study in several key areas. First, in the present study, Martin Associates has developed a more rigorous method to collect local purchases, which are used to estimate the indirect impacts. The U.S. Bureau of Economic Analysis prepared a detailed input-output model of the 8-state Great Lakes region, which was then used with the local purchase data to estimate indirect jobs. In the 1992 economic impact study, no indirect jobs were estimated.

The tax impact is now based on state and local tax burdens against income. In the 1992 study, the federal, state and local taxes were based on per employee, rather than income burdens, and only included taxes paid by individuals. The new methodology accounts for differences in income levels between jobs. Also, total income generated is used as the base to drive the tax impacts, including direct and induced income. Therefore, comparison with the 1991 tax impacts cannot be made.

Related jobs with users of the Great Lakes St. Lawrence Seaway System were not estimated in the earlier study, but are included in this analysis.

The focus on the comparisons should, therefore, be on the direct job impacts, since the same methodology to measure the direct impacts was used both in estimating the impacts in 1991 and in this current study.

2. COMPARISON OF TONNAGE

Tonnage handled by the 16 U.S. ports on the Great Lakes St. Lawrence Seaway System grew from 123.8 million short tons in 1991 to 192.0 million tons in 2000. Exhibit IV-1 compares the tonnage

[8] "The Economic Impacts of the Great Lakes St. Lawrence Seaway System", 1992, prepared by Martin Associates for the Saint Lawrence Seaway Development Corporation. The 1992 study is based on 1991 cargo and vessel activity. An interim update of the 1992 study was prepared using 1994 data, but detailed surveys were not conducted for this update, Therefore, comparisons will be made with the 1992 study which is based on a comprehensive survey of the maritime community serving the Great Lakes ports similar to the surveys conducted in this current study.

levels in the two study years.

Exhibit IV-1
Comparison of Tonnage

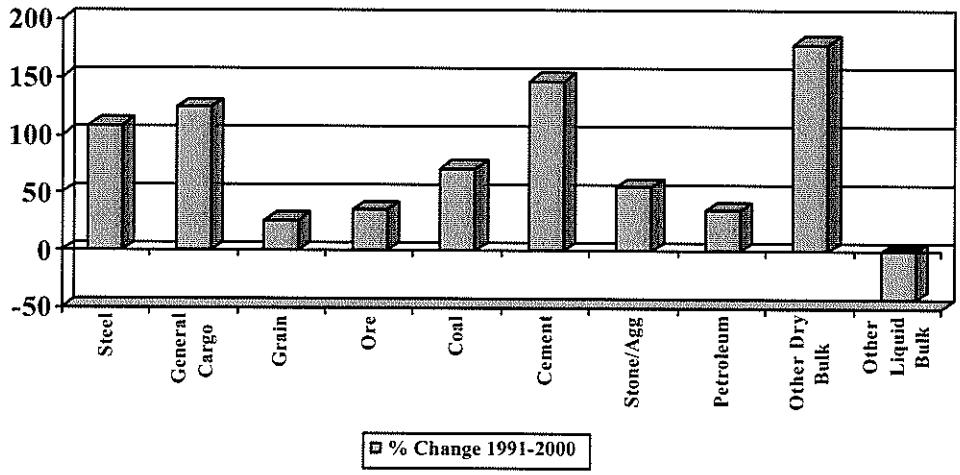
COMMODITY	2000	1991	CHANGE
STEEL	5,047	2,424	2,624
GENERAL CARGO	1,025	458	567
GRAIN	6,814	5,399	1,415
ORE	87,796	65,132	22,665
COAL	42,245	24,677	17,568
CEMENT	5,372	2,187	3,185
STONE/AGGREGATES	23,187	14,931	8,257
PETROLEUM	4,653	3,437	1,216
OTHER DRY BULK	11,255	4,054	7,201
OTHER LIQUID BULK	621	1,079	(458)
SALT*	3,953		
TOTALS	191,969	123,776	68,193

* Included with Dry Bulk in 1991

Totals may not add due to rounding

The table shows that tonnage increased by 68.2 million tons since 1991, with the greatest growth recorded for iron, coal and stone and aggregates. In fact, the only cargo recording a decline was liquid bulk. In addition, Exhibit IV-2 shows the percentage change in tonnage from 1991-2000.

Exhibit IV-2
Percentage Change in Tonnage 1991-2000



These changes in tonnage levels will have direct impacts on the level jobs, personal income, business revenue and taxes generated by the cargo activity at the 16 U.S. Great Lakes ports.

3. COMPARISON OF ECONOMIC IMPACTS

Exhibit IV-3 compares the impacts generated by the cargo and vessel activity at the 16 U.S. Great Lakes ports between 1991 and 2000.

Exhibit IV-3
Comparison of Economic Impacts

IMPACTS				
JOBS	2000	1991	CHANGE	PERCENT CHANGE
DIRECT	43,968	33,716	10,252	30.41%
INDUCED	27,392	10,912	16,480	151.03%
SUB TOTAL	71,360	44,628	26,732	59.90%
INDIRECT	26,757	NA	NA	
TOTAL JOBS	98,117	44,628	26,732	
RELATED SHIPPER JOBS	54,391	NA	NA	
	ALL DOLLAR VALUES IN 1,000 DOLLARS			
PERSONAL INCOME (1000)				
DIRECT	$1,623,014	$1,050,128	$572,886	54.55%
INDUCED	$1,889,837	$854,180	$1,856,393	121.25%
INDIRECT	$820,736	NA	NA	
TOTAL INCOME IMPACT	$4,333,586	$1,904,308	$2,429,278	
REVENUE (1000)	$3,385,243	$1,724,883	$1,660,360	96.26%
FEDERAL, STATE, LOCAL TAXES (1000)	$1,336,290	NA	NA	

Totals may not add due to rounding

As a result of the growth in tonnage, direct jobs increased by more than 10,000 jobs, while induced jobs grew by nearly 16,500 jobs, reflecting higher earnings per direct job, as well as a greater consumption multiplier effect. Direct personal income grew by 54.5 percent over the period, while induced income and consumption expenditures grew by 121.3 percent over the 1991- 2000 period, far outstripping the rate of inflation for this period, which increased by 27.1 percent. Similarly, the revenue received by the businesses providing the transportation services as well as the cargo handling services nearly doubled, growing by 96.3 percent over the 1991-2000 period, compared to the 27.1 percent increase in inflation over the same time period.

In 1991, indirect jobs and related jobs were not measured, and the tax impacts only included taxes paid by individuals. In this current study, the tax impact includes taxes generated from all sources at the federal, state and local levels. Therefore, comparisons of these tax impacts and indirect and related jobs cannot be made with the earlier study.

4. COMPARISON OF DIRECT JOB IMPACTS BY COMMODITY

Exhibit IV-4 compares the direct jobs generated by commodity in 1991 and 2000.

Exhibit IV-4
Comparison of Direct Job Impacts by Commodity

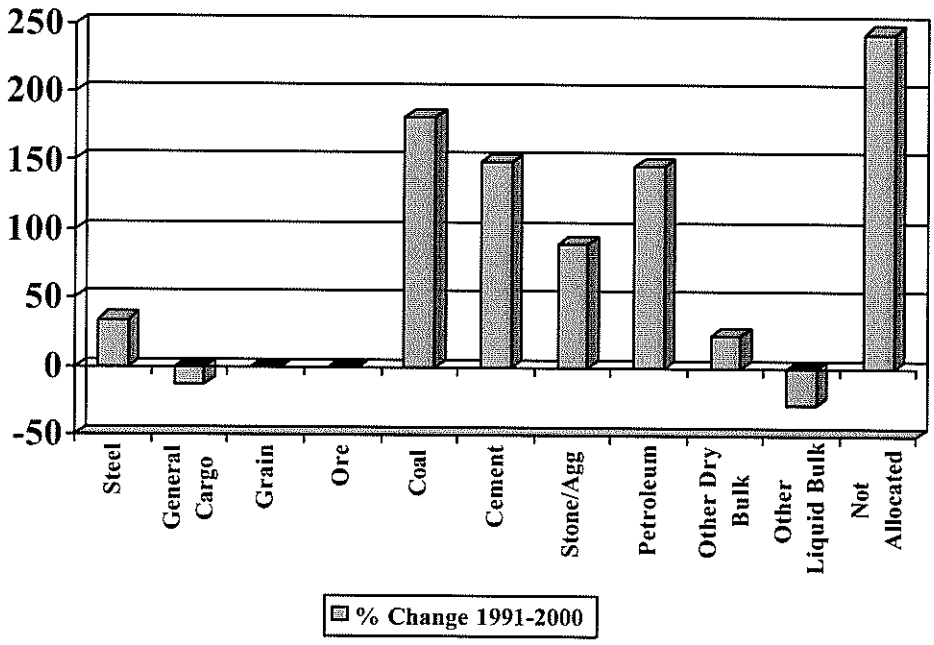
COMMODITY	2000	1991	CHANGE
STEEL	5,422	4,055	1,367
GENERAL CARGO	342	394	(52)
GRAIN	1,467	1,617	(150)
ORE	19,034	19,950	(916)
COAL	6,393	2,272	4,121
CEMENT	1,136	456	680
STONE/AGGREGATES	4,645	2,441	2,204
PETROLEUM	1,373	559	814
OTHER DRY BULK	1,239	1,004	235
OTHER LIQUID BULK	317	438	(121)
SALT*	782		
NON ALLOCATED	1,818	530	1,288
TOTALS	43,968	33,716	10,252

* Included with Dry Bulk in 1991

Totals may not add due to rounding

With respect to job growth by commodity, the largest growth was with jobs created by the movement of coal, 4,121 job increase, followed by growth in jobs created by stone and aggregates (2,204 direct job increase) and growth in jobs created by iron and steel products (1,367 direct job increase). Exhibit IV-5, on the following page, shows the percentage change in direct jobs by commodity between 1991-2000.

