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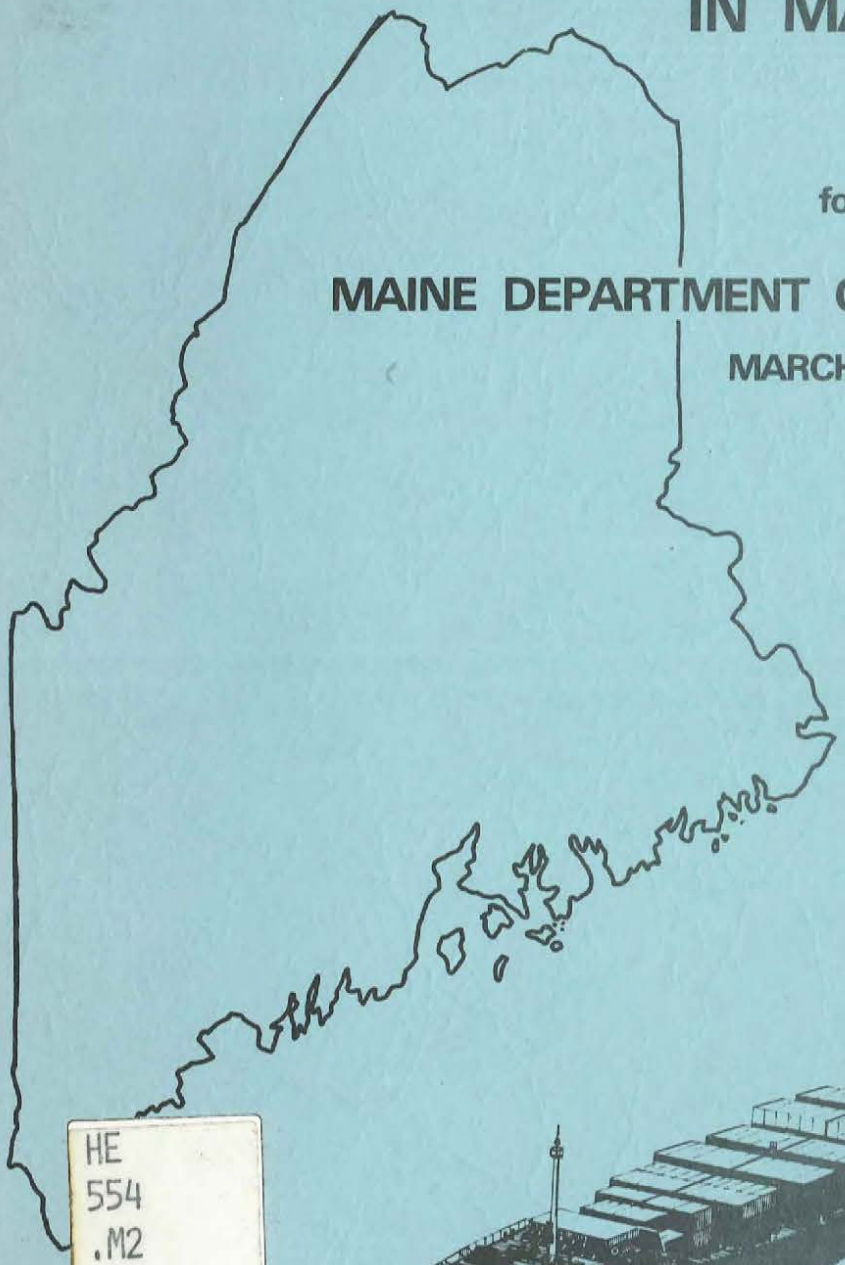
FEASIBILITY STUDY OF GENERAL CARGO PORT FACILITIES IN MAINE



for

MAINE DEPARTMENT OF TRANSPORTATION

MARCH 1980

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION
TRANSPORTATION BUILDING
STATE HOUSE STATION 16 AUGUSTA, MAINE 04333

mdot

RICHARD A. LUETTICH
Acting Commissioner

March 21, 1980

Governor Joseph E. Brennan
and
Members of the 109th Legislature

Dear Governor and Legislators:

In accordance with Chapter 25 of the Resolves of 1979, the Department of Transportation herewith submits a report on the feasibility of Cargo Port Facilities in Maine. This Study was completed by the firm of Booz-Allen and Hamilton of Bethesda, Maryland.

