Alaska Department of
Transportation and
Public Facilities

Port Development in Alaska

A Framework for State Decisions

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Port Development in Alaska

A Framework for State Decisions

December 1983

KCM

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Preface

The primary objectives of this report are to identify and discuss alternative roles for the State government in the development, management, and operation of local ports, and to identify policy options and criteria for future port development. This is intended to be a discussion document. Because of the inextricable involvement between ports and the economic lives of localities, regions, and the State, no attempt is made to make recommendations on the most appropriate role for the State or what the State policies on port development should be.

Some key criteria which have motivated the Alaska Department of Transportation and Public Facilities to conduct an in-depth study are the following:

Over 90 percent of the goods which support Alaska's economy and lifestyle move by water to, from, and within the state.

Most of Alaska's ports are in remote locations without overland connections to other communities or to the primary transportation systems in the state.

Improving local economic conditions and moving Alaska's resources to world markets will require the development of new ports and port facilities.

The Alaska Constitution prohibits the creation of special purpose governments, such as authorities, which are the traditional and dominant form of port agency in the nation.

The State of Alaska has been, and most likely will continue to be, the primary funding source for new port development in the state.

Given these conditions, the Alaska Department of Transportation and Public Facilities re-examined the original purpose of the study—to provide a basis for the evaluation of funding requests for port development projects—and re-directed the focus to that of support material for formulating future policies and guiding planning decisions.

Throughout this report, subsequent studies and activities related to port planning, development, management and operation are suggested. Several of these have already been accomplished or soon will be, including a port management training seminar for port directors and an inventory of port facilities at 21 locations in Alaska. These are essential components of whatever kind of port system plan is developed. The basic question which must be addressed by the State is whether the ports of Alaska will be developed by State initiative or whether they will be allowed to develop by local and private initiative. The information and ideas presented in this report will add to the discussion, but will not answer the question.

The study suggests the use of a functional classification system as a policy and management tool for Alaskan ports. Subsequent planning work needs to address the implications of applying and using such a classification system on the cost and character of future port development. Additionally, we need to investigate the effects of satisfying statewide needs for port facilities, even at the expense of local or industrial port facility development in Alaska. Studies of this nature will produce documents intended to stimulate decisions within State government.

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Introduction

Background

With the increasing demand in Alaska for new port facilities and expansion of existing ones, it is apparent that an objective assessment of needs and priorities is necessary before development choices and funding can take place. The State of Alaska Department of Transportation and Public Facilities (ADOT/PF) contracted the consultant team of Kramer, Chin & Mayo, Inc., Williams-Kuebelbeck & Associates, Inc., Reid-Middleton & Associates, Inc., Frank Orth & Associates and Kramer Associates to develop an Alaska Statewide Port Development and Marine Commerce Plan. The purpose of this study is to provide a planning framework which can guide policy makers and port developers in making decisions which will benefit the entire state.

Port User Input/Involvement

A user workshop was held in Anchorage on May 8, 1981 to solicit input and get the study underway. Participants—who included interested port users, representatives from private industry, the general public, and all levels of government—were asked to express their concerns and share their opinions so that critical issues could be identified as a study focus.

Phase I

Analyzing the key issues which emerged during the workshop was the essential first task of the consultant team, who organized their research as a series of draft working papers:

Issues of Statewide Importance/User Group Involvement

Profiles and Forecasts for Alaska Ports

Modular Port Facility Requirements

Legislative, Financial and Institutional Issues

During Phase I of the study, the issues mentioned above were extensively researched and reviewed with ADOT/PF and the policy committee. Comprehensive background data was gathered by the consultants to determine existing conditions at ports throughout Alaska (although the study was not site specific). Based on projected marine commerce needs and facility requirements, policy options began to emerge for consideration in the future.

At the conclusion of the first phase of the study, the most relevant issues were outlined in a Findings and Conclusions segment which is presented in this report. The four working papers are summarized in the Phase I section (the original documents have been included in their complete form in the Technical Appendix, which is available from ADOT/PF upon request).

Phase II

Using the information and projections formulated during the first phase, a set of policy options was generated in the second phase to assist the State in further defining its role. A functional classification system is recommended for ports as part of a process for evaluating State expenditures for port development in Alaska.

The paper, *Functional Classification System, Policy Options*, included in this final report, was presented at a second user workshop in Anchorage on October 19, 1982. The workshop participants were brought up to date on the findings of the study and were able to express their views directly to the project's Policy Committee, which has endorsed port development policies presented in the final section of this document.

Key Issues of Statewide Importance

The key issues which surfaced at the first user workshop are summarized in this section. The users' responses indicated that many ports have needs in common as well as planning problems specific to their locations and/or circumstances which must be addressed.

Funding

Foremost in the minds of many users was the problem of funding port projects, and, particularly if State- or federally-allocated funds were used, maintaining local control of operations. Justifying funds disbursement was another important concern, considering the disparity between port uses and sizes. With competition between some ports already at a high level, it was felt that careful prioritizing should determine where State funds would best be spent in the interest of the regional and State economy as a whole.

Local, State and Federal Involvement

The role of the State was of prime importance to most users. Workshop participants generally felt the emphasis should be that of leadership, in order to help overcome parochialism and ensure *cooperative* competition through negotiation and planning assistance. The formation of a State port authority (with substantial input from local areas) was suggested, to oversee port development and prevent duplication of facilities and capabilities.

At the federal level, users cited dredging operations by the Corps of Engineers as being the most valuable service, along with funding studies, building breakwaters, and creating small boat harbors. However, some felt that federal restrictions were too inhibiting to productive resource and commercial development, particularly tedious permit processes.

Resource Development

Alaska's ports were seen to be a capital investment in the state's future and essential for commercial development of resource products because they provide two-way access for products, supplies and labor. Most port users agreed that Alaska's economic growth will center around resource development and extraction including the energy resources (oil, gas and coal) and the resource potential of fisheries, agriculture, minerals, forestry products and tourism.

Competition

Conflict between competing uses for the same port facility was not expected to be a problem at most ports, since economic justification would establish priorities and uses. Competition between ports was seen to be more of an issue, as some ports are experiencing this now. Port users felt the economic base of the state should diversify enough to accommodate all port activity through development of new resources.

Engineering/Environmental Constraints

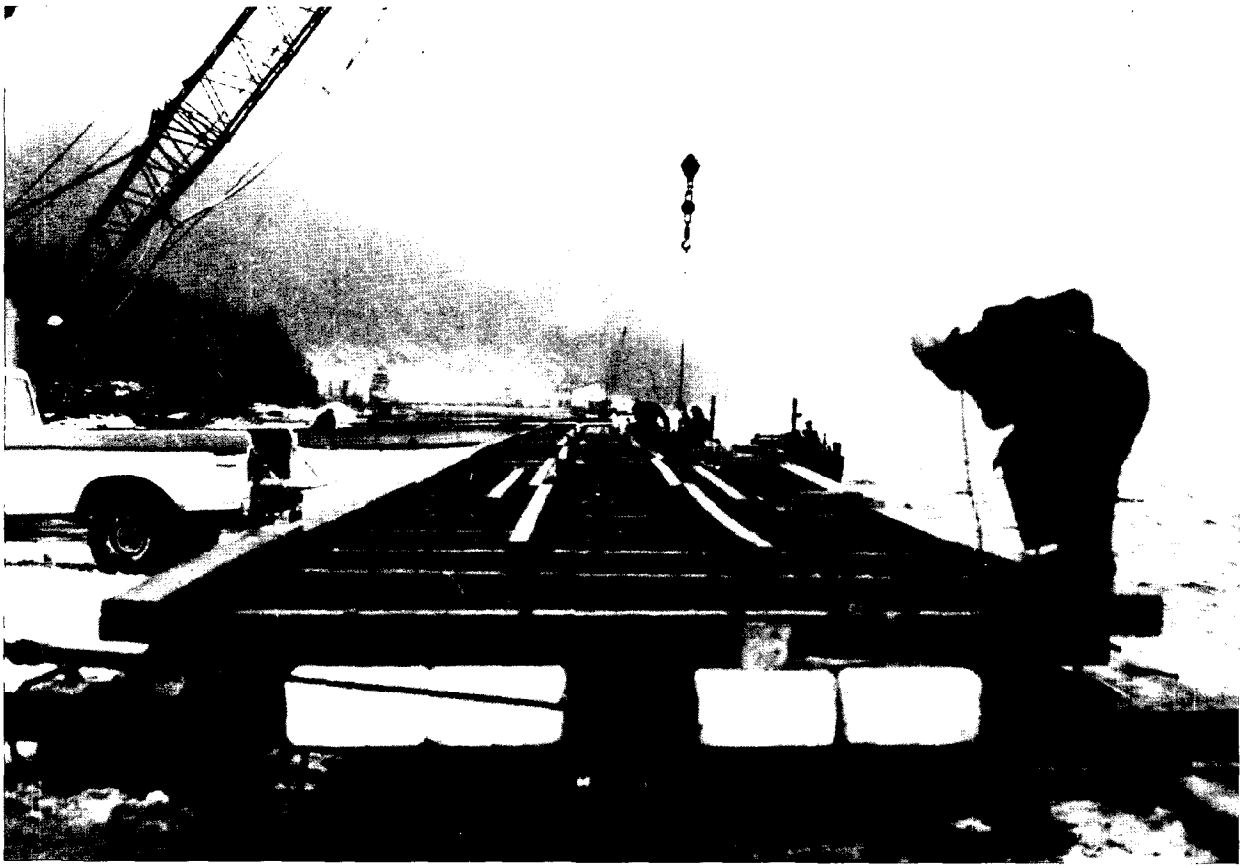
Engineering constraints in Alaska add to the high cost of port construction and operation. Harbors usually require man-made protection which alters the physical, chemical and biological environment. Natural constraints are numerous: winter ice is a threat to most vessels; depth of water can cause loading and unloading problems; heavy silt loads and shoaling necessitate continuous maintenance; strong currents, high tidal ranges, navigation hazards due to reefs and narrow channel areas , high winds and rough waters make vessel operation hazardous; limited waterfront access, berthing room and uplands for storage and support services limit port operations. Short shipping seasons in some areas require that size and capacity of port facilities be much greater than if they operated on a year-round basis.

Planning/Data Needs

The need for planning and technical assistance at the State level was considered a high priority. Local governments are looking for information which will guide their port development plans. State-funded local studies and additional data, such as what projects are in the design stage or currently being constructed throughout the state, were seen as crucial to productive development. A data base of reliable information which is continually updated and readily accessible would be one approach.

Transportation Infrastructure

The need for a statewide transportation infrastructure to transport Alaska's resources to market in the most economical and timely way was reiterated by many workshop participants. Existing or projected transportation is a factor to consider in the feasibility of a project from a developer's or industry's point of view. Port development, without access to that port, would be useless. Relating the resources to the market in the form of a statewide inventory and correlating these data to transportation corridors would set the stage for future marine commerce.



Profiles and Forecasts for Alaska Ports

For the State to be responsive to existing and future port requirements, historic patterns and forecasts of future activity must be available as a frame of reference. Providing comprehensive and consistent forecasts for all state regions was a major focus of the study and included the economic factors affecting ports.

Forecast Factors

Projections of future cargo volumes are affected by the following:

Future socioeconomic conditions will greatly determine volumes of inbound commodities necessary to support the Alaskan population.

Future development of resources will affect economic conditions in general and outbound cargo movements in particular.

The outlook for U.S. and foreign trading partners will suggest the competitiveness of Alaska resources and products in the marketplace.

Historical patterns of trade can provide useful relationships for forecasting future cargo volumes.

Analysis by Region

Although there is great diversity in marine transportation, the system is essentially comprised of line haul services (by container barges) to major ports, with feeder services (by ferry and barge) to smaller communities.

To facilitate the analysis, the state has been divided into seven regions, mainly representing homogenous economic regions. The regions generally correspond to port service areas as well (see Figure 1). One exception is Kodiak, which serves as a transshipment port for Southwest Alaska and for coastal communities in the Southcentral area.

I	North Slope
II	Southwest
III	Southeast
IV	South Central
V	Anchorage
VI	Nome-Kobuk
VII	Fairbanks-Yukon

Figure 1
Alaska Economic Regions

Historic Trade Relationships

The types of trade relationships fall into three categories: foreign, domestic coastwise (between Alaska and other U.S. states) and domestic internal (within Alaska). As shown in Figure 2, domestic coastwise trade accounts for the largest percentage of shipments, 79 percent. In comparison, foreign trade (primarily with Japan) is relatively small, 7 percent, indicating that there are untapped foreign trade possibilities. The major domestic coastwise trading partners are the Puget Sound region of Washington state, and California, which ships petroleum products to Alaska and receives crude petroleum.

Figure 3 illustrates the significant growth in marine commerce which has taken place, from 23.5 million metric tons in 1974, more than doubling to 56.5 in 1978. Table 1 summarizes Alaskan marine commerce by type of trade in 1978, for the seven study regions. The outbound and inbound cargo percentages (shipments and receipts) for 1978 are shown in Figure 4. Of the total 48.7 million metric tons of outbound cargo, the Southcentral region exported 92 percent.