Exhibit IV-5
Percentage Change in Direct Jobs by Commodity
1991-2000



5. COMPARISON OF DIRECT JOBS BY CATEGORY

Exhibit IV-6, on the following page, shows the direct jobs generated by job category between 1991 and 2000. The greatest growth in jobs was with truckers serving the Great Lakes St. Lawrence Seaway System (4,490 jobs), followed by a 4,188 increase with terminal operators and dependent shippers/consignees.

Exhibit IV-6
Employment Impacts by Job Category

	2000	1991	CHANGE
SURFACE TRANSPORTATION			
RAIL	1,103	878	225
TRUCK	11,178	6,688	4,490
MARITIME SERVICES			
TERMINAL OPERATORS/SHIPPERS/CONSIGNEES	26,237	22,049	4,188
LONGSHOREMEN	420	150	270
PILOTS/TOWING	312	64	248
FORWARDERS/AGENTS/CHANDLERS/SURVEYORS	210	141	69
WAREHOUSE	154	225	(71)
GOV'T	381	123	258
SHIP REPAIR/MARINE CONSTRUCTION	149	160	(11)
LAKER	3,491	2,932	559
PORT ORGANIZATIONS	266	302	(36)
BANKING/INSURANCE/ADMIRALTY LAW	66	4	62
TOTALS	***43,968***	***33,716***	***10,252***

Totals may not add due to rounding

6. CONCLUSION

The comparisons made in this chapter between the economic impacts generated by cargo and vessel activity at the 16 U.S. Great Lakes ports underscore the continued growth in the economic contribution of the Great Lakes St. Lawrence Seaway System. The system has grown in importance as a key transportation system for bulk cargoes such as iron ore, coal, and stone and aggregates that are used by our nation's industrial sector. Continued support by federal, state and local governments will be critical in future years in order to maintain and grow the economic contribution of these 16 U.S. Great Lakes ports.

C.

Port of Cleveland
Capacity Assessment

February 2003

Developed for:

PORT OF CLEVELAND
Cleveland - Cuyahoga County Port Authority

Submitted by:

TRANSYSTEMS CORPORATION

INTRODUCTION

The Cleveland Cuyahoga County Port Authority commissioned TranSystems Corporation to assist in evaluating the current capacity of the existing port facilities, including the Docks 20 – 32 east of the river and the Cleveland Bulk Terminal (CBT) west of the river. This study is to assist the Port Authority and it's Planning Partners, the City of Cleveland, Cuyahoga County and other regional and local planning and development agencies in evaluating the impact of reducing some of the Port's cargo-handling facilities to provide development and increased public access opportunities along the Cleveland waterfront.

Evaluation Process

The key to the feasibility of any reconfiguration of the Port of Cleveland is to provide facilities that will support the Port's current operations and cargo throughput volumes as well as its future needs. Amenities offered to Port customers at their current location should continue to be made.

Critical steps in the evaluation process include understanding the Port facilities current and historical operations, identifying the existing Port facilities capacity, and reconfirming and adjusting current and projected cargo throughput volumes. From the above elements, the Cleveland Cuyahoga County Port Authority and its regional and local development and planning partners can assess the impacts of the reduction of cargo-handling facilities.

TranSystems Corporation developed the Port's 1998 Master Plan, which used the same capacity analysis models and routines to determine the existing throughput capacity of the Port. In addition, the previous work efforts involved a detailed market assessment, involving contact to all major industries in the Cleveland area and research of historical trends, to assess the projected cargo throughput base and growth factors. Using those statistical baselines, a Master Plan for port development until the year 2025 was developed to map out a plan for increasing the port's throughput capacity as required by market demand. Since the Master Plan, several identified projects have been completed, such as the pavement and construction of Dock 20, the removal of the huletts and abandoned buildings at the Cleveland Bulk Terminals, and the new Shoreway interchange at West 3rd. Another project that is being completed, but was not specifically addressed by the Master Plan, is the installation of some of the bulk handling equipment from Lorain. In addition, some Master Plan components have not been implemented as of today, but are still relevant and discussed later in the report and include a warehouse on Dock 20, truck access to the bulk facility, and the development of the fallow part of Whiskey Island for increased cargo handling capacity.

Current Port Operations

The Port of Cleveland, part of the Great Lakes maritime industry, is an ideal import and export gateway into and from the U.S. manufacturing heartland because of its closer proximity to Europe than East Coast ports such as Norfolk and Baltimore, the elimination of U.S. Seaway tolls, and the superb rail connections. Historically interlake trade, in particular iron ore, have been the predominant cargos in the Great Lakes since the construction of the Soo Canal linking the iron ore deposits of Michigan, Wisconsin, and Minnesota with Southern Ohio coal. The international import trade, including steel, in the Great Lakes started in 1959 with the opening of the St. Lawrence Seaway and provides a lower cost backhaul route for United States grain exports, assisting in higher grain prices for Midwestern American farmers.

More specific to our Northeast Ohio region, the Port of Cleveland is an import destination port. A 1997 Economic Impact Report of the Port of Cleveland's Maritime Operations completed by The Urban Center of the Levin College of Urban Affairs of Cleveland State University, found that 90% of all cargo into the Port of Cleveland has a final destination within 75 miles of Cleveland – the true definition of a destination port. The regional economic impact of the Port of Cleveland, in particular the economic benefits from a destination port, is discussed later in the impact section of this report.

The Port of Cleveland is located on Lake Erie's waterfront, spanning both sides of the Cuyahoga River, and has handled steel, iron ore, limestone and other domestic bulk cargo since the early 1800s. The Cleveland Harbor is protected by a six mile breakwall and has a 27 foot water depth allowing it to accommodate all ships that pass through Seaway locks. This and its on-dock, Foreign Trade Zone create a top notch, cost effective vehicle for international trade with local manufacturers.

Docks 20-32 located just east of the Cuyahoga River receive steel and other break-bulk cargoes mainly in the international trade and include a cement facility and stone operation. Docks 20-32 currently have over 7,800 linear feet of dock space, which is divided among 12 berths. Cargo is stored in 417,000 square feet of warehouse space, which has indoor rail loading and unloading capability, and on associated available open storage space.

The cement facility is located on the south end of Dock 20 and the stone operation is located on the north end of Dock 20. Both are operated under separate leases with the Port Authority. The cement facility is currently under a long-term lease situation, but the stone operation is year to year.

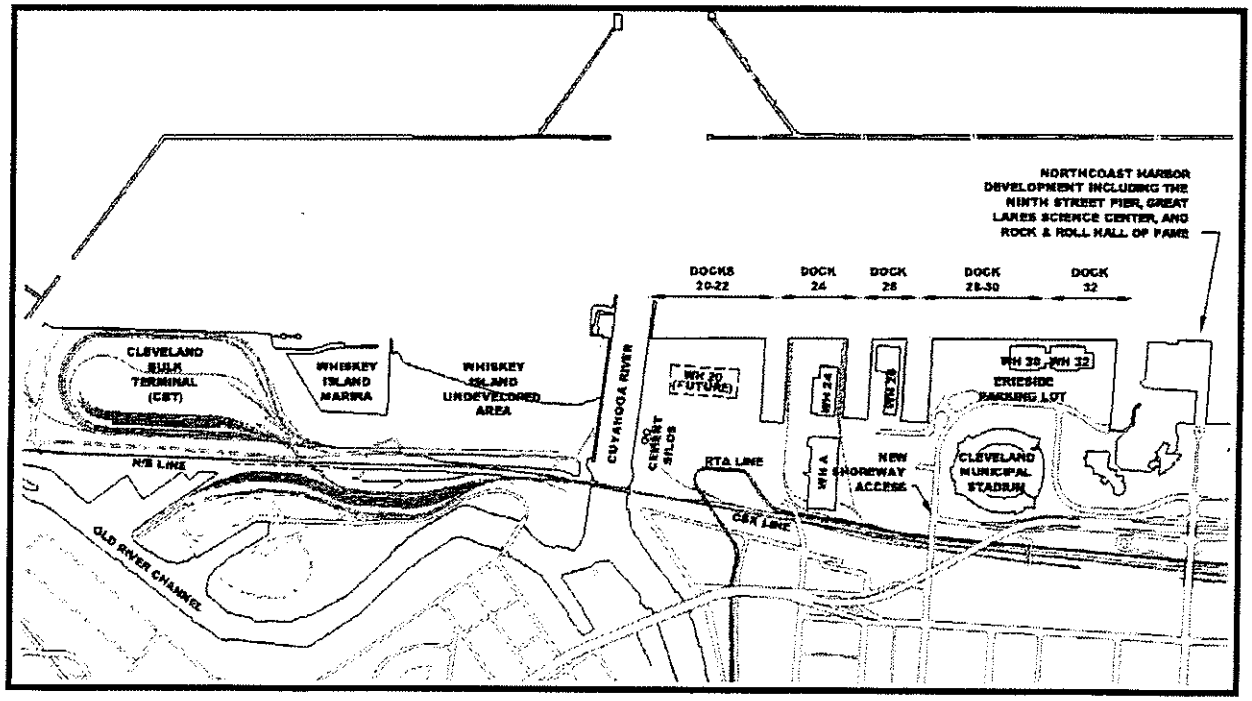
Two separate stevedoring companies operate the steel and other break-bulk facilities at Docks 20-32, providing the Port's customers a competitive market. One stevedore operates two warehouses, and the other operates one warehouse

with the remaining two warehouses shared by the two companies. Each stevedoring company owns their own yard equipment and shares the recently overhauled Port owned "Buckeye Booster", which is a 150-ton heavy lift crane located at Dock 28 West.