The consulting firm has concluded that investments in Maine port facilities are justified and recommends development of facilities at Portland and Searsport. The Advisory Committee that assisted in the study supports these conclusions and recommendations. Based on the results, the Department will be developing specific proposals for your consideration.

Very truly yours,

Richard A. Luettich
Acting Commissioner

RAL:JC:mb

FEASIBILITY STUDY OF GENERAL CARGO PORT FACILITIES IN MAINE

for

MAINE DEPARTMENT OF TRANSPORTATION

MARCH 1980

BOOZ · ALLEN & HAMILTON Inc.

Transportation Consulting Division

4330 EAST WEST HIGHWAY

BETHESDA, MARYLAND 20014

951-2200

AREA CODE 301

T A B L E O F C O N T E N T S

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Mr. John F. Wing, Vice President of Booz, Allen, was Officer-in-Charge of the assignment. Leo J. Donovan, Jr. was Director of Research. Timothy J. Consroe was project manager and principal author. Barry D. Parker was the principal investigator.

* * * * *

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EXECUTIVE SUMMARY

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In December 1976 the Maine Department of Transportation and the Maine State Planning Office concluded an agreement to begin a Port Planning and Development Program. The basic objectives of the program are to provide the State with information about the current conditions of port facilities in Maine, to identify and evaluate possible port development opportunities, and to prepare both short- and long-range capital improvement plans.

One phase of the program includes a feasibility study of the development of major cargo handling facilities at Maine ports. This study is part of that phase of the program.

The objective of the study documented in this report is to evaluate the costs and benefits of developing port facilities in the state.

Only facilities designed to handle general cargo are included in this study. These are facilities which are normally developed in whole or in part with public funds. Bulk commodities such as oil and coal, which are usually handled in proprietary facilities, are not considered.

This study has focused on two types of port facilities. The first are facilities for handling containerized cargo. Based on the relatively modest amount of containerized cargo available in Maine, feeder operations are much more likely than direct calls by line-haul container vessels.

The second type of facilities are specialized neobulk terminals. These are facilities which would be designed to handle a number of forest products and other commodities produced in the state, such as:

- Lumber
- Wood pulp
- Wood chips
- Fresh potatoes
- Frozen poultry and fish.

Wood chips, which technically have bulk handling characteristics, have been included because exports of this product are influenced by the same factors which influence exports of the other forest products above. These factors are the demand for wood fiber and products in overseas markets and the supply capability of the Maine forest products industry.

Three potential Maine seaport locations are considered. These are Portland, Searsport and Eastport. These three locations are the most likely for general cargo facilities based on their location in the state and their proximity to sources of exports and markets for imports of foreign trade.

1. THE HINTERLAND FOR MAINE PORTS INCLUDES THE STATE ITSELF AND PART OF NEW HAMPSHIRE

The hinterland of a port refers to the geographic area where most of the cargo originates or terminates. The primary determinants of a port's drawing area are normally the price of transportation and the time required to move the goods between interior points in this country and overseas ports.

(1) There Are Major, Established Ports North and South of Maine

To the south of Maine, New York and Boston compete for cargoes which could use Maine ports. To the north, the Canadian ports of St. John, Halifax and Montreal compete for this cargo. All of these ports handle in excess of a million tons per year. Traffic over the past several years has increased at all of these ports and, in reaction to this traffic increase, many of these ports are expanding their facilities.

(2) Sailing Frequency at Most of These Ports Will Remain Equal to or Better Than The Sailing Frequency From Maine Ports

When evaluating a container feeder operation, the frequency of overseas arrivals/departures at the load center port would determine the service quality as perceived at Maine ports, as long as the feeder service were synchronized with load center sailings. It was assumed, therefore, that service would not influence the hinterland boundaries, only the market share of hinterland cargo.