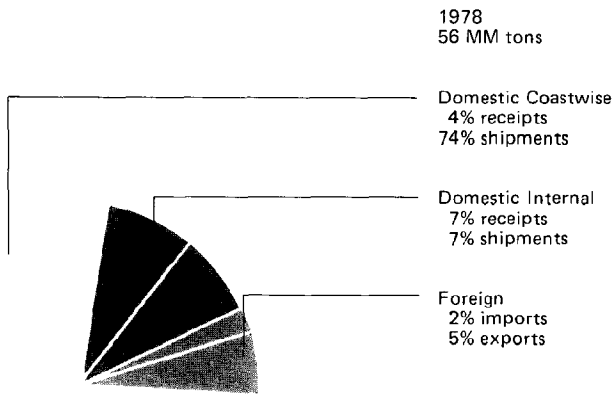


Figure 2
Historical Trade Relationships

	million metric tons
1974	23.5
1975	22.5
1976	21.1
1977	28.0
1978	56.5

Figure 3
Historical Growth in
Alaska Marine Commerce

TABLE 1

Summary of Alaska Marine Commerce
By Type of Trade—1978

(Short Tons)

	Foreign			Domestic Coastwise			Domestic Internal			Total Trade		
Regions	Imports	Exports	Total	Receipts	Shipments	Total	Receipts	Shipments	Total	Inbound	Outbound	Total
I. North Slope	0	0	0	84,899	5,245	90,144	42,683	18,239	60,922	127,582	23,484	151,336
II. Southwest	61	21,125	21,186	244,144	16,643	260,787	219,335	248,647	467,982	463,540	268,415	749,955
III. Southeast	533,237	1,227,782	1,761,019	639,445	220,289	859,834	1,826,367	1,749,075	3,575,442	2,999,049	3,197,146	6,196,195
IV. Southcentral	154	1,719,009	1,719,163	359,735	41,347,349	41,707,084	1,421,718	1,762,564	3,184,282	1,781,607	44,828,922	46,610,529
V. Anchorage	498,602	182	498,784	1,578,719	239,742	1,818,461	313,111	36,005	349,116	2,390,432	275,929	2,666,361
VI. Nome-Kobuk	0	0	0	8,623	148	8,775	5,036	13,851	18,887	13,663	13,999	27,662
VII. Fairbanks-Yukon	0	0	0	1,871	606	2,477	33,641	34,037	67,678	35,512	34,643	70,155
Alaskan Total	1,032,054	2,968,098	4,000,152	2,197,440	41,830,022	44,747,462	3,861,891	3,862,418	7,724,309	7,811,385	48,660,538	56,471,923

Source: Williams-Kuebelbeck and Associates, Inc.

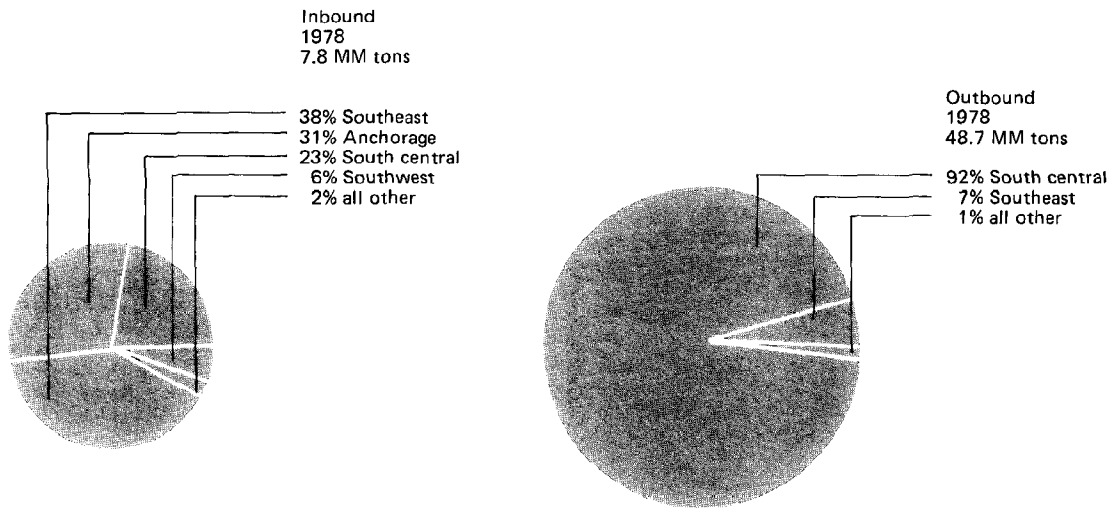


Figure 4
Historical Trade
By Region

Historic Cargo Volumes by Commodity

Individual commodities were divided into 21 groups. Table 2 indicates levels of trade by commodity group. As shown, crude petroleum is the most significant, accounting for 73 percent of the 56.5 million metric tons total trade volume; petroleum products were 11 percent, logs and cants 5 percent, and all other commodities contributed 11 percent.

Resource Profiles

Key resources, to the extent that they affect facilities planning, were examined and requirements predicted. Each category was considered in terms of its outlook—proposals and their likelihood—and constraints to development.

Agriculture. Agriculture in Alaska has the potential to grow at a rapid rate between now and the year 2000. Through the State's 20-year plan for a series of land disposals, one million acres of land could be in private hands by the year 2000, with at least 500,000 acres in production by that time. It is predicted that grains such as barley and rapeseed will be developed first, in the Delta Junction and Nenana areas. About 75 percent of the grain output is expected to be exported to markets in Japan, Taiwan, and South Korea. Grain export facilities are planned for construction at Seward and Valdez.

TABLE 2

Summary of Alaska Marine Commerce By Commodity—1978

		(Short Tons)		
		Inbound	Outbound	Total
1.	Farm/Mill Products	15,572	424	15,996
2.	Refrigerated Foods	63,426	18	63,444
3.	Frozen Seafood	8,075	73,452	81,527
4.	Groceries	334,489	217,354	551,843
5.	Logs and Cants	1,388,635	1,540,650	2,929,285
6.	Wood Chips	385,230	217,924	603,154
7.	Forest Products	206,449	402,522	608,971
8.	Pulp	207	284,167	284,374
9.	Minerals	63,409	575,504	638,913
10.	Mineral Products	181,849	7,077	188,926
11.	Miscellaneous Building Products	13,154	170	13,324
12.	Dry Chemicals	39,800	761,555	801,355
13.	Coal and Coke	39,648	11,184	50,832
14.	Liquid Chemicals	83,865	510,820	594,685
15.	Crude Petroleum	1,158,044	40,250,261	41,408,305
16.	Petroleum Products	2,776,504	3,445,099	6,221,603
17.	Metal Products	134,789	25,314	160,103
18.	Machinery	71,097	84,658	155,755
19.	Transport Equipment	48,733	24,403	73,136
20.	Waste and Scraps	5,342	35,808	41,150
21.	Commodities NEC	793,068	192,174	985,242
Total		7,811,385	48,660,538	56,471,923

Source: Williams-Kuebelbeck and Associates, Inc.

Logs and Cants, Wood Chips, and Forest Products. In general most new wood products development will be destined for in-state consumption or for export to the Orient. Land held by Native corporations will be the focus of this resource, because these are lands that may not have been logged previously due to land title uncertainty. Also, timber from Native lands is excluded from the prohibition on export of round logs. Sealaska Corporation is gearing up to expand its logging activity, with port facilities at Klawock, Hydaburg and Hoonah. Several Native corporations—Koncor, Afognak, Koniag, and Doyon—have plans for expansion of logs, pulp, and chips production. Lack of inland transport is a constraint to logging developments in certain areas, but at present is overshadowed by poor market conditions, marginal quality, and lack of access (primarily due to land status issues).

Minerals and Mineral Products. Although Alaska is rich in metallic ores such as lead, zinc, copper, tin, molybdenum, gold, silver, and platinum, recent mining activity has focused on gravel for in-state use. However, the potential exists for a one-billion-dollar-a-year mining industry, covering various minerals, by 1990, and involving substantial port activities. As certain land title issues become settled, it is expected that several known deposits will become more attractive for commercial development and the accompanying investment in infrastructure. Developing inland transport could be the impetus for stimulating the hard-rock mining industry in Alaska.

Dry and Liquid Chemical Products. Two new chemical product facilities have been considered for the Southcentral region: a petrochemical complex which would make use of natural gas liquids from the North Slope, natural gas from Cook Inlet, and other petroleum-related products; and a methanol plant which would use Beluga coal as the major input. Valdez or ports in the Kenai/Anchorage area were considered for petrochemical plants by both the Dow-Shell Group and Exxon Corporation. Projects would be expected to take place in several stages, mainly to keep in line with the growth of the petrochemical demand on the Pacific Rim. The feasibility of methanol production was studied by Placer Amex, which would ship from a port on Cook Inlet to west coast markets.

For petrochemical facilities, transport of natural gas liquids to the plant could be a problem due to the escalation in capital costs and delays in pipeline construction which have been experienced in Alaska before. Operations would probably not begin before 1990.

Coal and Coke. The coal industry in Alaska is poised for a vast expansion. Currently, the only operating coal mine in Alaska, the Usibelli Mine near Healy, produces 800,000 tons annually for in-state consumption. By the year 2000, it is possible that 20 million tons could be produced per year, much of it to be exported to the Orient for use as steam coal in utility plants as those countries begin to shift from oil to coal. A requisite to this growth will be the construction of adequate coal handling railroad and port facilities in Alaska.

Several studies have focused on delivered costs per Btu for coal to determine the competitive position of Beluga coal compared to other coal-producing areas in the Pacific Rim market. One study (Battelle 1980) indicates that minimum delivery cost (CIF) for steam coal from Beluga ranges between $1.50 and $1.73 per million Btu's.

Although roughly one-quarter of the coal reserves of North America are located on the

North Slope of Alaska, the high costs of extracting and transporting coal from this area makes it unlikely that this resource will be developed within this century.

Crude Petroleum and Natural Gas. While many areas look geologically promising, any estimates of eventual production will be extremely speculative, even for several known oil reserves. Information in the public domain is extremely limited. Predictions of crude petroleum output in the year 2000 range from low estimates of 500,000 to 800,000 barrels per day (bpd)—or roughly half of present production—to 2 million bpd. The estimates seem to differ due to expectations in the pace of exploration and development rather than size of the resource.

The U.S. Department of the Interior plans to accelerate its lease sales schedule. Although expected to result in a large wave of exploration, these plans may be met with opposition ranging from fishermen groups and environmentalist organizations to Native corporations and local governments.

The North Slope is the center of prospective oil developments, with the Kuparuk field being utilized and others being considered at Lisburne formation, Point Thompson. Flaxman Island, the Sagavanirktok Delta, and the Duck Island area.

The substantial supplies of natural gas at Prudhoe Bay and Cook Inlet are currently not being collected. Projects planned to develop this resource have run into difficulties, such as the legal challenges in California against shipping liquid natural gas from Cook Inlet to California as planned by Pacific Gas LNG Company. The Alaska Natural Gas Transportation System (ANGTS) involves a pipeline through Canada which would bring natural gas from the North Slope to the contiguous 48 states. Construction of the Alaska portion will require transportation of large amounts of supplies through ports, but production would not ship through port facilities.

Petroleum Products. Prospective expansion of the production of petroleum products is focused on two of the existing refineries—the Tesoro Refinery near Anchorage and MAPCO's North Pole Refinery near Fairbanks. Most expanded output is expected to stay in Alaska, without going through a port. However, if outside markets were sought, Nikiski, Seward or Valdez are likely port choices.

Seafood and Seafood Products. Bottomfish—unlike traditional fisheries of crab, shrimp, salmon and halibut—are not yet constrained from harvesting expansion by biological limits. The opportunity for bottomfishing remains to be realized—only about 4,000 metric tons have been caught annually by U.S. fishermen, while the available amount may be 3 million metric tons.

The Alaskan bottomfish resource is approximately 63 percent pollock, 20 percent flatfish (other than halibut), 8 percent rockfish, and the remainder includes Pacific cod, sablefish and Atka mackeral. The market for bottomfish is a worldwide market, with domestic U.S., Africa, Japan and Western Europe forming the major market segments.

The single most important factor affecting development of this resource is the price—the consumer perceives bottomfish as a less expensive alternative source of protein, which lowers market prices for processors and fishermen. Thus, there has not been economic incentive for development of the industry.

In time, the demand for bottomfish—and subsequently the price—is expected to increase. However, processing technology remains to be dealt with. The available choices are: joint ventures (between U.S. fishermen and foreign processors); catcher processor and floating processor

(which process the fish at sea); and shore-based processing.

The impact on the Alaskan economy and port facility requirements will clearly depend on the form of technology used. Bottomfish development requires support in the form of harbor improvements and continued involvement of organizations such as the Alaska Resource Corporation, which has invested directly in fish processors.

Salmon resources, one of Alaska's important fisheries, have been successfully enhanced through hatchery programs by the Alaska Department of Fish and Game. Salmon harvests for all of Alaska are expected to more than double from current levels by the year 2000. Other traditional fisheries are seasonal and not likely to have significant impacts on cargo tonnages and port requirements, although volumes may fluctuate from year to year.

Socioeconomic Conditions and Forecasts.

Socioeconomic conditions of interest include population, employment, and income. Locations experiencing increases in these factors will have the greatest need for general cargo facilities. The historic rate of population growth is shown in Table 3.

The high concentration of government employment represents almost one-third of wage and salary employment. Wage and salary employment in the private sector has increased by 7.5 percent per year over recent years.

The median household income is an estimated $25,900 for 1980, which reflects the higher cost of living in Alaska rather than a higher standard of living.

Future conditions forecast by the Institute for Social and Economic Research (ISER) of the University of Alaska used a range of scenarios representing low, medium and high cases of economic development. Table 4 summarizes the projected popu-

TABLE 3

Population—State of Alaska Total

By Region	1970	1980	% Annual Growth 1970 - 1980
I. North Slope	3,451	4,199	2.0
II. Southwest	26,832	30,485	1.3
III. Southeast	42,565	53,794	2.4
IV. Southcentral	37,504	61,335	5.0
V. Anchorage	126,385	173,017	3.2
VI. Nome-Kobuk	10,183	11,368	1.1
VII. Fairbanks-Yukon	55,827	66,283	1.7
Total	302,583	400,481	2.8

Source: U.S. Bureau of Census
Williams-Kuebelbeck and Associates, Inc.

lation levels. As shown, under the high scenario, the population would double by the year 2000. Growth would be only one-half that amount under the low scenario.

Trade Outlook

Based on the analysis of trade being currently transacted, Alaska would do well to seek foreign trade more aggressively. Compared with Alaska's 7 percent, the state of Washington has a volume of 50 percent and the percentage is increasing. Considering Alaska's resource potentials and the small percentage of exports, there are major opportunities for foreign trade yet to be realized.