The Cleveland Bulk Terminals (CBT) located west of the Cuyahoga River on Whiskey Island at the west end of the break wall receives bulk cargo such as iron ore. The CBT has 1,850 linear feet of dock space and 46 acres of open cargo storage space. Oglebay-Norton Company is the operator of the CBT under a long-term lease with the Port Authority and owns all operator yard equipment.

Currently under construction is the relocation of some of the bulk handling equipment components from Lorain to the CBT property. This will provide conveyor loading from the CBT bulk storage area to waterborne barges and vessels. The conveyor system will primarily be used for transfer of iron ore pellets from dockside storage piles to a river-going barge for delivery to ISG Corporation. There is no current truck access to the CBT facility. Although a single lane truck access under the Norfolk Southern mainline tracks was planned, it was postponed due to the bulk handling equipment project.

Current Facilities Map



CAPACITY ANALYSIS

Existing Facilities Capacity Model

Model Architecture

TranSystems has created a series of computer models which calculate the practical throughput capability for all types of marine terminals. These include container, break-bulk, neo bulk, auto, intermodal rail, dry bulk, liquid bulk, and warehousing, as well as for passenger facilities. These models were based on a component evaluation technique developed by the U.S. Marine Administration, refined to a standard of accuracy which was carefully matched to actual historical records for existing marine terminals, and is updated annually by TranSystems. Repeated use of the models on over 300 national and international projects has stimulated continual upgrades to the models. Seasonal and operational peaks and slow periods are typical of all maritime-related businesses and are directly incorporated into the models.

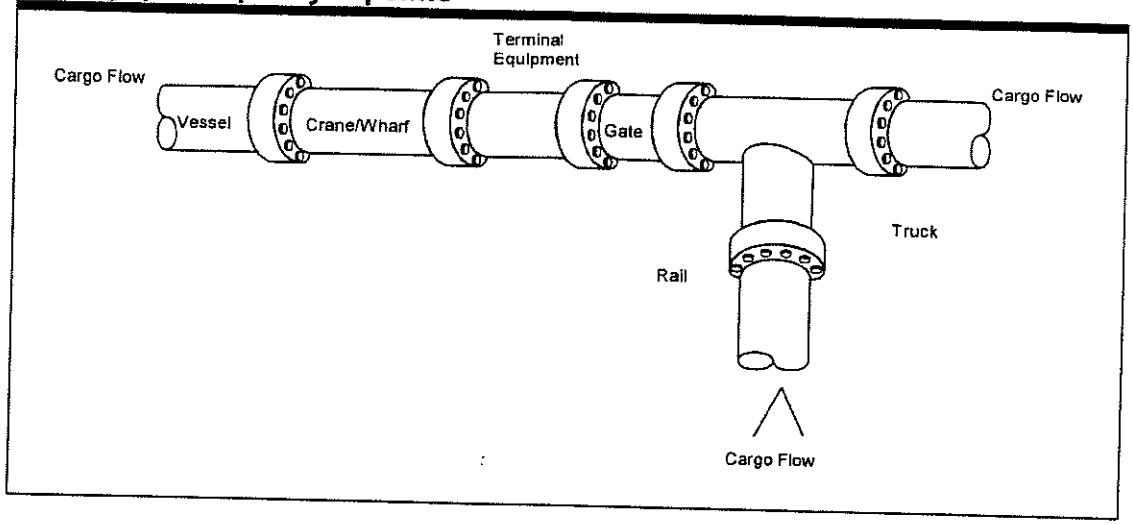
The computerized models replicate an entire port terminal as six maritime facility components that affect cargo throughput. The six facility components are listed below:

- Vessel arrival and berth availability
- Cargo transfer at the wharf apron
- Apron-to-storage transfer
- Storage yard capacity and dwell time
- Storage-to-inland transfer
- Gate size and processing

Separating the port terminal into the above components allows the model operator to determine which component is the limiting component. If one component of the port terminal has a much lower capacity than the others, the entire facility must slow to the throughput capacity of that particular component.

It may be helpful to imagine the port terminal components as valves in a section of pipe, as shown below. The graphic illustrates that each valve in the system affects the overall throughput of the pipe and that the system will function at the lowest throughput valve in the system. Thus, it does not matter that valve one allows 20 gallons per minute if valve four only allows 4 gallons per minute; the total system will only allow 4 gallons per minute. The same is true for port terminal operations. If the storage capacity of a given port terminal is far less than the rest of the system, the entire terminal will operate at the capacity of the storage component. Ideally, each terminal component has roughly the same throughput capacity; however, this balance is not always easy to achieve.

Throughput Capacity Pipeline



Information Sources

The capacity model development process began with the study team establishing a detailed understanding of the Port facilities current operations. By using the break-bulk and bulk models developed for the 1998 Master Plan as the base, the team replicated the current terminal operations and analyzed its current cargo handling capacity.

The TranSystems Throughput Capacity Models are very detailed and require large amounts of input data. This data is supplied by three primary files contained in the model structure: the Inventory File, the What-If File, and the Operations Data File.

The information contained in the Inventory File is designed to gather basic port operating parameters and procedures. For the Port of Cleveland Master Plan, this information was obtained by the project team through a series of terminal questionnaires designed to collect the data required for the model analysis. This information was then supplemented with interviews of port staff as well as terminal operators and shippers. For the current analysis, all previous information obtained via the questionnaires and interviews was reviewed and confirmed with the appropriate operating staff. The Inventory File is the first place that the model looks to find information.

The What-If File is where variable information about the terminal is supplied. In this section, the user can test different scenarios of terminal operation and see the results of different combinations of terminal improvements. Information in the What-If File will override data contained in the Inventory File. For the Port of Cleveland, this file was used to look at capacity with planned and potential changes to existing infrastructure.

The Operations Data File contains the model's default data and is where the model will look for information not supplied in previous files. The data contained in the Operations Data File is based on typical port terminal operations. The information in this file will be overridden by data in either the Inventory or What-If Files.

The Port of Cleveland has two primary types of cargo: bulk and break-bulk/steel. The nature of these cargoes required TranSystems to develop a separate set of models for each type. These two coincide with the physical split in the Port's operations. Thus, the break-bulk/steel operations at Docks 20-32 are examined in one model, and the bulk operations at CBT are examined in the other. To accurately represent the operations at Docks 20-32, the project team created a model for each dock, except in cases where two docks essentially function as one port terminal. The CBT terminal was modeled as one facility. In addition, to augment the break-bulk steel operation model, each storage warehouse was modeled individually. The capacity of each warehouse was based on handling and storing three different types of typical cargo – steel coil, steel rod, and other general break-bulk.

Based on the above information required by the model and gathered by TranSystems, the models utilized the following key assumptions.

- Existing facilities were inventoried as they are currently, with the inclusion of the bulk handling equipment installation at CBT and the completion of the new State Route 2 – Port of Cleveland Interchange Modification, also referred to as the new Shoreway entrance. Both of these infrastructure improvement projects are in the construction phase and will be implemented.
- Removal of bulk stone handling capabilities from Dock 20-22.
- Cement operations will remain on Dock 20.
- As part of a lease agreement with the Browns (ending in 2010), the Port Authority is required to provide 2600 parking spaces adjacent to the stadium for special events. This parking is currently provided with 400 dedicated spaces in the Erieside Lot (fenced area north of the stadium) and 2200 temporary spaces in the open areas of Docks 20-32.
- A peaking factor based on current port operations, especially the typical surge in late year prior to the winter shutdown of the St. Lawrence Seaway and Soo Canal. Peaking is especially critical for weather affected operations. Both CBT and Docks 20-32 are limited in their import operations when the lake freezes over. (Both operations continue to discharge cargo from storage.)
- Of the present steel imports, at least 50% are required to be stored in a sheltered warehouse due to customers, especially the auto makers, demanding higher quality steel.
- Storage dwell times average 30 days. The "just-in-time" warehousing revolution has placed a larger storage burden on destination import

facilities. Industry has chosen to reduce their onsite storage requirements by bringing the imported parts and product into their facility "just-in-time" for the manufacturing process. This has shifted the storage burden to the destination of import facilities like the Port of Cleveland.

- Utilized the current 50/50 split of warehouse storage of steel coil and steel rod, with a small allocation for general cargo based on current and forecast percentages. One of the critical components to a break-bulk capacity analysis is an understanding of the different cargos and the impact of each on the available storage. Each commodity has a different cubic density and stacking requirements. For instance, a hot-rolled steel coil weighs up to 15 times as much as steel rod, but the rod can be stacked much higher in the warehouse. Looking at Warehouse A, the following is a chart showing the difference in tonnage capacity based on three different scenarios:

% Steel Coil	% Steel Rod	Capacity	Comment
50%	50%	240,000	Current operational split
100%	0%	360,000	Coils are much heavier but cannot be stored as high or as densely as rod.
0%	100%	120,000	Rod is much lighter but is stored higher and more dense than coil.