Since neobulk service will be established to suit cargo availability, it was assumed that the hinterland boundaries for neobulk cargo would depend on transportation rates only.

(3) The Drawing Power of Maine Ports Depends on the Distance to Interior Cargo Origins and Destinations

The most important components of total transportation price are rail or truck carriage to port and ocean freight. In general, liner freight rates are equalized at major U.S. North Atlantic ports. Liner rates from Canadian ports are usually equal to or less than rates from U.S. ports. Thus, ocean freight from Maine ports in most cases will be no lower than rates from competing ports.

Maine ports will therefore have a competitive rate advantage only for cargoes which can move overland to a Maine port more cheaply than to a competitive port. Since truck and rail rates have been demonstrated to be approximately proportional to distance, the hinterland of Maine ports is assumed to include only the cities which are closer to a candidate Maine port location than to any other established port. This limits the hinterland of the port to the state itself and the southeastern part of New Hampshire.

2. THE MARKET FOR CONTAINERIZED CARGO IS ABOUT 185,000 TONS PER YEAR

Since there are movements of containers into and out of the state at the present time, these movements are reflected in foreign trade statistics. The statistical sources consulted included the following:

- U.S. Department of Commerce, Bureau of Census, Domestic and International Transportation of U.S. Foreign Trade.
- Journal of Commerce, EXIT and ISIS Reports.
- U.S. Department of Commerce, Bureau of Census, Annual Census of Manufacturers, Origins of Exports of Manufacturing Establishments.
- Maine Department of Transportation, Telephone Survey of Importers and Exporters.

- U.S. Department of Commerce, Maritime Administration, U.S. Exports Transhipped via Canadian Ports.

These statistical sources indicated that Maine's containerized foreign trade is dominated by large export shipments of paper and related products. However, our analysis indicated that exports of paper products could vary considerably from year to year, and that the best sources of information concerning the outlook for these large export shipments are the paper mills which control these cargoes. In addition, the data sources above probably understate the annual tonnage corresponding to small import and export shipments.

(1) Interviews with All Major Paper Mills Indicate That Current Paper Exports from the State Total about 90,000 Tons

Nine paper mills in Maine and New Hampshire were contacted either in person or by telephone. This survey produced the following conclusions:

- Industry practice is to limit exports to about 10 percent of total production.

- Export levels of paper from individual mills have fluctuated drastically over the past five years; on a statewide basis this has produced a fluctuation of at least 50 percent.

- This fluctuation is caused by the following factors:

  - Many mills do not have an active overseas marketing program; export markets are sought only when domestic markets are weak.

  - Increasing industry integration has produced situations where exports one year can be diverted to a nationwide domestic distribution system the next.

  - Major equipment changes are not unusual in order to produce products with a high domestic demand which may

have a lower overseas demand. An example of this situation is the decline of newsprint and pulp production, and exports, in Maine.

The results of the survey are shown in Table 1.

(2) Small Export Shipments of Containerized Cargo Are Estimated to Total 52,000 Tons per Year

This estimate was produced by analyzing the export patterns of 60-80 small volume shippers and extending these relationships statewide.

(3) Imports of Containerizable Consumer Goods Are Estimated to Be about 43,000 Tons per Year

This estimate was based on correlating consumption of imports with population for 18 individual eastern states and applying the result to the population of Maine. The potential container market for Maine ports, as defined by the preceding analysis, is summarized in Table 2.

3. THE NEOBULK MARKET CONSISTS PRIMARILY OF FOREST PRODUCTS AND COULD EXCEED 100,000 TONS BY 1985

The approach to estimating the neobulk market involved a preliminary statistical review, followed by commodity case studies. These case studies, which also included interviews with producers, railroads, and port officials, assessed distribution patterns, terms of sale, and other market forces in order to estimate a possible range of export volumes for each commodity.