TABLE 4

Forecast Population—Year 2000

		1980	Forecast 2000		
			Low	Medium	High
I.	North Slope	4,199	5,236	6,723	7,929
II.	Southwest	30,485	47,703	52,244	60,964
III.	Southeast	53,794	84,700	92,424	110,094
IV.	Southcentral	61,335	97,400	108,425	130,051
V.	Anchorage	173,017	259,579	284,547	336,205
VI.	Nome-Kobuk	11,368	14,083	16,267	19,722
VII.	Fairbanks-Yukon	66,283	95,734	105,142	125,340
Total		400,481	604,435	665,772	790,304

Source: Institute for Social and Economic Research
Williams-Kuebelbeck and Associates, Inc.

Trading Partners. Looking at trade opportunities with foreign countries, Japan should continue as Alaska's major trading partner, accounting for over 70 percent of Alaskan exports. Japan will continue to require imports of coal, logs and lumber, petroleum products, grains, and seafood products.

Korea and Taiwan, relatively minor partners in the past, may require more coal imports to accommodate their population growth. Singapore is currently a major trading partner, exporting aviation fuel to Alaska. The People's Republic of China currently has a minor trade relationship but offers unlimited opportunities for future trade and investment.

Key Commodities. Alaska's major export commodities are logs and forest products. Japan is the dominant customer and projected levels of forest products are expected to be directly related to future Japanese consumption levels. Any log export ban will potentially affect the current status of U.S. forest product trade with Japan.

The demand for coal by Asian countries is expected to grow dramatically as they implement oil replacement strategies.

Shipments of fish products and bottomfish are expected to increase but trade restrictions and higher quality standards must be reckoned with. Major consumers of bottomfish are western Europe, Japan, USSR, African countries, and the United States.

Metallic ores—molybdenum, copper, lead, and zinc, for example—will compete in world

markets when world prices justify the costs of development and production.

Alaskan oil will continue to supply domestic needs as long as the United States continues to import oil and gas.

Forecasts for low, medium and high trade scenarios are illustrated in Figure 5.

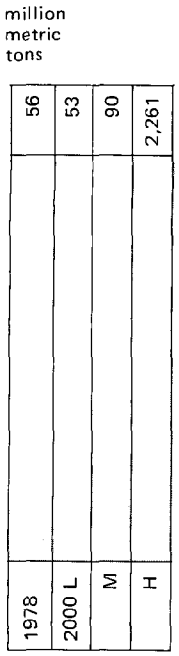


Figure 5
Forecast Trade Growth

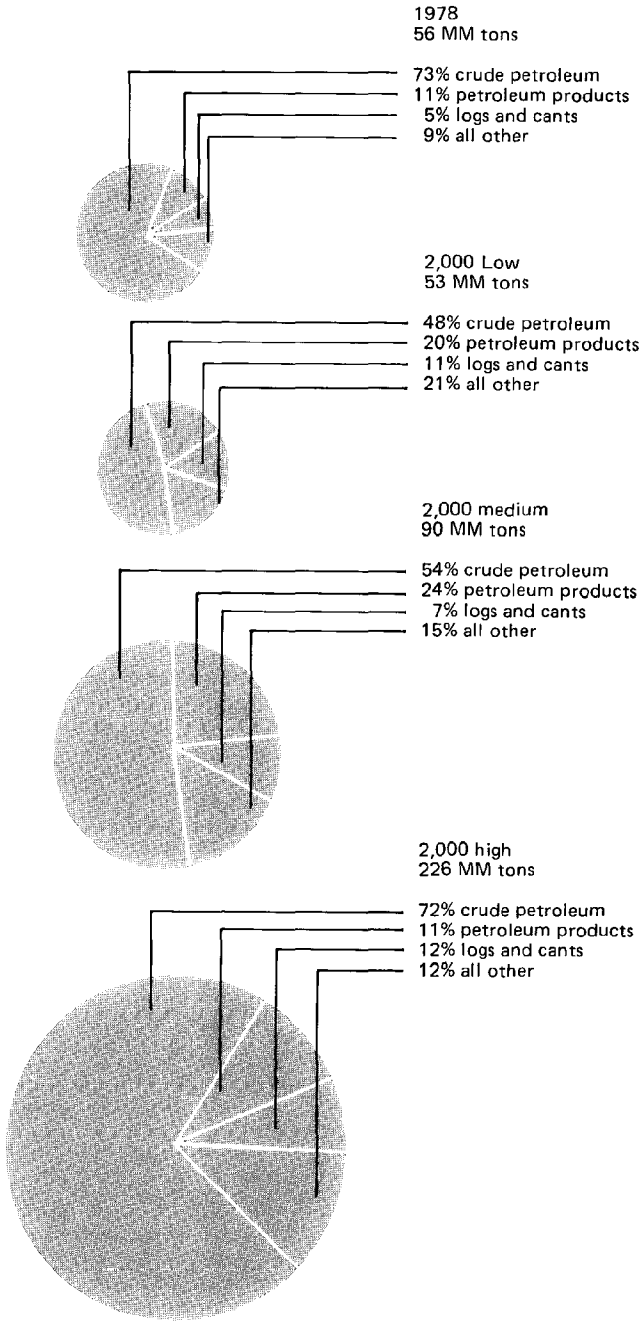


Figure 6
Forecast Trade by Commodity

Trade Forecasts

Forecasts are estimates rather than "predictions" and serve as a basis for planning future strategies.

The forecast methodology used is a two-step process:

Baseline estimates are determined to reflect continuation of historical trends as well as future population changes.

Project-related volumes are added to the baseline estimates to accommodate incremental development not reflected in the baseline.

The baseline forecasts were developed according to historical relationships between cargo volumes and such indicators as regional population and employment, U.S. population and employment, and the gross domestic product of key trading partners. Project-related volumes were estimated for outbound shipments of resources or products and in-bound materials necessary to support development. The likelihood of each development is reflected in its inclusion under low, medium, or high scenarios.

Tables 5 and 6 present a summary of forecast volumes for the state and the seven regions. As shown, total volume by the year 2000 varies between 53,000,000 tons and 218,000,000 tons, depending on the scenario. Volumes under both the high and medium scenarios are far greater than 1978 volumes, with volumes under the low scenario somewhat less than 1978. Much of the variability in future volumes is due to assumptions about future oil and gas production, particularly in the Prudhoe Bay area. Prudhoe Bay volumes are forecast to decline under both the low and medium scenarios. Crude petroleum volumes represent over one-half of total volumes in each scenario.

TABLE 5

Cargo Forecasts Summary
(000 Short Tons)

	1978 Actual			2000 Forecast								
				LOW			MEDIUM			HIGH		
	Inbound	Outbound	Total	Inbound	Outbound	Total	Inbound	Outbound	Total	Inbound	Outbound	Total
I. North Slope	128	23	151	292	39	331	468	51	518	561	60	621
II. Southwest	464	286	750	785	621	1,407	867	10,796	11,663	1,201	13,279	14,480
III. Southeast	2,999	3,197	6,196	5,556	6,429	11,984	6,055	7,187	13,242	8,894	10,277	19,170
IV. Southcentral	1,782	44,829	46,611	2,770	32,566	35,336	3,168	51,583	60,750	3,939	183,565	187,504
V. Anchorage	2,390	276	2,666	3,148	359	3,506	3,553	380	3,933	4,467	418	4,885
VI. Nome-Kobuk	14	14	28	17	20	37	21	24	45	28	30	58
VII. Fairbanks-Yukon	36	34	70	55	52	107	60	57	117	72	68	140
Total	7,811	48,659	56,472	12,623	40,086	52,708	14,192	76,077	90,264	19,162	207,697	226,860

Source: Williams-Kuebelbeck and Associates, Inc.

As shown in Table 5, the largest volumes of cargo are attributed to the Southcentral region. Portions of this cargo could be handled by Anchorage, however.

Outbound volumes are forecast to continue to exceed in-bound volumes by factors of between 4 to 1 and 10 to 1. One interesting result of the assumptions is that in-bound commodities necessary to support special projects are forecast to reach their peak in 1985 or 1990 and decline thereafter. These volumes may in fact remain stable, as additional projects coming on line after 2000 but requiring support materials before that, are identified.

Relative growth rates of cargo volumes and population of the state are as follows:

	Population	Cargo
Low	2.1%	(-0.3%)
Medium	2.6%	2.4%
High	3.5%	7.0%

Depending upon the development of the various resources in the state, marine commerce could grow far more rapidly than the state population.

More detailed information is included in the Technical Appendix, available upon request from ADOT/PF.

TABLE 6

Cargo Forecast Summary by Commodity (000 Short Tons)

	1978 Actual	2000 Forecast		
		Low	Medium	High
1. Farm/Mill Products	15,996	23,832	226,121	430,889
2. Refrigerated Foods	63,444	94,629	103,844	122,984
3. Frozen Seafood	81,527	428,058	616,388	990,947
4. Groceries	551,843	795,967	865,540	1,006,202
5. Logs and Cants	2,929,285	6,010,015	6,519,222	10,429,785
6. Wood Chips	603,154	1,236,312	1,345,896	2,174,448
7. Forest Products	608,971	817,011	867,904	1,151,458
8. Pulp	284,374	735,722	739,462	968,844
9. Minerals	638,913	1,439,438	1,924,265	2,481,576
10. Mineral Products	188,926	278,331	409,624	656,175
11. Miscellaneous Building Products	13,324	38,325	84,275	108,390
12. Dry Chemicals	801,355	1,443,540	1,556,670	1,689,758
13. Coal and Coke	50,832	103,505	864,729	10,637,859
14. Liquid Chemicals	594,685	907,841	980,288	1,110,199
15. Crude Petroleum	41,408,305	25,357,628	48,689,385	164,374,107
16. Petroleum Products	6,221,603	10,660,745	21,807,706	25,239,718
17. Metal Products	160,103	308,034	350,720	422,352
18. Machinery	155,755	269,529	311,568	365,734
19. Transport Equipment	73,136	126,287	138,869	165,001
20. Waste and Scraps	41,150	60,609	67,630	76,084
21. Commodities NEC	985,242	1,566,856	1,798,450	2,257,165
Total	56,471,923	52,708,215	90,269,055	226,859,678

Source: Williams-Kuebelbeck and Associates, Inc.

Modular Port Facility Requirements

An integral part of a Statewide Port Development and Marine Commerce Plan is the estimating of future marine cargo facility requirements. Using the commodity projections prepared as part of this overall study, the proportional growth in marine facilities that will be necessary by the end of this century has been estimated.

Methodology

Forecasts were developed for the seven study regions: North Slope, Southwest, Southeast, Southcentral, Anchorage, Nome/Kobuk, and Fairbanks/Yukon. Since no port inventory was performed on an individual basis, it was necessary to approach each study region as though it were one large port for terminal requirement estimates.

This section highlights the study regions that will experience the largest growth pressures, and the types of cargo-handling terminals within these areas that will be especially affected by the projected throughput. However, the numbers of terminals indicated as necessary should not be confused with the count of existing ports and terminals. For example, in the Southcentral study region, the number of existing terminals is approximately twice the corresponding figure of *modular* terminals necessary if the region were served by one port area. This is partially a reflection of the numbers of smaller ports serving their local communities. Many of these ports do not operate at their functional limits, but are crucial to their service populations.

Another important aspect is the identification of proportional needs for port terminals (general cargo) that are normally developed and operated by public entities versus those that are special purpose terminals usually developed by private industry.

Projecting Throughput Capacities

Particularly useful as an analytical basis was the *Port Handbook for Estimating Marine Terminal Handling Capability* (1979), prepared by the U.S. Maritime Administration (MARAD). The throughput capacities shown in the MARAD study reflect samples taken from operating experiences of a variety of ports. A port's capability is directly linked to the annual tonnage handled—its throughput. Local ports will generally experience the "typical" or lower throughput capacities, and ports having redistribution functions will normally have much higher levels of activity. The methodology takes this into account by assigning each cargo handling mode (by study region) a throughput capability that is related to the sizes of the projected commodity movements.

If site specific port inventories were available, commodity forecasts could be disaggregated and throughput figures adjusted for a more accurate projection.

Cargo Handling

The terminal types considered here directly correspond to the primary means by which projected cargo would be handled. They are based on a review of ship and cargo-handling technology forecasts. The cargo-handling classes include:

Containerized and trailerized cargo

Neo-bulk cargo (general cargo that can be unitized for handling)

Dry bulk cargo (stored in the open or in silos)

Liquid bulk cargo (composed of crude petroleum, petroleum products, or nonpetroleum commodities)

Cargo delivered in railcars and carried on barges

Coal port terminals

The above classes and their variants make up the nine

standardized berthing "modules," each typical of a type of port terminal (as shown in Table 7). The year 2000 marine commerce commodity forecasts were assigned to these nine cargo-handling categories within each study region.

Capability Levels

Capability levels—typical, medium and maximum credible—reflect expected level of use. Efficiencies of scale can be achieved in operations such as:

Use of two and three shifts of labor per day

Sharing of communal backland and cargo-handling equipment between adjacent berths

Multiple berths, which reduces waiting time for vessels ready to dock

A "typical" capability was defined as any terminal projected to have less than 100,000 short tons of annual throughput. Yearly cargo movements of between 100,000 and 1,000,000 short tons placed a terminal in "medium" category. Cargo movement projections of more than 1,000,000 short tons was defined as "maximum credible" and considered to be fully developed and utilized.

Requirement Forecasts

Forecasts of receipts and shipments for each of the nine terminal types in each of the seven study regions resulted in low, high and medium transfer totals for the year 2000 (see Tables 8, 9 and 10). Using these figures, modular port facility requirements were estimated, as shown in Table 11.

Without a detailed port inventory, these figures are only an approximate growth indicator, and should not be compared to actual numbers or types of port facilities in each study region. However, even judging by the low forecasts, it is apparent that port terminals will experience remarkable growth—approximately 40 percent more than present, and possibly three times as many terminals at higher growth locations.