From the above, it is easy to see that the capacity of the Port be based on the actual cargo types. While an overall increase in the percentage of wire rod handled by the Port in a season could diminish the overall total break-bulk tonnage, *it would not follow that the Port now has more available capacity*. The capacity model would need to be adjusted to the revised cargo split to adequately determine the utilization of the available capacity of the Port.

- CBT handling only three different commodities; presently two grades of iron ore and iron ore concentrate. The critical component that typically yields the greatest change to the overall capacity of a bulk terminal is the total number of different type of commodities handled by the facility. The overall capacity of a bulk facility is inversely proportional to the number of commodities shown. In other words, as each new commodity – different gradation of ore or stone, salt, etc. – is introduced to the facility, the overall capacity diminishes.

Model Results

The models provide output in the form of the "Maximum Practical Capacity" for each terminal. The term maximum practical capacity, or MPC, refers to

estimated annual throughput volumes that represent the high end of a realistic operating scenario. In practice, operating at a level equivalent to the MPC for any significant period of time is typically considered impractical, uneconomical, and/or unsafe. For practical purposes, the throughput capacity of a terminal is more reasonably approximated at 75% of the terminal's MPC. This figure, referred to as "Sustainable Practical Capacity" (SPC), is the practical throughput capacity a facility can reasonably be expected to operate at over a sustained period of time. For planning purposes, a reasonable approach is to develop facilities to meet SPC.

The MPC/SPC relationship is analogous to a speedometer on a motor vehicle. For example, assume the speedometer shows a maximum speed of 120 miles per hour. In optimal driving conditions and with the equipment at top running condition, the vehicle can operate at 120 miles per hour. This speed would represent the MPC of the vehicle. However, most of the time, due to driving conditions, etc., the vehicle can normally operate at 60 miles per hour. This lower speed would represent the SPC of the vehicle. Marine terminals, as a general rule, do not operate at the MPC level most of the time. Therefore, the SPC level is used for planning and evaluation purposes.

With this in mind, the capacity model results for the Port of Cleveland's existing facilities presented below are the SPC throughput capacity volumes, equaling 75% of the MPC.

Summary of Existing Throughput Capacities (SPC)

Cargo Type	Facility Name	Quantity	Units
Break-bulk/Steel	Dock 20-22	150,000	Short tons
Break-bulk/Steel	Dock 24	430,000	Short tons
Break-bulk/Steel	Dock 26	140,000	Short tons
Break-bulk/Steel	Dock 28-30	180,000	Short tons
Break-bulk/Steel	Dock 32	180,000	Short tons
Break-bulk/Steel	**Total**	**1,080,000**	**Short tons**
Bulk	**CBT**	**6,000,000**	**Short tons**

Comparing the results back to the Master Plan capacity analysis, there has been a reduction in the overall Break-bulk/Steel capacity on Docks 20-32 but an increase in the Bulk capacity at CBT. This was for the following reasons:

- While the Master Plan assessment acknowledged the stadium parking requirement by identifying the ability to handle up to 2700 spaces within the existing infrastructure, the plan was completed prior to the realization of the stadium and associated parking. Therefore, at the time of the Master Plan capacity analysis, the area associated with the parking requirement was too nebulous to accurately define to include the reduction in open storage space within the reported capacities. Currently, after

three full seasons of stadium usage with associated parking, the affected areas are definable from past utilization. We have deducted those areas from the overall available open storage during the months of stadium usage (August - December) because operational experience from the past three years have demonstrated it is not feasible to store cargo in the parking areas during heavy stadium event usage periods. (Typical open storage dwell times exceed the amount of available time between stadium events during the football season.) This effect is further compounded by the typical timing of stadium events, as they occur in the fall months when the greatest peaking of cargo flows into the facility happen due to the January to March shipping hiatus.

- The Break-bulk/Steel capacity per acre has increased due to the current cargo mix at the facility. As discussed above in the information sources section, the overall capacity of a break-bulk facility depends on the particular cargos handled.
- The CBT bulk capacity increase is directly associated with the installation of the bulk handling equipment, allowing for better storage and material handling capabilities.

To better determine where the Port should focus any efforts for throughput capacity improvements, the specific model results for each facility component need to be analyzed. The figure below shows the capacity of each of the six major terminal components and how each compares to the other five. The limiting component for each terminal is shown in both type.

Existing Terminal Throughput Capacity (SPC in short tons)

Terminal Component	Docks 20-32	CBT
Component 1: Berth and Apron Activities	5,530,000	16,560,000
Component 2: Ship to Apron Transfer	6,100,000	20,722,000
Component 3: Apron to Storage Transfer	21,100,000	[1]
Component 4: Storage	**1,080,000**	**6,000,000**
Component 5: Inland Transfer	2,808,000	2,246,000 [3]
Component 6: Gate Processing	3,650,000	[2]

1 Cargo at the CBT is currently stored on the wharf apron. The introduction of the conveyor system from Lorain will have not change this operation.
2 The CBT is currently a ship to ship or ship to rail operation and has no gate.
3 Inland transfer is only ship to rail transfer capabilities. Since current operations only anticipates 1,500,000 ton a year to move ship to rail, this number is not the limiting component. Changes could possibly be made to the operating scenario of the rail loading component, such as adding additional loaders, prior to needing infrastructure improvements.

In both cases, storage is the limiting factor for current operations. Thus, the Port should focus any throughput capacity improvement efforts on the storage capacity of its facilities.

Planned Maritime Development Impact

The Master Plan development identified the potential for a new warehouse located on Dock 20-22, identified as Warehouse 20. We investigated the potential impact to overall break-bulk capacity using the following assumptions:

- Total area of 144,000 square feet. (240 feet by 600 feet)
- Three bays with an overhead bridge crane in the central bay.

The following chart summarizes the impact to the capacity at Dock 20-22 and overall capacity of the break-bulk facilities if the warehouse was constructed.

Summary of Throughput Capacities with Warehouse 20 (SPC)

Capacity with the construction of Warehouse 20	Revised Break-bulk Capacity	Units
Dock 20-22	350,000	Short tons
Break-bulk/Steel Total	1,280,000	Short tons

Non-Maritime Development Impact

Upon completion of modeling the existing facility, TranSystems considered alternatives currently under discussion with the City of Cleveland that will impact the overall capacity of the Dock 20-32 area.

The City of Cleveland has expressed an immediate interest in pursuing non-maritime cargo-handling activities on Dock 32 and a future interest in expanding the non-maritime cargo-handling activities to Dock 28-30. This area has been identified as potential for city-led development.

The following chart summarizes the impact to the Break-bulk/Steel capacity east of the Cuyahoga River with the elimination of maritime activities on only Dock 32, as well as Dock 28-30 and Dock 32.

Summary of Throughput Capacities with City Development (SPC)

Scenario	Revised Overall Break-bulk Capacity East of the Cuyahoga River	Units
Dock 32 for City Development	900,000	Short tons
Dock 28-30 and Dock 32 for City Development	720,000	Short tons

Ferry Service Capacity Impact

The Port Authority is currently preparing authorization for an implementation study to provide a Ro-Pax (Roll on-Roll off Passenger) ferry service for Cleveland. While not a detailed implementation plan, for purposes of this report it was necessary to establish basic parameters for a service. TranSystems utilized a Cleveland Lake Erie Ferry Service Feasibility Study completed in 1999 by TranSystems Corporation and Leeper, Cambridge & Campbell to estimate the requirements for a ferry service. This estimation can then be used to assist the Port Authority in determining the effects of locating a ferry terminal on existing property.

Ferry Service Requirements
From the feasibility study, we are basing our estimate of land, water, and adjacent transportation needs on the following assumptions:

- It will be a combination passenger / auto / truck service capable of handling up to 800 passengers with 300 autos or 75 trucks (or a combination of autos and trucks) in a single passage.
- Start-up operations will be only one round trip daily, but future space should be allocated for multiple trips and/or destinations as the market determines.
- The vessel of choice is an European-hybrid design with bow and stern loading.
- The associated terminal and administrative building should have adequate waiting facilities to hold 800 passengers, with a restaurant and gift shops. In addition, it needs adequate space for all administrative functions, including customs. As this will be the "entryway" for visitors into Cleveland, all efforts should be made to welcome tourists.
- Outbound queuing area for autos and trucks waiting to board vessel for transit. Additional inbound queuing area for autos and trucks waiting to process customs.
- Passenger only auto parking and area for bus and taxi drop-off.
- Storage area for cargo trucks and trailers.

From the above, TranSystems estimates that the following land, water, and transportation access requirements be considered for a ferry:

- Minimum of 12 to 16 acres start-up facility with additional expansion abilities.
- Minimum docking space for a 400 to 600 foot vessel with abilities to handle either fore/aft or bow/stern loading.
- Easy and convenient access to both freeway system for trucks and local transportation alternatives for tourists.

Possible Ferry Service Locations

Reviewing the available land resources at the Port of Cleveland and the requirements listed above, we suggest that the best location for a ferry terminal within the existing infrastructure would be on Docks 28-30. This is in general concurrence with the Master Plan suggested location, Dock 32, but recognizes a greater area needed for development than anticipated in the Master Plan, and the anticipated usage of Dock 32 by the city for development and public lakeshore access. (The Ferry Feasibility Study was concluded after the Master Plan development.) This suggestion is based on the following reasons:

- Docks 28-32 are adjacent to the Northcoast Harbor development. A ferry service would provide an excellent transition between the Northcoast Harbor area and the cargo-handling port facilities. In addition, it would provide an excellent entrance gateway for tourists by being so near to the Northcoast Harbor attractions.
- Excellent existing land connections to the freeway and local transit options.
- The location isolates the ferry passenger activities from the cargo-handling area of port operations, but provides access to the cargo-handling area for utilization by the truck cargo component of the ferry service.