The trade outlook for neobulk commodities is summarized below:

- Lumber

  Exports depend on the success of individual entrepren urs acting as brokers for overseas customers. Sales tend to be individual transactions or tenders. Principal overses markets are Europe and the U.K. The export potential of Maine lumber is good since supply in the state will probably exceed domestic demand. However, economical lot sizes (greater than 5,000 tons) are difficult to handle through Maine ports now.

TABLE 1
Results of Survey of Paper Mills
in Maine and Southeastern New Hampshire

PRODUCT	USUALLY CONTAINERIZED	ANNUAL EXPORTS (1979)	
		TOTAL	TO NORTHERN EUROPE
Finished Paper	Yes	90,000	33,000
Pulp	No	67,000	32,000
Newsprint	No	6,000	0
		163,000	65,000

TABLE 2
Current Annual Potential Container Market

CATEGORY	EXPORT	IMPORT
Known shipments identified during interview program	90,000	—
Small shipments (estimated)	52,000	43,000
Total Tons	142,000	43,000
(Twenty-foot equivalent units)	(18,000 TEU)	(5,400 TEU)

- Wood Chips

Sales of wood chips are often under mid- to long-term contract, and are extremely price sensitive. There is and will continue to be a fiber shortage in Europe and Scandinavia. This cargo requires a specialized mechanical or pneumatic loading system; there are currently no port facilities in Maine which can handle wood chips.

- Fresh Potatoes

Fresh potatoes have been exported from Maine ports in the past, but cargo volumes have been subject to erratic overseas demand. The primary markets for table potatoes are Europe and the Caribbean Islands. South America is emerging as a market for seed potatoes. Canada has a large share of the potato export market now; Maine has traditionally functioned as an overflow source when demand could not be satisfied from traditional suppliers.

- Wood Pulp, Frozen Poultry and Fish

Only two mills in the hinterland produce pulp for export. One is located in New Hampshire and uses the Maine State Pier in Portland. The other is located in the eastern part of the state about 80 miles from St. John and uses the forest products terminal at that port.

No other mills in the state, including mills near Searsport, indicated a possibility of major pulp exports during the interview program. Any small pulp shipments could be handled across existing port facilities within the state. Consequently, no pulp exports were included in the neobulk market forecast.

Frozen fish are usually exported in relatively small lot sizes (400 - 800 tons), and can be handled in several locations in the State. There is a high degree of uncertainty about the economic stability of the poultry industry in Maine, and particularly about future export levels. Consequently, fish and poultry exports were not included in the neobulk forecasts.

Table 3 summarizes low, medium and high estimates for exports of lumber, wood chips and fresh potatoes. Exports of the other products above are expected to be negligible by comparison, or are so uncertain that they should not be included in a port planning analysis. The low estimates in the table are rather conservative or worst-case forecasts. The high estimates are achievable if a combination of factors occurs which would maximize the overseas markets for these products. The moderate estimate is the most reasonable and is recommended for planning purposes.

Also included in the table are a number of benchmarks to which the neobulk export outlook can be compared. These benchmarks include traffic in the same commodities through other established ports, shipment sizes for recent exports through Maine ports, and export targets identified by market studies and entrepreneurs.

4. THERE ARE AT LEAST TWO SITES IN SEARSPORT AND THREE SITES IN PORTLAND SUITABLE FOR GENERAL CARGO FACILITY DEVELOPMENT

The two sites in Searsport which are most suitable for development of general cargo facilities are the existing Bangor and Aroostook Railroad Pier, and a site on Sears Island which as yet is undeveloped. Estimated development costs are shown in Table 4. There are a number of sites in Portland where a general cargo facility could be developed. The three locations with the highest applicability and lowest improvement cost are also shown in Table 4.

The cost information contained in the Table was taken from a previous Maine ports study,* and updated to current cost levels. These costs do not include the cost of cargo handling equipment or buildings.