TABLE 7

Annual Throughput Capabilities by Modular Terminal Year 2000

	Typical	Medium	Maximum Credible
1. Container	360,000 ST*	565,000 ST*	770,000 ST*
2. Neobulk/Break Bulk	130,000 ST	190,000 ST (logs/cants/pulp	250,000 ST 780,000 ST)
3. Dry Bulk - Silo	1,000,000 ST	1,850,000 ST	2,700,000 ST
4. Dry Bulk - Open Storage	500,000 ST	1,000,000 ST	1,500,000 ST
5. Liquid Bulk Nonpetroleum	80,000 ST	140,000 ST	200,000 ST
6. Petroleum Under 50,000 DWT Tankers	1,500,000 ST	2,950,000 ST	4,400,000 ST
7. Petroleum 50,000-200,000 DWT Tankers	6,000,000 ST	12,000,000 ST	18,000,000 ST
8. Railcars on Barges	150,000 ST	275,000 ST	400,000 ST
9. Coal Port	N/A	6,750,000 ST	8,640,000 ST

*Short Tons

TABLE 8

Low Forecasts—Transfer Totals/Handling Group by Study Region for Year 2000

		Study Regions						
		I. North Slope	II. South-West	III. South-East	IV. South-Central	V. Anchor-age	VI. Nome/ Kobuk	VII. Fairbanks/ Yukon
1. Container	R*	203	176	534	196	1,342	6	14
	S**	29	362	1,004	278	329	5	13
2. Neobulk/ Break Bulk	R	12	1	2,871	42	362	3	--
	S	--	--	3,853	42	2	--	--
3. Dry Bulk-Silo	R	--	--	1	13	207	--	--
	S	--	--	1	6	--	--	--
4. Dry Bulk-Open Storage Low Density	R	--	27	790	26	30	--	--
	S	--	18	1,324	1,339	--	--	--
5. Liquid Bulk Nonpetroleum	R	2	--	--	--	46	--	--
	S	--	--	--	739	--	--	--
6. Liquid Petroleum (50,000 ST DWT Tankers)	R	76	582	1,290	736	--	8	41
	S	10	242	246	--	29	15	39
7. Liquid Petroleum 50,000-200,000 DWT	R	--	--	--	1,496	1,161	--	--
	S	--	--	--	30,055	--	--	--
8. Railcars on Barges	R	--	--	69	262	--	--	--
	S	--	--	--	107	--	--	--
9. Coal Port	R	--	--	--	--	--	--	--
	S	--	--	--	--	--	--	--
Total Receipts		293	786	5,556	2,770	3,148	17	55
Total Shipments		39	622	6,429	32,566	359	20	52
Total Inbound/ Outbound		331	1,407	11,984	35,336	3,506	37	107

*Receipts
**Shipments

NOTE: All figures are in 000's of short tons

TABLE 9

Medium Forecasts—Transfer Totals/Handling Group by Study Region for Year 2000

		Study Regions						
		I. North Slope	II. South-West	III. South-East	IV. South-Central	V. Anchor-age	VI. Nome/ Kobuk	VII. Fairbanks/ Yukon
1. Container	R*	333	198	582	226	1,488	7	15
	S**	38	506	1,055	332	348	6	14
2. Neobulk/ Break Bulk	R	36	1	3,152	56	402	4	--
	S	--	--	4,107	47	2	--	--
3. Dry Bulk-Silo	R	--	--	2	19	304	--	--
	S	--	--	1	208	--	--	--
4. Dry Bulk-Open Stor-	R	--	31	860	30	34	--	--
	S	--	25	1,754	1,419	--	--	--
5. Liquid Bulk Nonpetroleum	R	2	--	--	--	51	--	--
	S	--	--	--	795	--	--	--
6. Liquid Petroleum (50,000 ST DWT Tankers)	R	97	638	1,385	884	--	9	45
	S	13	265	269	--	31	18	43
7. Liquid Petroleum 50,000-200,000 DWT	R	--	--	--	1,644	1,274	--	--
	S	--	10,000	--	53,885	--	--	--
8. RORO Rail-car	R	--	--	75	310	--	--	--
	S	--	--	--	125	--	--	--
9. Coal Port	R	--	--	--	--	--	--	--
	S	--	--	--	771	--	--	--
Total Receipts		468	868	6,056	3,168	3,553	21	60
Total Shipments		51	10,796	7,186	57,583	380	24	57
Total Inbound/ Outbound		519	11,663	13,242	60,750	3,933	45	117

*Receipts
**Shipments

NOTE: All figures are in 000's of short tons

TABLE 10

High Forecasts—Transfer Totals/Handling Group by Study Region for Year 2000

		Study Regions						
		I. North Slope	II. South-West	III. South-East	IV. South-Central	V. Anchor-age	VI. Nome/ Kobuk	VII. Fairbanks/ Yukon
1. Container	R*	402	327	724	319	1,761	9	19
	S**	45	792	601	436	381	8	17
2. Neobulk/ Break Bulk	R	41	13	4,986	84	605	7	--
	S	--	--	6,310	75	2	--	--
3. Dry Bulk-Silo	R	--	--	2	1	489	--	--
	S	--	--	37	413	--	--	--
4. Dry Bulk-Open Storage Low Density	R	--	29	1,486	71	41	--	--
	S	--	35	3,009	1,452	--	--	--
5. Liquid Bulk Non-petroleum	R	3	--	--	8	62	--	--
	S	--	--	--	881	--	--	--
6. Liquid Petroleum (50,000 ST DWT)	R	114	834	1,602	1,034	--	11	54
	S	15	2,451	320	--	35	21	51
7. Liquid Petroleum 50,000-200,000 DWT	R	--	--	--	1,949	1,508	--	--
	S	--	10,000	--	169,614	--	--	--
8. RORO Rail-car	R	--	--	94	473	--	--	--
	S	--	--	--	169	--	--	--
9. Coal Port	R	--	--	--	--	--	--	--
	S	--	--	--	1,525	--	--	--
Total Receipts		560	1,201,201	8,894	3,939	4,467	28	72
Total Shipments		61	13,279	10,277	174,565	418	30	68
Total Inbound/		621	14,480	19,171	178,504	4,885	58	140

*Receipts
**Shipments

NOTE: All figures are in 000's of short tons

TABLE 11

Modular Terminal Requirements

	1978	Year 2000 Low	Year 2000 Medium	Year 2000 High
1. North Slope				
Container	2	4	6	7
Neobulk/Break Bulk	0	1	3	3
Liquid Bulk, Non-petroleum	1	1	1	1
Petroleum (50)	1	1	1	1
Subtotal	4	7	11	12
2. Southwest				
Container	1	1	2	2
Neobulk/Break Bulk	0	1	1	1
Dry Bulk-Open/Low	1	1	1	1
Petroleum (50)	0	0	1	1
Subtotal	3	4	6	6
3. Southeast				
Container	1	2	2	2
Neobulk/Break Bulk	4	9	10	15
Dry Bulk-Silo	1	1	1	1
Dry Bulk-Open/Low	1	2	2	3
Petroleum (50)	1	1	1	1
RORO Railcar	1	1	1	1
Subtotal	9	16	17	23
4. Southcentral				
*Container	1	2*	2*	2
Neobulk/Break Bulk	1	1	1	1
Dry Bulk-Silo	1	1	1	1
Dry Bulk-Open/Low	1	1	1	1
Liquid Bulk Nonpetroleum	4	6	6	7
Petroleum (50)	1	1	1	1
**Petroleum 50-200	3	4**	4**	10
RORO Railcar	2	2	2	3
Coal Port	0	0	1	1
Subtotal	13	17	19	27
5. Anchorage				
Container	1	2	3	3
Neobulk/Break Bulk	1	2	2	3
Dry Bulk-Silo	1	1	1	1
Dry Bulk-Open/Low	1	1	1	1
Liquid Bulk Nonpetroleum	1	1	1	1
Petroleum (50)	1	1	1	1
Petroleum 50-200	1	1	1	1
Subtotal	7	9	10	11
6. Nome/Kobuk				
Container	1	1	1	1
Neobulk/Break Bulk	1	1	1	1
Petroleum (50)	1	1	1	1
Subtotal	3	3	3	3
7. Fairbanks/Yukon				
Container	1	1	1	1
Petroleum (50)	1	1	1	1
Subtotal	2	2	2	2

*Based on 1990 requirements which are greater than those of year 2000.
**Based on 1982 requirements which are greater than those of year 2000.

NOTE: Due to shorter shipping seasons, tonnages for Study Region 1 were multiplied by 12, tonnages for Study Region 6 were tripled, and those of Study Region 7 were doubled.

Summary of Analysis

The outcome of the study team analysis on modular port facility requirements is summarized in the major points below.

1. The three study regions having the greatest future terminal requirements are those of the Southeast, Southcentral and Anchorage. Although this analysis was performed on a study region basis, it appears that Dutch Harbor will also be subject to considerable growth pressure.

   Further analyses of individual future port terminal needs should begin with the Southcentral, Southeastern and Anchorage study regions together with the port of Dutch Harbor.

2. The Modular Port Facility Requirements Forecasts have shown the modular terminal requirements necessary to just accommodate the projected commodity movements through the end of the century. As such, the estimated number of necessary modular terminals is a *very conservative* indicator, and should be viewed as such. In most cases, the proposed terminals are shown as operating near or at their extreme functional limits.

   Because of extremely long lead times to develop port facilities, port planning in Alaska should start addressing horizons of 2020 and 2050 as soon as the current studies are concluded.

3. Numerous reasons were identified within the report why new terminals should be developed in advance of demonstrated need, including: long lead time requirements prior to port development, encouragement of competitive services, terminal specialization, stimulation of additional demand, efficiencies of contiguous terminals, and more terminal flexibility and capacity with which to meet peaking requirements.

   In cases where marine commerce growth is expected, the State, together with local governmental entities should encourage terminal development in advance of demonstrated need in some cases, and in advance of terminal saturation in all cases.

4. In some instances, terminals have projected throughputs that are significantly below their capability. Although appearing to be underutilized, on an individual port basis, a terminal having only occasional use can be of paramount importance to its service community. In other cases, competing ports may propose mutually exclusive terminal developments that require state aid. These proposals could be designed to serve the same market, and the state may participate in the decision as to which community is the more appropriate for the terminal.

   The State should develop criteria that help to identify the many important reasons for terminal development. Such criteria should consider: population of the hinterland served, State economic objectives, generation of employment, resource development, local priorities, cost effectiveness of a proposed terminal, alternative transportation modes, and percentage of the total prices of delivered products that can be attributed to transportation costs.

5. Most of the predicted terminal expansion projects will occur at the many ports providing service to only a single community. Ports with extensive transshipment functions will have the largest growth related to marine commerce requirements.

   The State should take immediate steps to plan for terminal development at the ports with large general cargo increases requiring public terminals.

6. Terminals have been included in the port facility requirements analysis that are normally sponsored or supplied by the private sector. These terminals are of State interest when there is to be some public use, or when these terminals are proposed to be collocated with public docks in areas with finite or scarce waterfront resources.

   State support and assistance should be given, when requested, to local governmental entities during the planning for allotment of limited waterfront lands, and, where public assistance has been requested, for development of proprietary port facilities which serve public needs.

7. Terminals that are most appropriate for private sponsorship are those pertaining to large shipments of crude petroleum and petroleum products, large quantities of coal, log/cant shipments, pulp movements, most nonpetroleum liquid bulk movements, and some dry bulk movements—

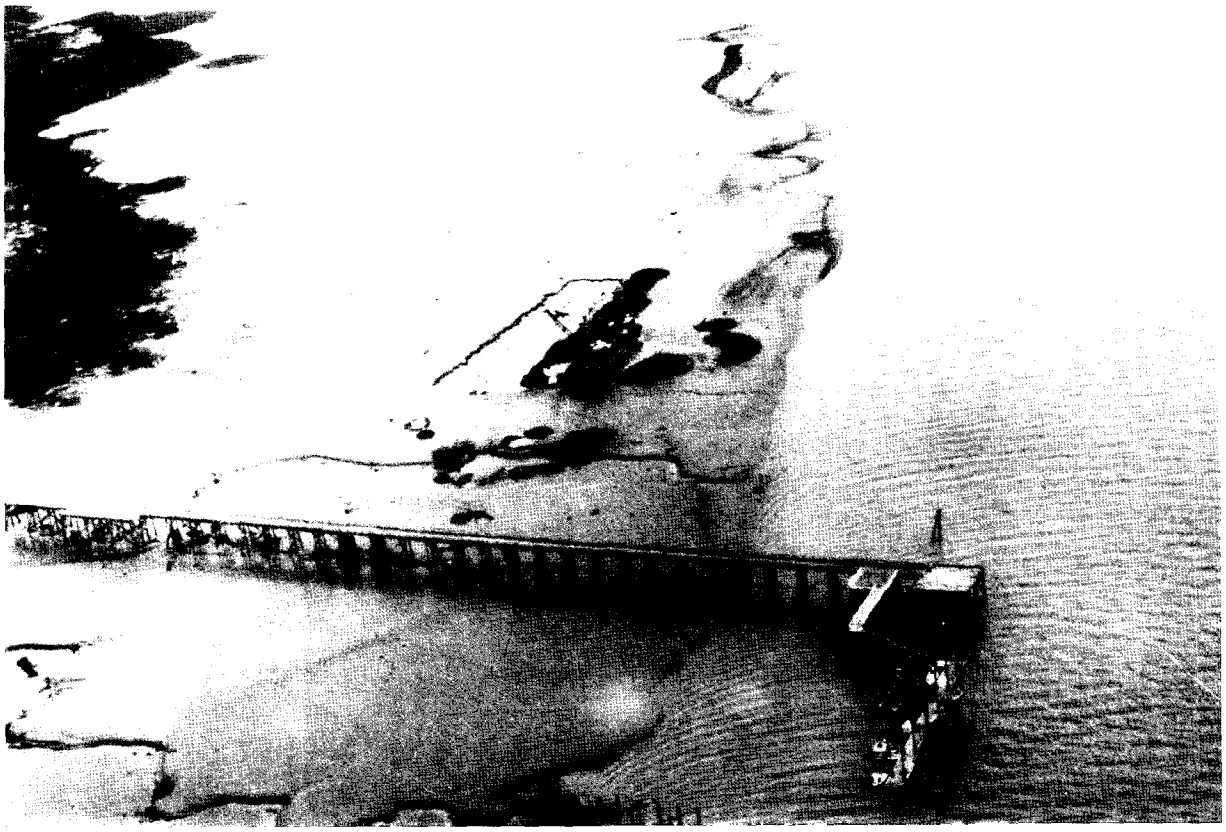
depending upon the region or location of this commerce.