If Docks 28-30 and Dock 32 were changed from cargo-handling facilities to a non-maritime use for city development purposes, we investigated the ability of the Port to handle a ferry service within the rest of their infrastructure, Dock 20 and Dock 26 in particular. We would not recommend either Dock 20 or Dock 26 be considered without finding additional steel cargo handling resources to supplement the loss of either area. The resultant steel handling capacity (as shown in the following chart) is less than the worst year to date and less than half of the historical average. *The implementation of the ferry service on either Dock 20 or Dock 26 would require a decision to sacrifice steel cargo handling capabilities.* The following are additional reservations we have against a ferry service being located on Dock 20 or Dock 26 besides the large detrimental impact to the cargo-handling capacity of the port.

- The location and traffic patterns would have to be such that there was no intermingling of ferry passenger cars and port operations. *Non-operational vehicles, such as passengers using the ferry terminal, in cargo-handling areas creates unsafe working conditions and must be avoided.* In addition, the ferry terminal must utilize a different entrance to not cause an adverse impact on the regular trucks entering and leaving the port with break-bulk cargos.
- The ferry terminal cannot share a berth with a break-bulk cargo handling facility. A break-bulk vessel is typically in the port for a minimum of 24 hours for unloading, while a ferry service will be in port at least twice daily.
- There is a concern about the ability of the Port to have sufficient space to meet the stadium parking contractual requirement with a ferry service.

The following chart summarizes the impact to the Break-bulk/Steel capacity east of the Cuyahoga River with the elimination of maritime cargo-handling activities on only Dock 32, as well as Dock 28-30 and Dock 32.

Summary of Throughput Capacities with a Ferry Terminal (SPC)

Scenario	Revised Overall Break-bulk Capacity East of the Cuyahoga River	Units
Dock 28-30 for Ferry Service and Dock 32 for development and increased public lakefront access	720,000	Short tons
Dock 28-30 and Dock 32 for development and increased public lakefront access with a Ferry Service located within Docks 20-26	370,000	Short tons

Other ferry terminal location alternatives, were considered, including a non-lakefront location The requirements remain the same as outlined earlier. Caution should be exercised in placing the facility up the Cuyahoga River. It takes 2 hours to negotiate the river and lift bridges up the Cuyahoga to reach the ISG area, which would double the transit time for the voyage and possibly eliminate the potential for a second round trip daily with the same vessel. Obviously locations closer to the mouth of the Cuyahoga would result in less time required, but any location of sufficient size in the Flats or Old River Basin area should be evaluated against current development proposals and existing traffic problems in those areas.

The facility could be located on Lake Erie in another location than on the existing Port property, but additional research would need to be completed to determine where land would be available and the impacts of possibly relocating the service outside of the downtown area. We anticipate that the proposed ferry implementation study will assist in addressing the best location for the ferry service.

PROJECTED CARGO THROUGHPUT VOLUMES

Projected cargo throughput volumes identified in the Master Plan were re-evaluated based on the Port of Cleveland's actual cargo volumes since the completion of the Master Plan. This re-evaluation involved comparing the Master Plan cargo forecast projections against the actual cargo volumes from 1997 to 2002 for the Port's two primary types of cargo: bulk and break-bulk/steel.

The cargo volumes listed below only include the volume handled on Port Authority property – Docks 20-32 and CBT, not at private facilities. Typically, Docks 20-32 predominantly handle break-bulk cargo while CBT only handles bulk cargo.

Cargo Volumes by Year (short tons)

Year	Break-bulk (Actual)	Bulk (Actual)	Break-bulk (Forecast)	Bulk (Forecast)
1990	773,922	3,038,535		
1991	913,670	2,852,675		
1992	435,286	2,700,842		
1993	764,843	2,069,184		
1994	869,669	1,899,989		
1995	779,314	1,531,985		
1996	1,158,056	1,809,000		
1997	1,045,377	1,521,729	1,053,338	1,809,000
1998	1,182,792	1,239,551	1,084,948	6,809,000
1999	721,369	934,306	1,117,506	6,924,753
2000	949,552	1,028,500	1,151,041	7,042,474
2001	364,602	1,139,238 [1]	1,162,605	7,162,196
2002	444,202 (est.)	1,167,009 [1,2]	1,174,286	7,283,953

[1] To augment the diminished break-bulk steel imports, the Port Authority leased a portion of Dock 20 to Kenmore Stone on a yearly basis. Also, the Port Authority has a long term lease for the cement facility on Dock 20. In 2002, these bulk commodities produced 403,169 tons of cargo and in 2001 produced 401.885 tons of cargo which moved through Docks 20-32 rather than CBT.

[2] Bulk volume for 2002 does not include CBT tonnage for December 2002.

The market assessment portion of the Master Plan also investigated the possibility of ro-ro (roll on-roll off) and container cargo, including recycled materials, being handled by the Port of Cleveland. While the Master Plan identified a small portion of ro-ro and container cargo as possibly being captured by the Port, these cargos have not materialized in a substantial fashion to date. While from previous experience with maritime opportunities, we can foresee the possibility of ro-ro and container markets developing, for instance through the ferry or feeder barge service supported by aggressive marketing techniques, it is not within the scope of this analysis to do a market assessment to accurately

define a projected forecast volume for such cargo. Since even the amount projected in the Master Plan is such a small portion of the overall volume, we have not included it in the present study. Historically, the Port of Cleveland has handled various cargos, from lumber to popcorn, and it is vital for its growth, and the growth of Cleveland, that the Port maintains the ability to adapt to future capacity demand from existing or future customers. The Port Authority may want to consider an update to the Master Plan market assessment to more accurately understand what possibilities are available to capture such cargo through aggressive marketing strategies.

Break-bulk (Steel and Other General)

The noticeable trend is the diminution of cargo volume after a record 1998 year and good 2000 year. Understanding that the majority of the break-bulk cargo is steel (over 99%), the cargo volume change reflects the status of the steel industry. The dip between 1998 and 2000 demonstrate a typical flux in the steel industry, as is also shown in 1991 to 1994. With recent years, to assist the declining domestic steel industry facing low-cost imported foreign steel from over-stocked manufacturers, the government has placed higher restrictions and tariffs on imported steel. Another break-bulk steel port reported a decline in cargo of over 54% from 1999 to 2001 in a press release. For the purposes of this evaluation, it is assumed that as the domestic and foreign steel industry recovers, the flow of fairly traded imports will return to late 1990's levels to support the United States manufacturing industry, as seems to be indicated by a stronger 2nd half of 2002.

For the current forecast projection, TranSystems reassessed the base cargo volume for 2003. Given the current steel situation, it would be unrealistic to expect a full recovery in a single year. Therefore, we anticipate 2 to 3 years before the steel import cargo will fully recover. From that recovery point, anticipated to be 1,000,000 ton in 2005, we used the same annual growth midpoint between the medium to high forecast projection scenarios through the year 2025 as the Master Plan, as this study did not involve a detailed market assessment to re-evaluate the projection scenarios. Given the difference in the Cleveland market and economy since 1998, especially with ISG, it may be beneficial for the Port Authority to authorize an update of the market assessment and corresponding projection scenarios.

Bulk

The large difference in the Master Plan projected volumes versus actual cargo volumes for the bulk over the past several years is due to not constructing the truck access or improved storage handling facilities to capture some of the existing cargo destined for a private facility up river. The 1998 Master Plan had anticipated the construction of a truck access route under the N/S mainline, which is required to have the ability to move cargo in and out of the facility via truck.

The current forecast projection for CBT is based on the actual cargo anticipated for 2003. From discussions with Oglebay-Norton, it is anticipated that they will transfer between 3,850,000 ton and 4,300,000 ton of iron ore (two grades) and iron concentrate next season. The predominant change in the cargo volume forecast is from the installation of the bulk handling equipment at the CBT property. Up until the installation of this equipment, the pellets for the ISG Corporation (previously LTV), were transshipped in Lorain. The addition of the ISG pellet will increase the estimated cargo for CBT by 2.2 to 2.8 million ton a year. (1.2 million ton of pellets will be sent directly to ISG without any transfer at the CBT facility.) CBT will continue to supply iron ore pellets to Weirton, West Virginia and iron ore concentrate to a local manufacturer via rail transfer.

From a 2003 base of 4,300,000, we applied the same annual growth midpoint between the medium to high forecast projection scenarios. The Master Plan forecast looked at the growth of all bulk cargos, including iron ore, stone, cement, sand & salt, grain and liquid bulk. Once again, given the changes in the Cleveland economy and infrastructure on CBT, it may be beneficial for the Port Authority to reassess the market forecast projection scenarios.

The following chart outlines the projected growth of Break-bulk / Steel and Bulk cargos based on the above discussion:

Year	Break-bulk/Steel Forecast Projection Based on an Annual Growth of 2%	Bulk Forecast Projection Based on an Annual Growth of 2.5%
2003	652,000 tons	4,300,000 tons
2004	877,000 tons	4,407,500 tons
2005	1,002,070 tons	4,517,688 tons
2010	1,106,539 tons	5,111,349 tons
2015	1,221,914 tons	5,783,022 tons
2020	1,345,868 tons	6,542,959 tons
2025	1,485,947 tons	7,402,757 tons

As discussed above, steel import cargo tends to be very cyclical, but the forecast annual growth uses a standard growth rate. The annual growth rates for both break-bulk / steel and bulk take into consideration the cyclical nature of any commodity and use a percentage that averages out the highs and lows over the duration of a cycle.