(1) The Portland Site With Highest Overall Suitability as a Container Feeder Terminal Is Wharf Number 3

The most attractive features of this site are the large amount of open area available for container storage (33 acres) and that a marginal wharf could be built. The ferry terminal has much less open storage

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* Fay, Spofford and Thorndike, Inc., "Feasibility Study of the Development of Cargo Handling Facilities at Maine Ports," 1978.

TABLE 3
Neobulk Export Outlook

	LUMBER	WOOD CHIPS	POTATOES
Annual Exports (short tons)			
. Low estimate	5,000	20,000	0
. Moderate estimate	15,000	100,000	7,000
. High estimate	100,000	400,000	25,000
Starting Year	1980	1985	1980
Reference Comparisons:			
. Annual volume through St. John (1978)	27,000	0	30,000
. Annual volume through Savannah (1979)	-	500,000	-
. Shipment size of recent Maine exports	3,000	0	3,300
. Export "targets" for Maine	60,000*	350,000** to 600,000***	-

* Private Communication, Maine International, Inc. (lumber exporter responsible for the 3,000-ton shipment shown in the table)

** "Potential Export Markets for Spruce and Fir Wood," SIAR, Inc., 1976

*** "An Economic Analysis of Maine Forestland," Professor James McKenney, Harvard Graduate School of Business Administration (unpublished)

TABLE 4
Estimated Wharf Construction Costs

LOCATION	SITE	NEW PIER CONFIGURATION	ESTIMATED COST FOR LAND ACQUISITION AND WHARF CONSTRUCTION
Searsport	B&A Pier	New 60' pier apron	$11.2 Million
	Sears Island	60' x 600' open pier wharf attached to 100' wide embankment	$20.3 Million
Portland	Maine State Pier	100' extension on finger pier	$12.8 Million
	International Ferry Terminal	400' x 60' open pile wharf	$ 7.0 Million
	Wharf No. 3	400' x 60' open pile wharf	$ 9.7 Million

area (7 acres); the Maine State Pier has even less storage area, would require more maintenance because of its age, and is a finger pier, which is not well suited to container operations.

The major disadvantage of Wharf Number 3 is the navigation restriction of the bridge downriver of this site. While most container feeder vessels would be able to pass the bridge now, larger ships might not.

(2) The Searsport Site Which Is More Appropriate for a Forest Products Terminal Is Sears Island

Based on the physical characteristics of the two potential Searsport sites—the B&A pier and Sears Island—the latter is more preferable for development of a forest products terminal. This is due to the following:

- More land is available for cargo storage and facility expansion if necessary.
- Finger pier operations (at the B&A pier) involving large shipments would be more difficult.

As shown in the previous section, however, the cost of developing a marine terminal on the island will be quite high if no other future occupants of the island help to defray the cost of clearing and road and rail connections.

5. THE CARGO THROUGHPUT AT ALTERNATIVE PORT LOCATIONS DEPENDS ON PROXIMITY TO CARGO, PHYSICAL FACILITIES AND THE TIME SENSITIVITY OF THE CARGO

The potential markets for containerized and neobulk cargoes were developed previously. The hinterland where these cargoes originate or terminate was defined rather conservatively, and consisted of the State of Maine and the southeastern part of New Hampshire. Estimates of future cargo throughput at alternative locations in Maine are given below.

(1) Much of the State's Neobulk Cargo Is Susceptible to a Port at Searsport

It is assumed that Maine neobulk port facilities will be designed to be comparable to competing neobulk facilities. If they are inadequate, little

cargo will be attracted. The only port location in Maine with adequate rail service to forest land is Searsport. There is a single carrier (Bangor and Aroostook Railroad) direct line north from Searsport to the Canadian border. Rail service to Portland would be much more circuitous, and could often involve a railroad interchange. The same is true of Eastport. A forest product terminal in either Portland or Eastport could only attract a small portion of the potential market.

For this reason the only potential site which will be considered further for a high investment neobulk terminal will be Searsport. Because of its proximity to commercially forested areas in the center of the state, and because of good rail service and the high interest of the railroad in a terminal at Searsport, a share of 100 percent of a relatively conservative market is expected.