State focus should be targeted toward terminal requirements for movements of general cargo using publicly owned and/or operated berths. These terminals generally involve containers, trailers, railcars on barges, some neobulk operations, and some movements of smaller quantities of petroleum and nonpetroleum liquid bulk products.

8. Terminal requirement projections for public docks in the higher growth locations suggest that approximately ***three times*** as many general cargo terminals will be required by the year 2000 as were necessary during 1978.

   The State should actively participate in the planning and development of the publicly sponsored terminals that will be required during the next 18 years and beyond, as well as in the maintenance and development of the transportation links necessary for movements of commerce to and from port hinterland areas.

For a complete analysis of modular port facility requirements, refer to the Technical Appendix, available upon request from ADOT/PF.



Financial, Institutional and Legislative Issues

One of the most important tasks of the Statewide Port Development and Marine Commerce Plan is identifying a role for the State and other port entities to participate in marine commerce. Broad perspectives are needed—of existing conditions, the future outlook, and precedents for alternative approaches that have worked successfully elsewhere—so that appropriate implementing legislation can be developed.

To provide a comprehensive view, this portion of the study addresses legislative, institutional and financial issues: financial issues relate to funds required to finance and operate ports; institutional concerns the organizations identified to carry out the financing and operation of ports; legislative issues are the constitutional and statutory changes necessary to accommodate the financial and institutional recommendations.

Current Port Policies and Practices

Over two-thirds of all port facilities inventoried in Alaska in 1974 (MARAD) were privately owned and many were single-purpose facilities. Public port entities, even those related to larger multiple purpose ports, were very much in the minority.

While public port activites are more multiple purpose than other ports in Alaska, their function is primarily cargo operation and maintaining small boat harbors. Only a limited number of public ports engage in industrial land or building leasing. However, local governments—including home rule and unified municipalities, boroughs and cities—can apply their powers of taxation, eminent domain, and debt financing to provide marine facilities, according to Alaskan statutes. While port authorities may be formed, powers remain with the municipality. Local government ports are not free to promote commerce independently of political consideration.

Almost 75 percent of the public ports considered (MARAD, 1974) had annual port-related revenues of less than $500,000 and half was attributable to small boat harbor rentals. Dockage, wharfage, tariffs and land/building rentals represented a much more significant portion of revenues of the larger ports. But in general, public ports have limited capacities for generating revenues to support further development.

State Role

The primary role of the State in port development and marine commerce is in planning and financing of facilities, through the Port Development Act which provides for grants to municipalities for projects meeting certain criteria. Direct appropriations by the legislature have financed some special port projects also. In 1981, $117,000,000 was spent in port financing, and the legislature appropriated additional funding of $29,000,000 for projects in 1982. While projects funded under the Port Development Act must meet certain criteria, direct appropriations were made on political considerations rather than on the criteria. The need for a uniform comprehensive funding program which addresses allocation of funds among regions and projects according to need and merit is evident.

Special Purpose Authorities

Several special purpose State authorities that can engage in marine commerce-related activities are noteworthy. They serve as models for other types of authorities and because their roles could be expanded. Such authorities must be created by the legislature and their powers specified. Some have been granted the powers to execute contracts, borrow money, and

take property by eminent domain. These authorities do not have taxing power. Special purpose agencies which may have significant involvement in port development include:

Alaska Municipal Bond Bank Authority which makes loans to municipalities

Alaska Industrial Development Authority which purchases loans made by financial institutions to private business for development

Commercial Fisheries and Agricultural Bank which provides credit to the agricultural and fishing industries

These special purpose agencies can be very important in promoting port development and marine commerce.

Port Administration and Finance in the United States

Practices in other states were determined from a survey conducted in 14 Atlantic, Gulf, Pacific and Great Lakes coastal states. There are five categories of public port administration identified by the consultant team's research.

Bi-state port authorities include the New York and New Jersey Authority and the Delaware River Port Authority. The characteristics of these port authorities have little application to the Alaskan situation.

State port authorities operate in fourteen states. Operation may be through a local commission or through a state department as in Hawaii.

Navigation or port districts are common in several states including Washington. Districts are governed by local elected commissioners.

City ports are common throughout the U.S. and are the common form in Alaska. Where ports are under city control, a common complaint is that their flexibility and competitiveness is limited.

Specialized port authorities exist as port corporations in Philadelphia and Camden and some new Great Lakes ports.

The authorities of the Great Lakes regions generally represent a mixture of new and traditional forms.

The key differences between authorities relates to their designated sources of capital and operating revenues. State and city ports do not normally have taxing power other than through state or city powers at large and thus are dependent upon executive and legislative branches. Port and navigation districts generally have tax levy powers. This power is important for slowly maturing ports where operating income falls short of expenses.

Port Functions

The primary functions of port authorities generally include powers of:

Acquisition, development and operation of facilities

Construction of needed facilities

Acquisition and disposition of land, improvements and equipment

Overall administration, regulation, operation and maintenance

Representation of community in dealing with state and federal governments

Dredging in areas not maintained by Corps of Engineers

Promotion of trade and traffic

Assignment of berths at public facilities

U.S. public ports have assumed numerous functions in addition to seaport development and operation including commercial fishing boat harbors, recreational marinas, airports, industrial development, railroads, bridges and tunnels. The options are numerous and port authority precedents are broad.

Port Funding

National figures indicate that over 50 percent of capital funding for ports in the U.S. was from general obligation and revenue bonds. In addition, the trend is toward greater use of

federal aid and port revenues. The port financing situation in Alaska is clearly different than elsewhere. The use of conventional funding methods is not the question; rather it is which projects to finance and whether the local entity can cover operating and maintenance costs. Other states have dealt with these questions differently. The state of Hawaii owns and operates the ports. In Oregon, Washington and rural areas of California, districts are given limited tax levy powers for capital and operating purposes.

Proposals for Alaska

The U.S. is characterized by its abundance and variety of public port authorities. It is not uncommon to have various forms operating in a single state, as is the case in California, with its combination of city ports and navigation/port districts. The Alaskan situation suggests a variety of institutional forms as well.

The remainder of this section describes some of the general alternatives available to Alaska, defines some criteria for evaluating those forms, and presents the results of the evaluation. They are tentative in nature and should be subject to in-depth study before policies are formed.

Description of Alternatives

Ports are usually publicly or privately operated. Public ports can be operated by any of several types of administration, which are described below.

Statewide Port Authority: A statewide port authority owns and operates all public port facilities in the state. As described earlier, some states have statewide port authorities, although Hawaii is the only western state with that form. In many respects Hawaii's marine commerce is similar to Alaska's. Both states are isolated, rely on marine transportation, and have limited inland trade areas.

In certain aspects Alaska does function like a statewide port authority. In particular, the state has the responsibility for port development in the unorganized borough. Under a statewide authority, such powers would be expanded to the organized boroughs as well.

Independent Port Districts: An independent port district is an autonomous governmental body with powers limited to commerce and related endeavors. The independent district is typically larger than a city and its boundaries often coincide with those of county forms of local government. Such a form is common in other states. Municipalities have the power to own and operate public ports in Alaska. Independent districts can only be created by an act of the legislature. In some instances, cities might choose to transfer such powers to boroughs to create a larger service area.

City Ports: City ports are the most common form of port organization as the power to own and operate public ports have been granted to municipalities. The degree of independence offered city port departments varies. Many city ports have their own commissions, but usually must answer to the City Council.

Private Ports: Private port facilities exist in every part of the United States. They are typically limited to special purpose facilities as an integral part of the broader business function of the owner-operator.

Port Association: The Port Association is an entity which might overlay any of the above forms. It is not an operating entity, rather it promotes the joint interests of the operating entities. Such interests often include planning, marketing and legislation.

Criteria for Evaluating Alternatives

There are several issues which need to be considered in evaluating alternative forms of port ownership and operation. These can be grouped into several broad categories:

Availability

Responsiveness

Efficiency

Institutional compatibility

The issues in each category are described briefly in the remainder of this section.

Availability: To what extent does an alternative provide for the basic services to the businesses and population of individual communities?

To what extent does an alternative provide the facilities or services to stimulate additional economic development?

Responsiveness: To what extent will an alternative provide a ready response to the needs of individual communities?

To what extent will an alternative provide a ready response to identified opportunities for development?

Efficiency: To what extent does an alternative provide for the collective needs of all communities in a region?

To what extent does an alternative encourage an overall least-cost transportation network?

To what extent does an alternative provide a mechanism for efficient allocation of funds?

Institutional Compatibility: Is a given alternative consistent with powers of government in Alaska?

Is a given alternative consistent with the constitutional provision for minimizing the number of levels of government?

To what extent does an alternative resolve the competition between overlapping jurisdictions (especially boroughs and cities)?

Do responsible entities have the capacity to administer an alternative?

Evaluation of Alternatives

The evaluation of each alternative with respect to the individual criteria is summarized for the public alternatives below.

State: There are several advantages to a state port authority. These include: ability to respond to regional needs; ability to respond quickly to economic development opportunities; and capacity to implement an optional statewide system.

The primary disadvantages of a state authority are that it can be less responsive to local needs and contrary to existing powers.

Independent Districts: The primary advantages of a system of independent districts is that it would accommodate regional needs while still being sensitive to local needs. The primary disadvantage is that it would require the creation of an additional level of government.

City Ports: City ports have the advantage of being responsive to local needs. Further, such an alternative is consistent with existing powers and constitutional provisions. However, smaller cities may not have the administrative capacity to respond quickly to major economic development opportunities and competing city ports may not be sensitive to overall regional needs or system efficiencies. A city port does not provide for facilities outside city boundaries.

Port Association: A port association provides opportunities to overcome some disadvantages of the forms described above. In particular, an association, in conjunction with a system of city ports, would have several advantages: aid in planning for regional needs; provide a forum for discussion of competing projects; promote solu-

tions to identified opportunities; and would not create any additional form of local government.

The disadvantage is that such an organization would be voluntary and its success in any endeavor would be dependent upon the unanimous cooperation and participation of its members.

Summary

The relative advantages and disadvantages of each form must be considered in any decisions on institutional forms for marine commerce in the state. In fact, the Alaska situation suggests that a variety of forms are possible and in fact could coexist in Alaska as they do in other states.

Findings and Conclusions

The Findings and Conclusions are a summation of the series of working papers produced in this research effort. The objective is to identify and analyze important issues and to draw conclusions based on the findings. This summation can assist the State in further defining its role, in formulating policy, in considering new legislation and completing its marine mode planning.

The Findings and Conclusions are organized according to the project tasks and working papers, which were summarized in the preceeding sections:

Issues of Statewide Importance/User Group Involvement

Profiles and Forecasts for Alaska Ports

Modular Port Facility Requirements

Legislative, Financial and Institutional Issues

Issues of Statewide Importance

The following findings are a result of discussions that took place in the workshops held in Anchorage, and of a questionnaire widely distributed throughout Alaska and the Pacific Northwest. The workshop participants represented port users and developers, government officials, and the Alaska public. These findings reflect the opinions and knowledge of the Alaska port user, rather than those of the project team.

Regional Port Development Concerns

Finding: The greatest concerns related to port development in the various regions of Alaska are:

The financing of local port development projects.

The availability of staging areas and facilities adjacent to public ports.

Need for transportation links between ports and markets.

The potential for destructive competition between regional ports.

The development of uneconomical port facilities.

Constraints of regulations governing port and related development.

Conclusion: The port users perceive a number of problems that affect port development in their region. The State of Alaska presently has a role in each of these problem areas and can work in concert with the communities on a priority basis to resolve port development concerns.

Constraints

Finding: There are a number of environmental constraints that affect port development in various regions of Alaska. The more serious constraints appear to be:

Navigational constraints, water depth and shoals.

Environmental constraints, ice, tides, currents, wind and limited uplands.

Conclusion: The state and federal governments are presently involved in reducing navigational and environmental constraints affecting existing ports. Government involvement is limited to ports that are economically feasible or to communities where other modes of transportation access are limited or nonexistent.

Federal Involvement

Finding: The federal government promotes port development in Alaska in the following ways:

Undertakes port development project feasibility and planning.

Contracts maintenance dredging in channels and harbors.

Provides and maintains navigational improvements.

Constructs harbor improvements.

Provides navigational guidance system for pilots.

Promotes foreign trade.

Conclusion: The users perceive federal involvement in Alaska port development and marine commerce as significant, and understand that any reduction of federal involvement could adversely affect a number of local ports and harbors.

Finding: Though less important than promoting port development, the federal government also inhibits it by:

Mandating environmental protection actions related to port projects.

Requiring permits for a variety of activities in wetlands and navigable waters.

Restricting the development of federal land.

Conclusion: The port user feels that the federal government can inhibit local port development. In the future, federal regulations may be relaxed, but will continue to be a part of the port development process.

State Involvement

Finding: State government promotes port development in the following ways:

Finances port projects.

Constructs small boat harbors and related improvements.

Plans, designs and constructs Marine Highway system improvements.

Encourages and assists in resource development.

Conclusion: The port user understands the present role of the state support of local port projects. The State is presently involved in all aspects of port development and its future involvement may increase as federal involvement decreases.