CAPACITY VERSUS DEMAND

Results

The following graphs compare the sustainable practical capacity results for both break-bulk and bulk cargos as obtained from the models to the projected cargo throughput volumes to determine in what year the Port could anticipate a capacity shortfall, assuming the specific components of each scenario below occurred today.

Break-bulk/Steel – Docks 20-32

Several scenarios were discussed for the break-bulk steel facility, which we have summarized into the following chart. Since the nature of the steel industry is cyclical, the range of years shown are based the projected cargo throughput volumes and then a reduction in the projected cargo throughput volumes of 30% to account for a possible presence of "down" cycle in the steel import industry during the year(s) in which the Port could anticipate being at capacity. In addition, it is important to reiterate that the facility break-bulk/steel capacity is based on the specific weights and sizes of the current steel cargo moving through the facility and that any changes in the cargo, such as different steel types or the addition of a completely different cargo, may alter the facility capacity.

Scenario	Description	Facility Break-bulk / Steel Capacity (short tons)	Year Capacity Exceeded
Scenario 1	Existing facility	1,080,000	2010-2021
Scenario 2	Existing facility with the construction of Warehouse 20	1,280,000	2018-2025+
Scenario 3	Existing facility without Dock 32 (Dock 32 for development and increased public lakefront access)	900,000	2005-2010
Scenario 4	Existing facility without Dock 32 and with the construction of Warehouse 20 (Dock 32 for development and increased public lakefront access)	1,100,000	2010-2023
Scenario 5	Existing facility without Dock 32 and without Dock 28-30 (Dock 28-30 and Dock 32 for development and increased public lakefront access or for Ferry Service)	720,000	2004-2005

Scenario	Description	Facility Break-bulk / Steel Capacity (short tons)	Year Capacity Exceeded
Scenario 6	Existing facility without Dock 32, without Dock 28-30, and with the construction of Warehouse 20 (Dock 28-30 and Dock 32 for development and increased public lakefront access or for Ferry Service)	920,000	2005-2014
Scenario 7	Existing facility without Dock 32, without Dock 28-30, and with a ferry service located in Docks 20-26 (Dock 28-30 and Dock 32 development and increased public lakefront access)	370,000	Present day

The above analysis demonstrates that the Port of Cleveland should immediately begin to identify areas for potential operational or infrastructure improvements if any property is used for City Development purposes.

Bulk – CBT Facility

Only one scenario was discussed for the CBT facility, which has the facility with a 6,000,000 short ton capacity when continuing to handle only three commodities. It is estimated that the addition of a fourth product will reduce the capacity to below the expected volume for 2003. *Therefore, CBT is at capacity with three commodities and cannot handle the addition of any new commodities and customers, including the relocation of the bulk stone from Dock 20.* Consideration should begin to be made for future changes in the CBT infrastructure to improve capacity by allowing for the addition of new commodities. Such actions could include construction of a berthing slip or conveyor system for better backland storage utilization or expansion of wharf side storage. Any improvements must also consider the implementation of a truck access under the N/S mainline, as many bulk cargos – such as relocated stone from a up river facility – would require a truck egress route.

Impacts

Local and Regional Economic Impact

In 1999, the Port Authority commissioned an update study by the Urban Center at the Levin College of Urban Affairs at Cleveland State University, of the Economic Impact Study of the Port of Cleveland's Maritime Operations. Looking at all maritime operations, including the private river docks, the study determined an overall direct, indirect, and induced "port industry" impact of 4,800 jobs, $441

million in spending, and $156 million in personal income.. These numbers did not include any impact from the manufacturing industry, such as automobile and steel, which rely on the Port. Furthermore, it is difficult to enumerate the impact a facility like the Port of Cleveland provides when recruiting new industry to the area.

In addition, the Saint Lawrence Seaway Development Corporation authorized an Economic Impact Study of the Great Lakes St. Lawrence Seaway System. The study was completed in 2001 by Martin Associates. The Seaway study estimated the economic impacts of the Great Lakes St. Lawrence Seaway System on 16 representative U.S. port communities, including Cleveland and Toledo. The Seaway study did include the impact from the associated manufacturing industry. The interesting comparison of the Seaway statistics is between the Port of Cleveland and the Port of Toledo. As discussed earlier, the Port of Cleveland is a destination port, where a predominance of the cargo has a final destination within the economic region. The Port of Toledo is a transit port, where most of the cargo is transferred to rail or highway systems for a final destination outside of the economic region. Typically the Port of Toledo handles more cargo volume per year than the Port of Cleveland, primarily in bulk cargos. The following chart summarizes the difference in the economic impact for the two regions:

Port	Direct and Induced Jobs	Personal Income (in millions)	Associated Business Revenue (in millions)	Federal, State, and Local Tax Revenue (in millions)
Port of Cleveland	10,999	$571.0	$882.6	$202.1
Port of Toledo	3,703	$182.6	$198.0	$64.6

As a destination port, a change in the cargo volume at the Port of Cleveland has the potential for a greater impact on the regional economy than if it were a transit port.

Another critical component of the Economic Impact Study of the Great Lakes St. Lawrence Seaway System report is the difference in job and economic impact per ton between bulk commodities, such as iron ore and gravel, and iron and steel products. The study determined that steel generates significantly more jobs and revenues per ton than bulk cargos. Jobs shown per 1,000 tons below are only direct jobs (such as dock workers, freight forwarders, truckers) and do not include indirect or induced jobs (such as manufacturing jobs). In addition, is it also important to note that the indirect jobs supported by steel imports – such as coils used in automotive manufacturing – tend to have a greater economic impact than jobs supported by bulk cargos – such as aggregate used in construction. The revenue per ton shown is the revenues generated from providing maritime

services and does not include the value of the cargo shipped in the calculation. Following is chart summarized from the Seaway report that outlines the difference in jobs and revenues for five typical commodities:

Commodity	Jobs / 1,000 Tons	Revenue / Ton
Steel	1.07	$156
General Cargo	0.33	$73
Ore	0.22	$11
Cement	0.21	$16
Stone/Aggregates	0.20	$14

The difference in the jobs and revenue per ton is directly related to the more intensive handling practices break-bulk cargos (such as steel and general cargos) require than bulk cargos. With self-unloading vessels, bulk cargos require much less manpower to unload, also reducing the amount of charges a port can assess the shipping line.

The above assessment demonstrates the difference in destination versus transit port and the difference in economic and job impact for various commodities. It is critical to understand that the steel import cargos provides a greater impact per ton than all other Great Lakes cargos.

In addition to the potential impacts of diminished cargo handling capacity eliminating current jobs, the future ability of the Port to assist the region in planning efforts may be comprimised. With CBT at capacity, the Port is handicapped in assisting the city in Flats development by not having the facility available to relocate bulk operations to the lakefront. In addition, while steel handling may currently account for 98% of the break-bulk and general cargo activity, it is important to the economic growth of the region that the Port have the flexibility to modify its operations to support an additional commodity that a new industry may provide. The need for flexibility is further reinforced by a recent article in the Great Lakes Seaway Review discussing the concept of "modal shift", or the migration of cargo from one mode of transportation to another. A recent Ohio Department of Transporation study indicates that freight truck traffic will increase by 64 percent by 2020, and that without "mitigation" gridlock hours will increase by 82 percent. A previous modal shift study by the Great Lakes Commission demonstrated that commercial vessels are safer, used less fuel, and were better for reducing noise and congestion than similar rail or truck movements. The modal shift study is to be updated this year. The Port of Cleveland could be considered a gateway to enhance modal shift of cargo to water and should have the facilities available to assist local, regional, and state planning and economic development efforts.

Special Events and Function Impact

In addition to regular maritime activities, the Port of Cleveland has played host to several special events in the past, most focused on the Dock 32 area. These events draw public, including out-of-town tourists, to the Northcoast Harbor area.

- Annual Power Boat Race. This event is staged in the protected harbor with parking and seating provided on Port property, typically on Dock 32 although recently Dock 20-22 and Dock 28-30 were utilized because of Dock 32 already being in use for another event.
- Tall Ships. Thousands of people visit the water front along Dock 32 to visit the touring sailing vessels. During this time, Dock 32 is converted into a staging area for visitors boarding and observing the vessels.
- Gravity Games. For six weeks, the Dock 32 area was used by the Gravity Games to construct the various ramps and equipment for the contests and then was an event site for the Games. This nationally televised event brought positive media attention to the Cleveland area.

The Port Authority and the City of Cleveland have already committed to these activities for next summer, but the Port Authority should examine its ability to host any further activities elsewhere on it's cargo-handling property in the event of the loss of Dock 32 to City Development opportunities.

Capacity Improvement Alternatives

Because of the anticipated cargo shortfalls shown above, we propose some alternative ideas that may be further pursued by the Port Authority to enhance the capacity for both break-bulk and bulk cargos. Some of the ideas relate directly back to the Master Plan.

Whiskey Island Development

The Master Plan identified the eastern portion of Whiskey Island, currently held by private investors, as the area for future expansion of the Port. For purposes of this report, we are assuming that only the portion of Whiskey Island currently occupied by the private marina will remain available to the Port for expansion and the undeveloped portion of Whiskey Island will be turned over to the City of Cleveland for park development. This is in concurrence with a current arrangement being pursued by the Port Authority and the City of Cleveland.