(2) Portland Is the Single Location in the State With the Highest Potential Container Throughput

The method for estimating market share for containerized cargo involved the following steps:

- Allocate all exports and imports to 20 supply or market areas in the state
- Determine the overseas origin or destination of this trade
- Determine the sailing frequency to overseas areas available at Maine or competing ports
- Determine total transportation cost from each supply/market city to Maine and competing ports
- Based on cost and sailing frequency, determine the portion of cargo which would use alternative combinations of Maine feeder ports.

The results of this analysis are shown in Table 5. Annual container throughput is shown for four feeder itineraries, making calls at:

TABLE 5
Potential Container Throughput
at Alternative Locations

PORT LOCATION	DIRECTION	ANNUAL CONTAINER THROUGHPUT (SHORT TONS) AT: PORTLAND	SEARSPORT	EASTPORT
Portland	Exports	23,000	-	-
	Imports	19,000		
		43,000		
Searsport	Exports	-	22,500	-
	Imports		15,000	
			37,500	
Portland Searsport	Exports	15,000	9,700	-
	Imports	12,300	6,000	
		27,300	15,700	
Portland Searsport Eastport	Exports	15,000	8,000	1,700
	Imports	12,300	4,900	1,100
		27,300	12,900	2,800

- Portland only
- Searsport only
- Portland and Searsport
- Portland, Searsport and Eastport.

Because Europe is the only overseas area where sailing frequency from Halifax is good, only the trade with Europe from the hinterland would use the feeder. This means that the feeder woult attract a maximum market share of about 45 percent.

If only one port in Maine is called by the feeder, it should be Portland. If both Portland and Searsport are called, the sum of the throughput for each port is about equal to the throughput for a single call at Portland.

6. PORT INVESTMENT HAVE BEEN EVALUATED BY COMPARING ECONOMIC BENEFITS TO COSTS

A benefit-cost analysis compares the present cost of constructing new port facilities with the present value of the benefit accruing to the state from cargo moving through these facilities over the lifetime of the project.

Direct benefits result directly from cargo throughput at port facilities, and include income resulting from port operations, and freight rate savings enjoyed by Maine shippers and consignees.

Total economic impact includes these direct benefits, plus the respending of these direct benefits, plus the direct and respent income produced by port construction projects (i.e., the labor component of port construction).

Alternative facility developments were compared in three ways. One was to determine the maximum investment which can be justified by future direct benefits; the second was to compare future direct benefits to expected costs. The third was to compare total economic impacts to expected costs.

(1) Future Direct Economic Benefits Will Justify Investments At Portland and Searsport of Between $18 and $30 Million

Table 6 identifies the maximum investment which can be justified for alternative development schemes

TABLE 6
Economic Benefits of Alternative Strategies

PORT DEVELOPMENT LOCATION	CARGO TYPE	ANNUAL CARGO THROUGHPUT IN THE FIRST YEAR (SHORT TONS)	DIRECT ECONOMIC BENEFITS	MAXIMUM JUSTIFIABLE INVESTMENT(1)	MAXIMUM JUSTIFIABLE INVESTMENT ADJUSTED FOR RISK(2)
I. Portland	Containers	43,000	$1.1-$1.9 Million	$10.6-$19.1 Million	$10.6-$19.1 Million
	Neobulk	(negligible)	0		
			$1.1-$1.9 Million		
II. Searsport	Containers	37,500	$0.9-$1.7 Million	$18.8-$30.6 Million	$16.8-$27.6 Million
	Lumber & Potatoes	22,000	$0.6-$0.7 Million		
	Chips(3)	100,000	$0.4-$0.9 Million		
			$1.9-$3.3 Million		
III. Portland	Containers	27,200	$0.7-$1.2 Million	$20.1-$32.0 Million	$18.0-$30.0 Million
Searsport	Containers	15,700	$0.4-$0.7 Million		
	Lumber & Potatoes	22,000	$0.6-$0.7 Million		
	Chips	100,000	$0.4-$0.9 Million		
			$2.1-$3.5 Million		

(1) At 5.1% discount rate for all cargo.
(2) Using 9.2% discount rate for neobulk cargo, 5.1% discount rate for container cargo.
(3) Net present value of cargo starting in 1985.