Finding: State government inhibits port development in Alaska's regions in the following ways:

Lack of effective, long-range planning.

Restrictive regulatory requirements.

Lack of an organized and leadership role in port development.

Conclusion: In the past, the port user has perceived a passive involvement and lack of long-range marine transportation planning by the State. The State of Alaska needs to complete its marine mode systems plan, identify its long-term role in port development, and work directly with Alaskan communities in carrying out this role. This study is aimed at achieving this goal.

Economic Development

Finding: Ports in Alaska's regions need to be developed to promote the state's overall economic development.

Conclusion: The port user sees port development as an essential part of Alaska's future economic development and feels it should be integrated into economic development planning.

State's Role in Port Development

Finding: The state of Alaska should be involved in:

Permit assistance

Planning of facilities

Financing of facilities

Promoting trade

Generating marine commerce data and information but should not operate port facilities

Conclusion: The State of Alaska's present role in port development is appropriate, but port operations should be a local responsibility. Active, rather than passive, assistance should be stressed with long-range planning to guide the development of the system.

Conflict Resolution

Finding: Conflicts related to competing uses for the same port facility should be resolved by:

Zoning

Mutual agreements

Joint use

Economic feasibility

Operator's choice

Conclusion: The users felt that the port use conflicts should be resolved at the local level, using existing decision-making tools.

Finding: Conflicts between competing ports should be resolved by:

Regional economic analysis

State government

State ports board

Port authority

Port association

Mediation

Conclusion: The users felt that a regional or statewide organization should be established to mediate conflicts between competing ports.

Profiles and Forecasts for Alaskan Ports

Describing the existing characteristics of marine commerce, and, more importantly, the system's future requirements, is an essential part of the Port Development and Marine Commerce Plan. The Profiles and Forecasts for Alaskan Ports paper details the present and future marine transportation system. In addition, it analyzes future resource development potential, regional socioeconomic characteristics and foreign trade as a basis for forecasting future marine cargo volumes by region. The following findings and conclusions are a result of this analysis. The working paper contains a vast amount of background information and a discussion of each of the points, and should be referred to for supporting material. It is included in the Technical Appendix, available upon request from ADOT/PF.

Marine Transportation System

Finding: Alaska's Marine Transportation System is unique because of its place as a dominant mode of transportation, the environmental conditions it must accommodate, and the absence of major inland markets for service.

Conclusion: The State of Alaska needs a coherent policy and plan for port development and marine commerce which reflects the uniqueness of the state's marine transportation system.

Finding: Generally, the system is comprised of line haul service to major ports, with feeder service to smaller communities.

Conclusion: When planning improvements to the system, economic factors which shaped the existing system must be taken into consideration.

Finding: The state can logically be divided into three general marine commerce service areas: Southeast, Southcentral/Interior (comprised of Southcentral, Anchorage and Fairbanks-Yukon economic regions) and Western/Arctic (North slope, Nome-Kobuk, and Southwest regions).

Conclusion: Regional marine modal planning needs to consider the standard marine transportation service area.

Resource Development

Finding: Development of Alaska's significant resources will both affect and be affected by the availability of marine facilities.

Agricultural projects in the Delta Junction and Nenana areas are being developed for barley and rapeseed production. A grain export facility is under construction in Valdez and a facility is planned for Seward.

Future growth in the wood products industry will be centered on lands held by Native corporations, with commodities destined for in-state consumption or export. Sealaska is building special facilities in the Southeast.

Quantities of precious metals will be small and have little effect on port facilities, but significant development opportunity exists for hard rock mineral extraction such as molybdenum, copper, zinc and lead. Lack of inland transportation systems is a constraint for such development.

Recent feasibility studies for the petrochemical industry indicate that such development is not likely to occur before 1990.

Coal production from the Beluga fields has the potential for up to 20,000,000 tons per year, with half available for export. Eventual production will depend upon markets and development of export facilities at other U.S. ports.

Crude oil and natural gas lease sales are scheduled for such areas as Chukchi Basin, Kuparuk Field, Beaufort Sea, National Petroleum Reserve, Bering Sea, and Lower Cook Inlet.

Development of the bottomfish resource will continue slowly over the next few years as technologies are adapted and markets are established.

Conclusion: Future resource development activity will have a significant impact on both public and private port development. Regional modal planning should carefully monitor resource extraction activity in an effort to respond in a timely manner to the demand for marine facilities and related infrastructure.

Socioeconomic Characteristics

Finding: Regions experiencing greatest population growth and greatest need for general cargo facilities are:

	% Growth/ Year		
	Low	Medium	High
Southcentral	2.3	2.9	3.8
Southeast	2.3	2.7	3.6
Southwest	2.3	2.7	3.5
Anchorage	2.0	2.5	3.4

Conclusion: The situation of concentrated population growth (in Southcentral and Southeast regions) and project-related volumes (in Southcentral) reinforces the current system of line haul services to transshipment ports, with feeder service to smaller communities.

Finding: Population in Alaska grew at an annual rate of 2.8 percent between 1970 and 1980, and is forecast to grow at a rate of between 2.1 percent to 3.5 percent per year through 2000. Resulting population would be between 604,435 and 790,304, compared to 400,481 in 1980.

Conclusion: Population growth within Alaska will generally increase the demand for public port facilities in existing population centers over the next 20 years.

Marine Trade

Finding: Alaska's marine trade has increased by 25 percent per year between 1974 and 1978 (the most recent year for which complete data were available). Only 7 percent of Alaska's marine trade in 1978 was foreign, with domestic coastwise trade representing 79 percent and internal trade representing 14 percent.

Conclusion: Foreign trade represents a major opportunity for Alaska economic development and should be pursued aggressively.

Finding: Crude petroleum is now the most significant commodity in Alaska trade, comprising 73 percent of 1978 volumes. Petroleum products represented 11 percent of the total, with logs and cants representing 5 percent.

Conclusion: Single purpose port facilities will continue to outnumber general cargo ports.

Finding: Port development related to crude petroleum and timber harvesting has traditionally been the responsibility of the private sector.

Conclusion: State and local governments should assure that adequate sites are available to satisfy the specialized port needs of private industry.

Finding: Alaska's major trading partner for foreign trade is Japan, which received over 70 percent of Alaska's exports. The major domestic coastwise trading partner for Alaska is the Puget Sound area of Washington state.

Conclusion: In the future, Japan and Washington state will continue as dominant trading partners of Alaska.

Cargo Volumes

Finding: Depending on the occurrence of probable resource development and special projects over the next 20 years, cargo volumes will range between 53 million tons and 218 million tons. The forecast range indicates a 313 percent difference between the high and low cargo forecast.

Conclusion: Planning for port development and economic development in Alaska must be closely coordinated and must be flexible and responsive to development opportunities.

Finding: Largest projected cargo volumes are crude petroleum products including natural gas (12 percent of total) and logs and cants (5 percent of total).

Conclusion: The movement of these commodities typically requires special purpose marine facilities. Special purpose facilities should be provided by the private sector, with assistance from the state.

Finding: General cargo needs are related to both project volumes (particularly construction materials) and growth in population. Thirty percent of domestic coastwise receipts under the high scenario are project-related materials. Seventy-five percent of that would be handled by Anchorage/Southcentral ports.

Conclusion: General cargo facilities should be provided by public entities in advance of such development to assure adequate capacity for project-related support material.

Finding: Volumes of internal trade within regions are small, except for Southcentral and Southeast regions, with approximately 3,000,000 and 6,000,000 tons of shipments/receipts respectively.

Conclusion: At this time, based on cargo volume projections, regions other than Southcentral and Southeast should not be considered for alternative location of distribution ports.

Finding: Internal trade between regions is nominal except between Southcentral and Southwest (southerly side of Alaskan Peninsula) and between Southcentral/Anchorage and Northslope/Interior (by surface transport).

Conclusion: Regional planning studies should account for intraregional trade between Kodiak and the southerly side of the Alaskan Peninsula, and between Southcentral and North Slope/Interior.

Modular Port Facility Requirements

The objective of the Modular Port Facility Requirements paper is to forecast port facility needs on a regional basis. The paper uses cargo forecasts as a basis for projecting port facility requirements. The terminal types that have been used in this analysis correspond to the major means by which cargo will be handled in the future, based on a thorough review of ship and cargo handling technology. The background and discussion of issues raised in the findings and conclusions can be found in the Modular Port Facilities Requirement working paper summarized earlier in this report.

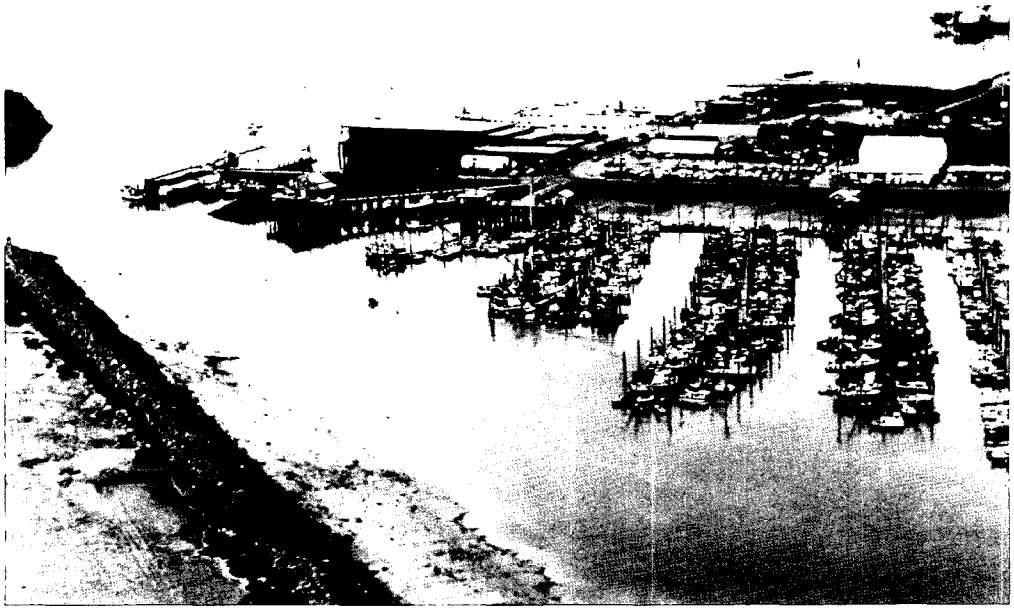
Containerization

Finding: The trend toward containerization of general cargo and away from break bulk cargo in Alaska trade will continue. Concurrent trends toward larger container, dry bulk and tanker vessels will also affect future Alaskan trade.

Conclusion: Terminal requirement analyses of individual ports need to consider ship calls by larger vessels in these categories, especially at the higher activity distribution ports. Considerably more containerization and containerized backhaul should also be planned for at distribution ports.

Finding: Commodity movements between the vessel and the apron have generally represented one limiting factor in port commodity movements. Adequate backland and inland transshipment links either are available, or can be developed.

Conclusion: The State, in its planning for marine commerce, can assist local government in securing sufficient backland for port terminals, and can provide appropriate intermodal transportation links for distribution ports.



Constraints

Finding: Seasonal constraints affect the North Slope, Nome/Kobuk and Southwest regions by creating requirements for greater terminal capacity than would be necessary for port facilities having year-round shipping operations.

Conclusion: Factors of seasonality and peaking need to be integrated into all statewide marine commerce planning, and planning for individual ports.

Terminal Requirement Forecasts

Finding: The three study regions having the greatest future terminal requirements are Southeast, Southcentral and Anchorage. Although this analysis was only performed on a study region basis, it appears that Dutch Harbor will also be subject to considerable growth.

Conclusion: Further analyses of individual future port terminal needs should begin with the Southcentral, Southeast and Anchorage study regions, together with the port of Dutch Harbor.

Finding: The Port Facility Requirements Analysis has shown the modular terminal requirements necessary to just accommodate the projected commodity movements through the end of the century. The projected number of modular terminals is a *very conservative* indicator, and should be viewed as such. In most cases, the proposed terminals are shown as operating near or at their extreme functional limits.

Conclusion: Study regions having docks indicated to be at the "maximum credible" operating level should be considered to be over-utilized, and past due for expansion.

Finding: Large cargo throughputs can have the effect of increasing a terminal's throughput capability due largely to such factors as: multiple-shift cargo-handling operations, visits by larger vessels, increased visits by scheduled vessels, efficiencies associated with backland sharing by contiguous berths, greater use of modern and efficient cargo-handling gear, and reduced peaking factors.

Conclusion: Terminal capability estimates need to be largely based upon factors of throughput quantities.

Finding: A number of factors indicate that new terminals should be developed before they are strictly required, including: long lead time requirements prior to port development, encouragement of competitive services, terminal specialization, stimulation of additional demand, efficiencies of contiguous terminals, and more terminal flexibility and capacity with which to meet peaking requirements.

Conclusion: In regions where marine commerce growth is predicted, the State, together with local government, needs to encourage terminal development in advance of demonstrated need in most cases, and in advance of terminal saturation in all cases.

Finding: In some regions, competing ports may propose mutually exclusive terminal developments that require State aid. These proposals could be designed to serve the same market, and the State may participate in the decision as to which community is the more appropriate for the terminal. In other regions, terminals have projected throughputs that are significantly below their capability. Although appearing to be underutilized, a terminal having only occasional use can be of paramount importance to its service community.

Conclusion: It would be useful for the State to develop terminal requirement criteria that take into consideration the many important reasons for terminal development. Such criteria could include: population of the hinterland served, state economic objectives, generation of employment, resource development, local priorities, cost-effectiveness of a proposed terminal, alternative transportation modes, and percentage of the total prices of delivered products that can be attributed to transportation costs.

Finding: Most of the rapid terminal expansion predicted to be necessary will occur primarily at distribution ports rather than at ports providing service to a single community. Ports with extensive transshipment functions are expected to have the largest marine commerce growth requirements.