If the Port Authority decides to develop the marina portion of Whiskey Island for cargo-handling purposes, we suggest that they develop the area for additional bulk handling facilities, which are identified as needed by 2017. The addition of a slip similar to that shown in the Master Plan would allow for a better storage utilization of the existing CBT backlands and allow for more berthing opportunities. The marina area is small and it would be difficult to attract a stevedore with the very limited break-bulk capacity that would be available.

Furthermore, break-bulk operations would require the construction of a two-lane truck access under the Norfolk Southern mainline to the Willow Street bridge. We also considered the opportunities for locating the ferry terminal in the marina portion of Whiskey Island. We would recommend against this location because of the poor land transportation connections for both trucks and tourists.

The usage of the fallow land east of the marina on Whiskey Island was not considered. If it were to be available for Port cargo-handling development, we would continue to recommend the development alternative shown in the Master Plan for a break-bulk/steel and other miscellaneous cargo facility. Since the undeveloped portion of Whiskey Island was the location identified in the Master Plan for growth of Port facilities to meet anticipated future demand, the loss of the undeveloped portion of Whiskey Island will leave the Port of Cleveland without an identified area for expansion, a critical element for the continued viability of Port cargo-handling operations.

Operational Adjustments

One of the critical components to the capacity of the Port of Cleveland, like most all maritime operations, is the dwell time of the cargo. As discussed above, the Port of Cleveland is a destination port, which while providing a greater economic impact for the area, requires a longer dwell time for the cargo. While a reduction in the dwell time can significantly increase the capacity of the port, the overall impact must be considered. As discussed earlier, this is a result of the logistics revolution of "just-in-time" deliveries. Customers have come to expect that the Port can handle the warehousing of their cargo for up to 30 days, and would welcome the opportunity for even longer dwell times. A change in policy requiring the cargo to leave the facility sooner may cause existing customers to send their cargo elsewhere and has a negative impact on attracting new customers. This also has the potential for a negative impact to the regional economy, as manufacturers prefer to be close to their import destination and may consider other locations for their operations if the Port of Cleveland cannot meet their dwell time expectations.

Future Elimination or Reconfiguration of Stadium Parking

Another option to increase capacity is to eliminate or reconfigure the stadium parking. The Port Authority is under contract with Browns to provide parking until January 2010. A study could be conducted to consider the impact to the Port's finances and cargo-handling capacity by either eliminating the parking (after 2010) to increase cargo handling-capabilities or to construct a parking garage to consolidate parking into a smaller footprint. At this time, stadium parking is an important revenue source for the Port and any adjustments must take either the loss of revenue or infrastructure construction and maintenance costs into consideration.

Non-Waterfront Land Alternatives for Cargo Capacity

The desire for recreational and commercial development of prime lakefront real estate in Cleveland and the associated impact to cargo-handling maritime operations is shared by many communities. Combining the desire to minimize necessary lakefront land area for cargo-handling operations with the increasing need for longer storage time has led maritime facilities to consider non-water front storage options.

One option is the generation of an inland storage facility connected to the waterfront by a dedicated, direct rail access, or shuttle train. This concept can be applied to several degrees. At one extreme, there is no storage provided on the water-front property. All cargos are immediately loaded onto rail car and shipped inland to the storage facilities. From that extreme, other options are for limited water-front storage abilities, limiting cargo dwell to 5 days after which it is either put on rail car for transportation to inland storage facilities or removed from site by the customer. Another component that must be realized is an efficient and accurate data/information management system to integrate and manage multiple transportation assets such as the dockside unloading, shuttle train, and warehousing. The inland storage facility must have good land transportation access to rail and highway systems. Furthermore, since this concept typically requires multiple movements of a shipment, increasing port handling costs, the final costs to the consumer may increase. This possible cost increase should be quantified and customer impacts considered. While a barge connection (rather than rail) to an inland facility located up the Cuyahoga River may be considered, it must account for the increased river traffic and the subsequent possible negative impact on Flat's development and lift structure maintenance.

TranSystems has explored options similar to the one outlined above, including a plan for the Port of New Orleans called the Millennium Port Concept. Past experience has shown that many diverse elements must be coordinated to construct a successful inland facility, including the incorporation of existing port operations from stevedores to customers, proposed rail or other transportation system components, generation of a vessel to warehouse to customer integrated information system, and identifying potential impacts to city and neighborhood planning and development organizations. We recommend that all of the above components be critically evaluated by the Port Authority and its local and regional planning partners to determine the ultimate viability of an inland storage facility.

New Waterfront Land Alternatives for Cargo Capacity

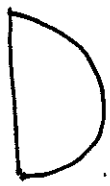
Besides looking inland, the Port Authority may want to consider looking out into the harbor. Specifically, to develop new land masses in the Cleveland harbor area to support maritime operations. This would require the careful selection of an offshore site to ensure the ability to construct the same access to rail and highway transportation services and to not impede current commercial and recreational maritime operations. The most economical solution may be to build

up the land mass from dredged materials, but the timeframe of that construction needs to be considered against when the facility would be needed.

Summary

The removal of existing facilities will have a significant impact on Port cargo-handling capabilities, perhaps as soon as 2005. In addition, the regional economic impacts caused by the Port Authority's inability to handle the cargo volumes should be considered. It may be advisable for the Port of Cleveland and it's regional planning and development partners to conduct a more in-depth study of the possible economic impacts if the Port was unable to handle all of the cargo demand.

There are several ways in which the Port of Cleveland, with the assistance of the City of Cleveland, Cuyahoga County and other planning and development agencies, may be able to increase capacity. Since most of these ideas require a long duration to achieve final results, the Port of Cleveland and it's Planning Partners should immediately begin to consider how different alternatives could be developed and implemented. If we act today, the opportunity may be available to achieve a long-term solution that preserves the economic impact of the Port of Cleveland and still allows for the new development and increased public access to the lakefront.



OGLEBAY NORTON

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11 December 2006

Matt Zone
Councilman
City of Cleveland
Office of the Council
601 Lakeside Avenue, N. E.
Cleveland, OH 44114

Dear Mr. Zone:

As you are aware in March of 1997 Oglebay Norton entered into a ten year agreement with the Cuyahoga County Port Authority for the lease of the Cleveland Bulk Terminal (CBT) dock facility. As a member of the Cleveland community for over 150 years Oglebay Norton made this investment to continue its commitment to waterborne bulk materials on the Great Lakes and more specifically Cleveland.

This lease was entered into with the agreement that the Hullets would be disassembled to allow self unloading vessels to have unrestricted access to the entire CBT dock facility. Oglebay Norton agreed to have a portion of the dock facility, some 15%, encumbered by the storage of two dismantled Hullets for up to five years to provide third parties the time to secure an alternate site for their housing. This agreement was at no cost to the third parties seeking the alternate site.

In 2002 Oglebay Norton worked with the Port Authority, and extended the lease to 2017, to relocate the iron ore loading system from Lorain to CBT to ensure that Cleveland would be the cost effective destination for the storing/transferring of iron ore to Cleveland's steel mill. As a result; the dock now has 12 employees and is handling 3,000,000 plus tons of iron ore pellets per year for Cleveland Cliffs and Mittal Steel.

Over the past year Oglebay Norton has been successful in securing multi-year flue gas desulfurization contracts for First Energy and American Electric Power (AEP). These contracts have begun shipments and will increase to an annualized amount of nearly 1,000,000 tons in 2007. This business will result in approximately 35 additional vessel loads of limestone to CBT along with 100 unit train loads of limestone leaving the dock each year. In order to accommodate this increase in business we require the entire dock facility to be available.

Over the past several years Oglebay Norton has, annually, lost some 200,000 plus tons of iron ore storage/handling for Cleveland Cliffs and Mittal Steel due to the space that the Hullets are encumbering. While we remain proud and committed to be a cooperative and contributing member of the Cleveland community we can no longer allow time to pass without the benefit of fully utilizing the entire CBT facility. To that end we appreciate your efforts to date to find an agreeable solution for the re-location of the Hullets from CBT. However; with the loss of iron ore business, our continued payment for full use of CBT while having some 15% of the space encumbered and rendering it unusable, and the increase in limestone business we must have the Hullets removed by spring of 2007 to permit us to fulfill our contractual obligations to our customers. We request your support of this action so we can continue with our efforts to make CBT and Cleveland a cost competitive destination for bulk material handling.