Note: Amortization period is 20 years.
Annual capital-related maintenance is 3% of initial costs.

based on the direct benefits (port income and freight savings) of potential cargo throughput. The alternatives considered are:

- A container facility at Portland
- A neobulk/container facility at Searsport
- A combination of the two.

The maximum investment level corresponds to a benefit-cost ratio of 1.0. Two investment levels are shown for each location. One is based on a 5.1 percent discount rate for all types of cargo. The second is based on a 5.1 percent discount rate for containers, and a risk discount rate of 9.2 percent for neobulk cargo to account for a higher degree of uncertainty concerning the annual volume of this type of cargo.

While benefits from possible neobulk movements have not been included in the economic justification for Portland, some neobulk commodities would use a new facility there. Thus, Portland throughput and economic benefits would probably be greater than shown in the table.

The variation in direct economic benefits is due to the possible range of freight rate savings accruing to Maine shippers. Depending on the actual freight savings and discount rate, if investment in only one location is made, as much as $10 to $19 million in Portland, or $16 or $31 million in Searsport, is justified. If both locations are developed, a total of $18 to $32 million is justified.

(2) Direct Benefits More Than Offset the Expected Development Costs at Portland and Searsport

The net present value of future benefits developed above is compared to costs in Table 7 to produce benefit-cost ratios for each development scheme. Also shown is the internal rate of return of each scheme, which is determined by solving for the discount rate at which discounted future benefits equal discounted costs.

If the optimistic estimate of benefits is used, all of the projects meet the two tests of economic feasibility; the cost/benefit ratio is at least unity, and the internal rate of return is at least

TABLE 7
Benefit/Cost Ratios and Internal Rate of Return

PORT DEVELOPMENT LOCATION	APPROXIMATE PUBLIC INVESTMENT	BENEFIT/COST RATIO		INTERNAL RATE OF RETURN	
		LOW*	HIGH**	LOW	HIGH
I. Portland (Wharf No. 3)	$11.7 million	0.91	1.63	3.0%	12.3%
II. Searsport (Sears Island)	$20.7 million	0.81	1.48	2.6%	11.9%
III. Portland & Searsport	$32.4 million	0.56	1.00	< 1%	5.1%

* Low benefits based on:

-Lower bound for rate savings

-9.2% discount rate for neobulk cargo; 5.1% discount rate for containers.

** High benefits based on:

-Higher bound for rate savings

-5.1% discount rate for all cargo.

equal to the market rate of discount. As shown in the next section, the feasibility of these projects is enhanced if additional benefits are considered.

(3) When Indirect Benefits Are Included, Development of General Cargo Port Facilities Are Clearly Feasible

Table 8 compares the direct economic benefits shown in the previous tables to total economic impact (including respending and the labor component of construction). Benefit-cost ratios based on total economic impact are also provided. For all three development schemes, the ratio of total economic impact to cost is greater than at least 1.72.

There is an additional potential benefit of port development which is not included in the total economic impact shown in the preceding table. It is possible that industrial expansion would be stimulated by the initiation of good overseas water transportation service. The Port of Wilmington, N.C. is an example of a new container port which has achieved rapid growth in traffic in a relatively few years. While there has not been a significant influx of new businesses to the area, our major aluminum refining and manufacturing plant which uses the port did locate nearby.

7. A NUMBER OF ALTERNATIVES ARE AVAILABLE TO THE STATE FOR FUTURE PORT DEVELOPMENT

There are a number of programs the state could follow concerning port development in Maine. The four alternatives which are most consistent with the analysis described previously are:

- No port development
- Build a forest products/container port at Searsport now
- Build a container feeder port at Portland now, and develop a forest products/container port at Searsport in the future
- Build in both locations now.