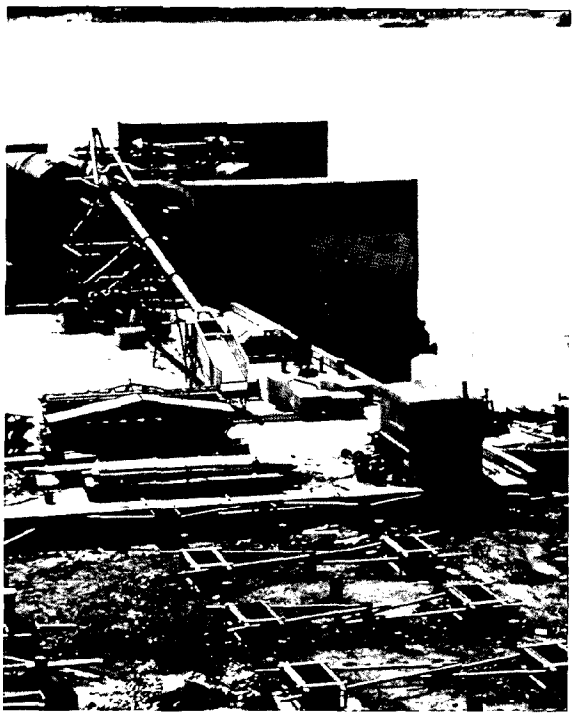
Conclusion: The State should plan for terminal development at the ports projected to have the highest growth potential, and especially at those ports with large general cargo increases requiring public terminals.

Private and Public Port Facilities

Finding: Terminals have been included in the port facility requirements analysis that are normally sponsored or supplied by the private sector. These terminals are primarily of State interest when there is to be some public participation, or when these terminals are proposed to be collocated with public docks in areas with finite or scarce waterfront resources.

Conclusion: State support and assistance should be given to local government when planning for use of limited waterfront lands, and where public assistance has been requested for development of proprietary port facilities.

Finding: Terminals that are most appropriate for private sponsorship are those pertaining to large shipments of crude petroleum products, large quantities of coal, log/cant shipments, pulp movements, most nonpetroleum liquid bulk



movements, and some dry bulk movements—depending upon the region or location of this commerce.

Conclusion: State focus should be targeted toward terminals for movements of general cargo using publicly owned and/or operated berths. These terminals generally involve containers, trailers, railcars on barges, some neobulk operations, and some movements of smaller quantities of petroleum and nonpetroleum liquid bulk products.

Conclusion: The State should actively participate in the planning and development of the publicly sponsored terminals that will be required during the next 18 years and beyond, as well as in the maintenance and development of the transportation links necessary for movements of commerce to and from port hinterland areas.

Port Facility Planning

Finding: Nine distinct, standardized berthing modules were selected that address the spectrum of cargo-handling terminal types anticipated for Alaska through the end of the century. These modules include: (1) container/trailer terminals; (2) neobulk/break bulk terminals; (3) dry bulk terminals for handling commodities requiring storage in silos; (4) dry bulk terminals for low density commodities that require open or covered storage; (5) liquid bulk terminals for nonpetroleum commodities; (6) terminals for petroleum (crude and products) movements by vessels having capacities of under 50,000 dead-weight tons; (7) supertanker terminals; (8) terminals for railcars carried on barges; and, (9) terminals for large shipments of coal.

Conclusion: The State should use these nine modules in further port planning work so that uniform and consistent study results can be generated from individual port terminal requirement analyses.

Finding: Commodity forecasts were performed on a study region basis, and, as a consequence, port terminal requirement analyses were prepared as though all marine commerce were received and shipped from one regional port for each study area.

When considering the role of the State in port development and marine commerce, it is important to understand how the various levels of government finance and operate port facilities, and what legislative requirements direct government interaction with the Marine Commerce System. The Financial, Institutional and Legislative working paper (summarized in a preceeding section) analyzes government participation in port development and operations both in Alaska and elsewhere, institutional and financial mechanisms available to Alaska ports, and the State of Alaska's present role in marine commerce.

Role of the State

Finding: The State of Alaska is presently involved in the following aspects of marine commerce:

Marine commerce policy

Statewide system planning

Regional facilities planning

Marine facility feasibility and planning

Project financing

Construction

Operations and maintenance

Promotion

Conclusion: The State of Alaska presently has a substantial role in port development and marine commerce.

Finding: The State's role in port facilities development lacks coherence because of alternative funding mechanisms, for example:

Direct appropriation by Legislature

Port Development Act through ADOT/PF and requiring 10 or 20 percent local share

Title 35 (funding of public works projects through ADOT/PF with no requirement for local share)

There are no uniform criteria for evaluating port development projects

Conclusion: The State should concentrate port project funding through a uniform program. This program should establish criteria for identifying eligible projects. The criteria, at a minimum, should address:

Economic feasibility

Minimum levels of service

Local contribution

These criteria should be developed through a policy-making body representing the Legislature, ADOT/PF, DCRA, DCED, and local government.

Finding: Public corporations of the State could have significant involvement in port development:

Alaska Municipal Bond Bank, with loans to municipalities

Alaska Industrial Development Authority, purchasing loans of financial institutions for private development

Commercial Fisheries and Agricultural Bank, providing credit to agricultural and fishing industries.

Conclusion: Existing public corporations should be promoted, particularly the Alaska Municipal Bond Bank, for financing public facilities, and the AIDA for private facilities.

Federal Involvement

Finding: Federal activities have affected port development in the past and will continue to do so in the future:

The Corps of Engineers funds harbor and navigational improvements (primarily breakwaters and channel improvements) as well as maintenance dredging. The President has proposed that such costs be recovered under a user fee system.

Federal restrictions on trade affect Alaska trade:

The Jones Act, prohibiting vessels with foreign-made hulls from engaging in domestic trade, increases the cost of Alaska pro-

ducts in the Lower 48 and increases the cost of goods delivered to Alaska.

The Merchant Marine Act of 1936, prohibiting subsidized U.S. vessels from engaging in domestic trade, results in unusable backhaul capacity between Alaska ports such as Dutch Harbor/Unalaska and Puget Sound and increases the cost of goods delivered to Alaska.

Conclusion: The State should consider assuming federal funded programs such as maintenance dredging if federal involvement is reduced and if overall benefits to the State can be documented. The State should establish a position on the existing trade restrictions and work with congress to achieve it.

Port Operations

Finding: Almost two-thirds of the port facilities (individual docks) included in the 1974 MARAD Port Facilities Inventory were privately owned. Local public facilities were primarily general cargo docks.

Conclusion: Private marine facilities should be encouraged for single purpose facilities or single users. Public facilities should be limited to handling general cargo.

Finding: The role of public ports is limited primarily to cargo docks and small boat harbors. Port revenues typically cover only operating expenses. The powers necessary to own and operate ports are held by the borough or city government, but local port agencies are not free to promote commerce independently of other political considerations.

Conclusion: Municipalities should own, operate and maintain public port facilities within their boundaries. Municipal ports could form local commissions to provide more autonomy and ongoing policy direction which reflects community needs.

Finding: Port administration is handled differently in different states. Hawaii has a state port authority funded by the legislature with all necessary powers. Other states such as Washington have independent port districts with taxing power and all other necessary powers. Several areas have city-operated ports. Anchorage differs from Oakland in that the Port of Oakland can issue its own bonds with City Council approval.

Conclusion: Various forms of public port operation have advantages and disadvantages.

	Advantages	Disadvantages
State	Accommodates regional needs Responsive to economic development opportunities Plan for optional statewide system	Less responsive to local needs
City	Responsive to local needs Consistent with existing powers	Not responsive to regional needs
Independent Districts	Accommodates regional needs	Creates additional governing entity

Functional Classification System/Policy Options

Introduction

In Phase II of the study, the consultant team met with representatives of the Policy Committee to review the findings of Phase I and formulate a criteria framework which could be used to evaluate projects. The results of these review sessions are summarized in the following policy paper and port classification system.

Background

Over the last several years, the scale of State government activities has grown tremendously. In 1977, capital and operating budgets were approximately $716.2 million; by 1982, these budgets had grown to $3.7 billion. The swelling of public coffers signaled a new state of affairs in Alaska—a once-in-a-lifetime opportunity. Legislators contemplated numerous ways to improve the quality of life for Alaskans. Direct distribution and lowering the cost of energy were notable among the proposals advanced, as were programs for infrastructure expansion and "easy loans."

Almost all proposals were hotly debated except one. A large scale ad hoc program of infrastructure expansion commenced with little discussion. As funds available for capital projects grew, so seemingly did the number of projects and their scale. The temptation for legislators to push for one more reasonable project to finance an extra dock improvement, highway extension or sewer system seemed irresistible. On the marine side, the legislature appropriated funds to design a deep water port in Nome, development of a port and new town at Chernofski Harbor in the Aleutian Islands, a new commodities dock in Sitka and a grain terminal at Seward. State funds were spent on the construction of port facilities in Homer and at Latouche Bay, a rebuild of harbor and dock facilities in Kodiak and a new ferry repair facility at Ketchikan. This partial list was augmented by a host of other marine-related projects as well as improvements to airports, roads, water and sewer systems, and community facilities throughout the state.

In fact, there was no shortage of projects to fund. The trick was to separate the "good" projects from the wasteful projects and to set priorities for the "good" projects. In an atmosphere where government expenditures for capital projects soared ($19.8 million in 1977 to $1.9 billion in 1982, excluding bonds), *project selection became critical.* Today's infrastructure projects will pass on a signficant financial burden to the next generation of Alaskans.

Since 1981, the pressures to identify projects and expedite design and construction have been acute and no agency within government has felt the pressure greater than the Department of Transportation and Public Facilities. Project delays have become a political liability, but costly mistakes on unnecessary projects promise even graver consequences in the long term.

To avoid this being repeated, the Department has established policies and a set of evaluation tools to assist with expenditure decisions for public facilities and transportation. Life cycle costing and the highway classification system are good examples of tools implemented during this period. The one area still lacking is a policy framework for port development and marine commerce.

To remedy the problem, in March 1981, the Department initiated a Statewide Port Development and Marine Commerce Plan. Phase I analyzed the size and potential of marine commerce and port activities in Alaska and described the institutional framework in which Alaska ports operate.

Phase II bites the bullet and puts into writing a functional classification system for ports and a set of procedural policies

to guide State investment in marine facilities and services.

Because the policies are controversial, a steering committee composed of senior staff from the Departments of Transportation and Public Facilities, Commerce and Economic Development, and Community and Regional Affairs reviewed work-in-progress. In October 1982, local governments, port users and the Policy Committee also commented on the utility and implications of applying the functional classification system and policies to public investment decisions concerning ports. The modifications suggested at that meeting have been incorporated into this plan.

Terms of Reference

To appreciate the nuances of past policy with respect to port development and to examine what is now proposed, three key terms need clarification:

A *port* consists of all marine facilities and improvements (including navigational) within geographical areas *defined by municipal jurisdiction.* The term port connotes commercial activity carried out within an institutional context, namely local government. Although few Alaska municipalities operate or manage *all* port activities as a unified enterprise, municipal government is the logical conduit for State assistance and thus a key attribute to the working definition of ports.

A *facility* is any structure or ancillary equipment designed for the transfer of cargo or people between vessels and shore. Facilities can be owned and operated by the public or private groups. Ports usually contain more than one facility.

A *harbor* refers to a coastal shelter, natural or man-made. In the strictest sense, a harbor is a *physical location* implying the waters along the coast which provide refuge.

Policy Precedents

Two Alaska Statutes govern state participation in marine facility and harbor projects. AS 44.42 is broad enabling legislation which gives the Commissioner of the Department of Transportation and Public Facilities the power to "plan, design, construct and maintain all state modes of transportation." The second statute is the Port Facilities Development Act of 1974. It gives the Commissioner the power to make *grants* to local political units for port facilities *which are demonstrated to be feasible.* (The Port Facilities Development Act was created to offset diminishing federal funds.)

Grants can be applied to the cost of docks, wharves, bulkheads, seawalls, landfills, warehouses, staging areas, transfer spans and aprons, lifting equipment and other similar structures. Grants are conditional on (1) local endorsement of the project; (2) the ability of a community to finance its share of project costs; and (3) local agreement to operate the facility upon completion.

In practice, the State of Alaska has pursued under the authority of AS 44.42, a policy to construct as *State facilities* small boat harbors throughout coastal Alaska. Other port facilities were developed on an ad hoc basis, strictly by local initiative. Projects funded via the Port Facilities Development Act were developed as *local facilities* and did not reflect a directed approach by the State for the development of port infrastructure.

Until recently, the system worked slowly but adequately. Most local governments seeking a port improvement or facility approached the Department of Transportation and Public Facilities or the Army Corps of Engineers or both through normal channels. Project authorization and appropriation of funds followed careful project scrutiny of need, feasibility and cost-benefit.

In the 1980s a quicker path to project financing opened for Alaska communities. Ample general funds available for infrastructure shifted project selection from the Executive Branch to the Legislative Free Conference Committee on the Capital Budget and many projects embarked on a "fast-track" without careful project evaluation.

To date, the record is mixed. Some dubious expenditures for unneeded facilities stand out and overshadow sound investments made during the same period. But the 1980s clearly reflect a shift to a more aggressive State posture toward marine infrastructure development. The need to clarify State intentions about its role in the development of Alaska's ports has never been more pressing.

Goals for Port Development

The Policy Committee on Statewide Port Development and Marine Commerce endorsed a set of guiding principles as a basis to respond to opportunities for port development; that is, economic development and community access. The last three goals are procedural and set standards for State expenditures, facilities siting and management of ports.

Economic Development: Support of activities which complement or augment marine commerce and which contribute to local, regional, or state economic development and encourage private investment.

Community Access: Adequate access by air, sea or land for people and supplies.

State Expenditures: A fiscally sound and equitable approach to State support of marine facilities and service.

Facilities Siting: Efficient and optimum use of land, water and energy resources for marine facilities which will serve local, regional or state interests.