Sincerely;

Michael D. Lundin
President and CEO

MEMORANDUM OF AGREEMENT

AMONG THE UNITED STATES ARMY CORPS OF ENGINEERS,

THE OHIO STATE HISTORIC PRESERVATION OFFICE, AND

THE ADVISORY COUNCIL ON HISTORIC PRESERVATION

AND

CLEVELAND-CUYAHOGA COUNTY PORT AUTHORITY AND

OGLEBAY NORTON COMPANY

REGARDING THE APPLICATION FOR DEPARTMENT OF THE ARMY PERMIT

APPLICATION NO. 1999-01471(4)

WHEREAS, on or about June 23, 1993, the City of Cleveland designated the C&P Ore Docks, Whiskey Island, Cleveland, Ohio, as a Cleveland Landmark; and

WHEREAS, the C&P Ore Docks was listed in the National Register of Historic Places in 1997 under the original name: Pennsylvania Railway Ore Dock; and

WHEREAS, in or about March 1997, the Cleveland-Cuyahoga County Port Authority (the "Port Authority") purchased the C&P Ore Docks from Conrail and renamed the site the Cleveland Bulk Terminal ("CBT"); and

WHEREAS, the Port Authority leased CBT and continues to lease CBT to a subsidiary of Oglebay Norton Company; and

WHEREAS, on or about July 8, 1999, the City of Cleveland Landmarks Commission granted a Certificate of Appropriateness via an amended approved mitigation plan (the "Amended Approved Mitigation Plan"), a copy of which is attached hereto as Tab A, for the following actions:

1) The Commission granted a Certificate of Appropriateness for the demolition and removal of 2 Huletts and all buildings, subject to presentation of required documentation to the Commission;

2) The Commission granted a Certificate of Appropriateness for disassembly and storage of 1 Hulett in the manner presented, to be retained on site for up to 5 years, for potential reassembly at a site within the Flats Oxbow district;

3) A Certificate of Appropriateness for the demolition and removal of 1 additional Hulett was delayed until January 15, 2000 to permit fundraising efforts to allow for the disassembly of such Hulett;

3) The Authority will pay to disassemble and store 1 Hulett and provide storage for 1 additional Hulett, if necessary, provided: (a) the cost to the Port Authority shall not exceed $500,000; and (b) if fundraising efforts to reconstruct the Hulett(s) on another site are successful, the Port Authority could be reimbursed a maximum of $250,000 from the fundraising and $50,000 from the City of Cleveland and $50,000 from ONCO.

WHEREAS, pursuant to the Certificate of Appropriateness, the Port Authority presented required documentation to the Commission and systematically dismantled two (2) Huletts, stored and retained them along with shunt engines and trackage at the CBT beyond the five-year term called for in the Amended Approval Mitigation Plan; and

WHEREAS, the 2 Huletts continue to be stored at the CBT; and

WHEREAS, fundraising efforts to reconstruct the 2 Huletts have been unsuccessful; and

WHEREAS, on or about October 18, 2005, the Port Authority submitted an Application for Department of the Army Permit, Application No. 1999-01471 (4) to the United States Army Corps of Engineers (the "USACE"), a copy of which is attached hereto at Tab B (the "Permit"), for maintenance dredging at CBT; and

WHEREAS, along with the Application, the Port Authority submitted the Cleveland Bulk Terminal Section 106 Review, A Report Prepared for the Cleveland-Cuyahoga County Port Authority, by Ted Sande, AIA, Historic Preservation Consultant, dated 12 September 2005, a copy of which is attached hereto as if fully rewritten at Tab C; and

WHEREAS, USACE, after carefully considering the case captioned *Committee to Save Cleveland's Huletts, et al., v. U.S. Army Corps of Engineers, et al.*, U.S. District Court, Northern District of Ohio, Case No. 1:99 CV 3046, and all matters set forth further herein, proposes to grant the Application for Department of the Army Permit, Application No. 1999-01471 (4); and

WHEREAS, the USACE has established the Permit's area of potential effects (APE), as defined at 36 CFR 15 800.16(d), on the "Pennsylvania Railway Ore Dock" now known as the CBT; and

WHEREAS, the USACE has determined that the Permit has an adverse effect on the Pennsylvania Railway Ore Dock; and

WHEREAS, the Port Authority has objected to the USACE determination that the Permit has an adverse effect on the Pennsylvania Railway Ore Dock; and

WHEREAS, the USACE has invited participation from Consulting Parties and conducted a Consulting Parties meeting held on February 21, 2007; and

WHEREAS, the USACE has received and considered comments from various Consulting Parties, and in particular, the USACE has received comments and a proposal laying the groundwork for a memorandum of agreement from Cleveland City Councilperson, Matt Zone, (the "Zone Plan"); and

WHEREAS, the Port Authority and Oglebay Norton Company, Inc. ("ONC") have indicated each is in agreement with groundwork established by the Zone Plan; and

WHEREAS the USACE has consulted with the Ohio State Historic Preservation Office (SHPO), and the Advisory Council on Historic Preservation (Council) in accordance with Section 106 of the National Historic Preservation Act, 16 U.S.C. § (NHPA), and its implementing regulations (36 CFR Part 800.6(b)(2)) to resolve the adverse effects of the Permit on historic properties; and

WHEREAS, pursuant to 36 CFR 800.6(c)(2), the USACE has invited Consulting Party, Oglebay Norton Company ("Oglebay Norton"), to sign this Memorandum of Agreement (MOA); and

WHEREAS, pursuant to 36 CFR 800.6(c)(3), the USACE has invited all Consulting Parties to concur in this MOA; and

WHEREAS, the USACE intends to use the provisions of this MOA to address applicable requirements of Sections 110(a)(1) and 110(b) of NHPA; and

NOW, THEREFORE, the USACE, the SHPO, and the Council agree that upon the USACE's decision to proceed with the Permit, the USACE shall ensure that the following stipulations are implemented in order to take into account the effects of the Permit on historic properties, and that these stipulations shall govern the Permit and all of its parts until this MOA expires or is terminated.

Stipulations

The USACE shall ensure that the following stipulations are implemented:

- Signatories to the MOA shall immediately, and in no case beyond 28 days from execution of the MOA, identify the most historically significant elements of the two (2) remaining Huletts (the "Significant Elements") for relocation and further storage for a period not to exceed two (2) years outside the railroad footprint of CBT as further set forth herein. The Port Authority shall not be liable for any acts, errors or omissions of any contractor retained to relocate the Significant Elements within the CBT site. Nor shall the Port Authority be liable for the condition of the Significant Elements at any time during which all or part of them are being stored at the CBT site.

- The Port Authority hereby identifies the bucket leg (including the cab) and the bucket of one (1) Hulett as the Significant Elements.

- During the 28-day period, the USACE shall solicit comments and suggestions from Consulting Parties as to which elements should be deemed Significant Elements.

- Following the 28-day period, the USACE, the Port Authority and Oglebay Norton shall designate the Significant Elements for relocation taking into consideration any and all reasonable comments and suggestions received from any Consulting Party.

- Thereafter, the Significant Elements shall be relocated at the Port Authority's or Oglebay Norton's sole cost and expense, as provided herein, and stored outside the railroad footprint of the CBT at a location designated, in the sole and absolute discretion of Oglebay Norton, for a period not to exceed 2 years from the last date of execution of the MOA by the USACE, or the Council; provided, however, that the cost of relocating the Significant Elements does not exceed the total amount received by the Port Authority to scrap the remaining portions of the 2 Huletts (the "Scrap Items"). Any funds remaining following relocation of the Significant Elements from the sale of the Scrap Items (the "Remaining Funds") shall be deposited into an interest bearing account for future relocation costs; provided, further, that the Port Authority shall be entitled to draw from the Remaining Funds as reimbursement of any costs and expenses, including legal fees, incurred by the Port Authority as a result of defending any legal action instituted challenging the validity or legality of the Permit, any findings or conclusions of the USACE, or this MOA.

- The Port Authority shall scrap the Scrap Items of the 2 Huletts and utilize all funds from the sale of the Scrap Items to relocate the Significant Elements outside the railroad footprint as stated herein. The Port Authority shall identify and contract with a reputable contractor[s], in the Port Authority's sole and absolute discretion, to remove and relocate the Significant Elements to a site chosen by Oglebay Norton and said contractor[s] shall purchase from the Port Authority and remove the Scrap Items from the CBT site as soon as reasonably practical after execution of this MOA.

- During the two (2) year period, the Consulting Parties shall be entitled to search for a site or sites to relocate the Significant Elements (the "Relocation Site") off of CBT. In addition, the Consulting Parties should engage in fundraising activities to raise capital to relocate the Significant Elements.

- Upon identification of a Relocation Site ready, willing and able to accept all or any portion of the Significant Elements, the Port Authority shall utilize any Remaining Funds (less any reductions as set forth above) from the sale of the

Scrap Items plus any funds raised by Consulting Parties to relocate the Significant Elements to the Relocation Site. The Port Authority shall not be liable for any acts, errors or omissions of the contractor[s] nor shall the Port Authority be liable for the condition of the Significant Elements at any time. Upon delivery of all or any portion of the Significant Elements to the Relocation Site, the Port Authority shall deliver a bill of sale to the owner of the Relocation Site or its designee without representations or warranties, express or implied, of any kind whatsoever.

- At the conclusion of the two (2) year period, if there are insufficient Remaining Funds (including funds raised by any Consulting Parties) to relocate the Significant Elements, if a Relocation Site has not been secured, or if the Significant Elements have not been relocated, the Port Authority shall be entitled to dispose of the Significant Elements in its sole and absolute discretion including scraping the Significant Elements. Any funds remaining in the interest bearing account, including any funds received from scrapping the Significant Elements, shall be donated to a 501(C)(3) charitable, non-profit organization in the Port Authority's sole and absolute discretion which is dedicated to preserving, restoring, and rehabilitating historic properties in the Greater Cleveland – Cuyahoga County Area.

Execution of this MOA by USACE, SHPO, and the Council, and implementation of its terms, is evidence that USACE has afforded the Council an opportunity to comment on the Project and its effects on historic properties, and that the USACE has taken into account the effects of the Project on historic properties.

UNITED STATES ARMY CORPS OF ENGINEERS

By:_____ Date:_____

OHIO STATE HISTORIC PRESERVATION OFFICE

By:_____ Date:_____

CLEVELAND-CUYAHOGA COUNTY PORT AUTHORITY

By:_____ Date:_____

ADVISORY COUNCIL ON HISTORIC PRESERVATION

By:_____ Date:_____

OGLEBAY NORTON COMPANY

By: _____ Date: _____