TABLE 8
Total Economic Impact of Alternative Developments

Port Development Location	Approximate Minimum Public Investment	Net Present Value of: Direct Benefits†	Respending of Direct Benefits*	Labor Component of Construction Cost (including Respending)**	Total Economic Impact	Total Impact to Cost Ratio
I. Portland	$11.7 million	$14.8 million	$1.6 million	$ 7.2 million	$28.1 million	2.02
II. Searsport	$20.7 million	$23.7 million	$3.2 million	$20 million	$47.6 million	2.27
III. Portland and Searsport	$32.4 million	$25.0 million	$3.4 million	$27.2 million	$60.8 million	1.72

* Respending multiplier for labor component: 1.5; discount rate: 9.2%
** Respending multiplier for labor component: 2.0
† Midpoint of range

Our approach for evaluating these alternatives was based on an assessment of the potential market for Maine ports using a market segmentation approach, and an analysis of transportation economics to determine potential port throughput.

Our recommendations are based on a relatively narrow definition of benefits and costs. Only direct benefits, which are rate savings and port income, are included. Costs include only capital development costs.

(1) The Recommended Program Is to Build a Container Facility at Portland Now, and to Develop a Forest Products Port at Searsport In the Future

The reasons why this program has been recommended are as follows:

- A container feeder port fills an existing need and Portland is the single location with the highest probability of success.

- Redundant container facilities in both ports would not be cost-efficient, will provide excess container capacity and will encourage destructuve intrastate competition.

- Construction of a forest products terminal in Searsport should be one element of a major statewide economic development program which would be designed to:

- In Searsport, the suitable location for a major forest products terminal is Sears Island. The costs of developing the island for a marine terminal immediately (when there is no other concurrent industrial development of the island) are high in view of current potential cargo-related benefits.

- The existing Bangor & Aroostook pier can handle some of the near-term neobulk cargo at Searsport.

  - Attract industries to the Searsport area, some of which would be attracted because of the potential availability of the deep-water port

- Help industries statewide (particularly the forest and food products industries) compete in worldwide markets through the existence of modern port facilities

- Include the private sector in port development to minimize the risk of underutilized facilities and to encourage a concentrated group of likely beneficiaries to help defray the cost of port development.

(2) Implementation Can Start Immediately and Proceed In a Phased Manner

Table 9 proposes a schedule for program implementation. The design and construction of a container terminal in Portland could start this year to take advantage of a mature market opportunity.

An industrial development program, including consideration of a forest products terminal at Searsport, could also begin this year. Subsequent elements of this program, including (in order) site engineering, facility design, development of the island and port construction, would occur only if each preceding element were completed successfully.

The participation of the private sector in the development of a forest products terminal at Searsport is both reasonable and essential. The organizations which should be most interested in this involvement are the ones which have the most to gain: owners of timber and processing plants who otherwise might not be able to export lumber or wood chips, or future operators of the terminal.

The state's decision concerning port development will be based in part on the economic factors—capital costs and direct benefits—analyzed in this report. The decision will reflect other considerations as well, including alternative uses for funds which could be applied to port development and a desire to direct funds for transportation projects to areas of the state in need of economic assistance.

* * * * *

TABLE 9
Program Implementation

	APPROXIMATE TIMING
Portland:	
. Site evaluation and terminal design	1980*
. Attract container feeder operator	1980
. Build container feeder wharf	1980
Searsport:	
. Industrial development marketing program	1980*
. Land use plan	1980
. Engineering site evaluations	1981
. Site preparation and highway/rail access	1982-1983
. Port facilities development	1984

* The initial steps in the development program should commence as soon as funding is secured.

Ultimately, the state's broader perspective will determine the future development of Maine ports. The project at Portland has a greater likelihood of near-term success but will produce little industrial growth beyond the waterfront. While near-term potential throughput at Searsport is more uncertain, improved facilities at Searsport could help to stimulate trade expansion, growth of the state's principal industry and utilization of the state's major resource. The potential impact of port development at Searsport, while more difficult to predict, could by comparison be much more important to the economy and population of the state.