Management and Operations: A well-managed statewide system of ports emphasizing local control and capable of operating at required levels.

To achieve the goals is no small task. It will require adoption of a more *rigorous* and *consistent* system of project evaluation and project selection than is presently applied. Achievement also requires consensus on a well-specified set of procedural policies to govern State investment in port infrastructure. These policies will help to allocate financial and technical resources by setting priorities and assigning State and local development responsibilities. This is a tall order, especially in a state with a vast need for basic infrastructure and where scattered population and difficult geography contribute to high construction costs.

Functional Classification System

No other state in the continental U.S. faces the challenges that Alaska does; nor has any of the states, with the exception of perhaps Hawaii, faced the problem of port development and marine commerce as a statewide issue. The approach taken here is to classify ports in Alaska according to the functions they perform and to propose a set of procedural policy options which guide State involvement in each class of port.

General Approach

Ports in Alaska vary widely in terms of their present degree of development, transfer and storage facilities, type and volume of throughput, frequency of service and populations served. To group ports according to any of these attributes is interesting from an analytic point of view, but not especially useful for purposes of statewide port planning. Ports can, however, be classified according to the *functions* they perform. Port functions range from primarily providing transit service as in transshipment ports to primarily serving local or neighboring communities.

Classifying by function is a good planning device. In Alaska, the question of what kind of transportation facility or service is needed arises for almost every community. In many instances the market served simply cannot economically justify installation of expensive infrastructure or the scheduling of regular cargo service. The State must decide its contribution to improving community access. Oftentimes, communities will seek infrastructure to not only improve access but also to attract economic development.

The classification system provides an organized approach to evaluating need in the context of statewide goals and the particular function a port performs. Ports that serve a transshipment port clearly have different navigational access, facility and storage requirements than ports which handle cargo for a single community. With a system which distinguishes ports by function, the State can then as a matter of policy target its financial and technical involvement.

Analogs to a Port Classification System

If a functional classification system for ports is such an exemplary policy tool to guide investment decisions, why have no other states in the continental U.S. jumped at the opportunity?

The answer is simple. In most states, port development is *highly decentralized*. To a great extent, local governments or independent port districts work with private industry to develop or augment port resources. The state of Hawaii is a notable exception. Here the Hawaii Department of Transportation functions as a statewide port authority. The department targets ports for rehabilitation or

new development, initiates projects and sees them to completion. All facilities are state owned and operated.

In Alaska, the Department of Transportation and Public Facilities cannot exercise such extensive authority over ports, particularly those in private ownership or located within a municipal jurisdiction. A better analogy of a port classification system that already functions as a policy tool is the example set in Japan.

Because of an extremely high rate of economic growth and lack of natural resources, foreign and domestic trade in Japan is viewed as a national priority. The central government, like the State of Alaska, does not operate ports directly, but provides financial assistance to ports *for promotion of foreign trade*. Japanese ports are classified as four types:

Specially designated major parts
Major ports
Local ports
Ports of refuge

The cost of capital expenditures on seaports is partly subsidized by the central government of Japan with higher rates of subsidy granted to specially designated major ports for construction and improvement of key port and mooring facilities. Ports serving domestic (inter-island) purposes receive lower rates of subsidy except for outlying islands where regional policies call for greater central government contribution. Ports of refuge, because vessel safety is viewed in the national interest, receive financing for 75 percent of the cost of facilities.

In practical terms, the Japanese government works closely with private industry. When a substantial private beneficiary of a port improvement exists, that group is expected to share costs.

Classification Systems in Alaska

A functional classification system per se is not without precedent in Alaska and in fact is already applied to highways and airports. Alaska roads are designated either urban or rural and within each category, roads are further subdivided as arterial, collector, local or community streets. The system is used to establish design criteria and assign state and local maintenance responsibility. An airport classification system has also been developed to set standards for physical facilities, maintenance and other support for a spectrum of functionally different landing fields.

The classification system provides an organized approach to evaluating need in the context of statewide goals and the particular function a port performs. Ports that serve a transshipment function clearly have different navigational access, facility and storage requirements than ports which handle cargo for a single community. With a system which distinguishes ports by function, the State can then as a matter of policy target its financial and technical involvement.

The classification system proposed here for ports is generic like its airport and highway counterparts. Ports within any one functional class do not necessarily perform identically. Ports are grouped according to attributes which generally distinguish market areas served and type of cargo handled. The classifications which appear best suited for Alaska are:

Local port

Regional port

Transshipment port

Special resource or commodity facility

The function and distinguishing features of each classification are discussed in the following sections.

Local Port

Function

A local port receives commodities primarily for local consumption. *Local ports are final destination points.*

Attributes

Degree of Development: In the hierarchy, local ports perform the simplest function of receiving primary general cargo for a single community. In some parts of Alaska, local ports can be totally *undeveloped* with no facilities or improvements. Most local ports, however, have some degree of development including navigational access and facilities for lightering, over-the-beach or direct discharge.

Level of Service: Most local ports are served by barges, small vessels or ferries carrying break bulk cargo. They often also handle fishing boats, tenders or possibly small processors. Local ports serve only *one* community. Frequency of service depends on the population size, levels of economic activity and often the seasonality of local industry.

Administrative Scheme: Local port facilities are managed and operated by a municipality or private corporation or both (as in the case of a city dock and private fish dock). When local ports are undeveloped, there may be no one responsible for cargo once it is discharged on shore except the final recipient.

Examples

No ports in Alaska have yet been classified; however, examples of ports which may be considered local ports include: Pelican, Craig, St. Paul, Seldovia and Cordova.

Regional Port

Function

Regional ports handle commodities for export, local consumption and redistribution to *neighboring communities or a single region hinterland.*

Attributes

Degree of Development: Like the local port, a regional port may be developed or undeveloped; however, because of its distribution function, regional ports have more backup area to receive and store shipments for delivery to the region.

Level of Service: Regional ports serve a market area larger than a local port, and thus, unless winter access is a problem, they generally receive more frequent service. Depending on location and type of facility, regional ports could accommodate traffic including fishing vessels, tenders, small barges, river barges and larger vessels including ferries, oceangoing barges, supply boats and small tankers.

Administrative Scheme: Regional port facilities are generally managed and operated by a municipality, sometimes in conjunction with the State or a private entity, or they may be entirely private.

Examples

Juneau, Homer, Ketchikan, Bethel, Nenana, Kotzebue, Nome and St. Michaels.

Transshipment Port

Function

A transshipment port handles commodities for direct export, local consumption and redistribution *to more than one region.*

Attributes

Degree of Development: A transshipment port includes navigation access and at least one protected barge and/or container dock as well as a staging area capable of receiving regular shipments and storing them for delivery and transshipment.

Level of Service: A transshipment port has achieved economies of scale, reflected in frequent and scheduled service. Cargo is handled either by container, break bulk or neobulk. Vessels calling may include ocean-going propelled or nonpropelled class vessels requiring up to 45 feet draft at dockside.

Administrative Scheme: Transshipment facilities are sometimes publically owned, but often privately operated.

Examples

Anchorage, Kodiak, Dutch Harbor, Haines, Skagway.

Resource or Special Commodity Facility

Function

A resource or special commodity facility handles commodities for export or receiving in gaseous, liquid, dry bulk or neobulk form. It is essentially *a single-purpose transfer facility.*

Attributes

Degree of Development: A special resource or commodity facility requires navigational access for ocean-going vessels and a protected (often specialized) heavy-duty dock and back-up area designed for the handling and storage of a commodity or commodities. A resource or special commodity facility is usually designed for exclusive use such as the handling of timber, grain, ammonia-urea, liquefied natural gas (LNG), crude oil or refined products. This classification also includes docks and other facilities used specifically for fish and fish products.

Level of Service: Most resource or special commodity facilities are operated on an exclusive use and demand basis. Occasionally, fish handling and exporting facilities will also handle general cargo, particularly for communities with no other port facilities.

Administrative Scheme: This type of facility may operate independently outside a municipal jurisdiction or be associated with the activities of a local, regional, or transshipment port. The facility itself is almost always privately owned and operated.

Examples

Independent Commodity Facilities—Drift River Terminal, Phillips LNG facility.

Special Commodity Facility within a Regional Port—Ketchikan (timber).

Special Commodity Facilities within a Transshipment Port—Unalaska/Dutch Harbor (fish); Skagway (ore).

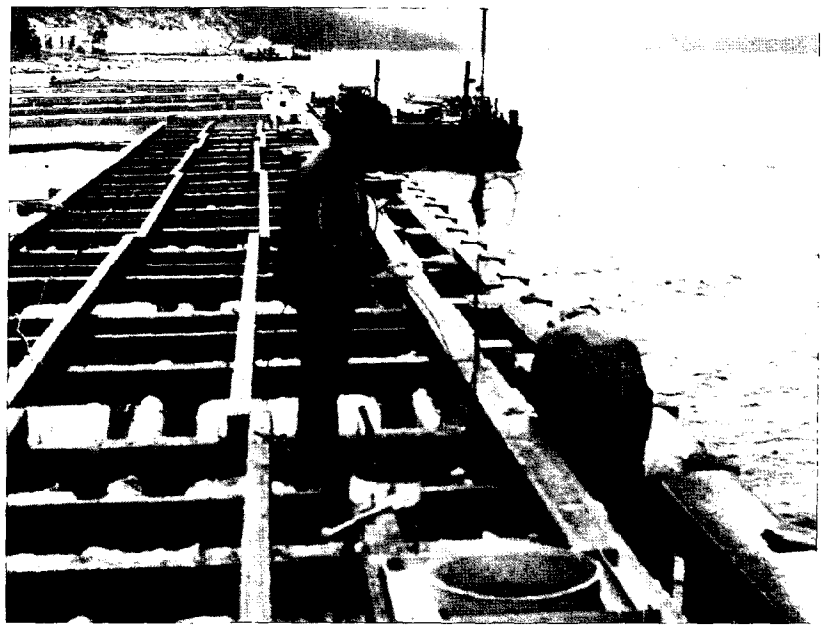
Special Commodity Facility within a Local Port—Cordova (fish).

Policy Options

The port classification system establishes the basis for describing the functional role of a port. By itself, it is merely a taxonomy; however, the system can be used effectively as an *instrument* of State policy.

The port classification system assumes that not all ports need to be developed to the same level. The system articulates the obvious: the facility needs of a local port are different from a transshipment port and, in most cases, different from a resource or special commodities facility. Even within each classification, ports display varying requirements for infrastructure and service. Since the financial resources to develop every port to maximum design standards do not exist, some policy guidance is needed to determine what level of service and infrastructure is justified.

Investment in marine facilities and port improvements will be guided to some extent by goals endorsed by the Policy Committee. These address the support of economic development; adequate access; a fiscally sound and equitable approach to State expenditures; careful



siting of facilities; and a well-managed system of ports, emphasizing local control. However, an additional set of procedural policies is also needed to help set priorities and spell out more clearly the extent of State technical and financial involvement in port development. *The ultimate test of these policies will be their impact on project selection, authorization, and budgeting.*

The policies draw on existing policy and in some instances break new ground. To the best of our knowledge, no state agency has ever grappled with the issue of minimum transportation service to Alaska communities. Nor has the State actively used a classification system as a tool for planning marine infrastructure. The policies which follow received the endorsement of the Policy Committee. Much remains to be done, however, to take the functional classification system and build it into the decision-making process for planning, project identification, design and financing of port infrastructure.

The policies are divided into seven topical areas:

Priorities for Port Development

Minimum Service

Regional Coordination

Local Government Participation

Port Development in the Unorganized Borough

Relationship with Private Industry

State Financial Participation

Priorities for Port Development

To set priorities for port development, the State will evaluate a port in terms of its functional class, which incorporates (a) existing and projected traffic/cargo volumes; (b) existing capacity; and (c) State and municipal transportation plans.

Setting priorities is *first* an analytic task, although clearly it enters the political realm at some point. The objective here is to set in place an analytic process which evaluates need and establishes priorities.

This policy in and of itself is most useful in concert with priorities which could be set each year by the Department of Transportation and Public Facilities. The basis for priorities could be by geographic area; type of project, by need (i.e., minimum service); greatest rate of return or various combinations of the above. We recommend that priorities be tied to the functional classification, for example:

Regional and transshipment ports, because of their importance to the people and industry of Alaska, will receive State assistance to provide the *highest level of transit service justified* by the analysis of need and existing capability.

Local ports will receive State assistance for improvements necessary to maintain access, safety and structural integrity of existing facilities.

The State encourages the development of resource or special commodity facilities by private industry.

The Policy Committee opted to leave the setting of priorities by functional class to the discretion of ADOT/PF and subsequent administrations. The examples above are illustrative of two kinds of priorities. In one instance, priorities are established by functional class then implied within each priority are two levels of development. The "highest level of development justified" suggests a port designed to maximize efficiency of operation, safety and vessel movement. "Necessary development" implies minimum improvements needed to maintain access, safety and existing methods of cargo transfer between vessel and shore.

Minimum Service

The state will provide assistance to suport service or facilities needed to assure transportation service for delivery of goods required to sustain life in a community.

This policy addresses the stated goal of adequate access by air, sea or land for Alaska communities. It is not, however, a policy to sustain a community that could not otherwise economically support itself. In fact, the policy assumes all communities are now served by some mode of transportation.

Minimum service embodies the concept of "necessary development" which calls for maintenance of access, operational safety and existing methods of cargo transfer between vessel and shore. Minimum service *means rudimentary service provided in the most economical manner*. Adoption of this policy implies State endorsement of the status quo, unless service is so "unreliable" as to threaten the life *or* further improvements reduce the cost of transportation and thus reduce the cost of delivered goods. Achievement of greater reliability of service or lower cost of goods to consumers are the principle criteria to activate State assistance under this policy. An economic test to determine least-cost alternatives will be applied and hopefully, flexible solutions to minimum service will surface. The State may choose to assist a community by direct grant, purchase or lease of equipment, direct subsidy to a carrier or

consumer group or whatever more appropriate and economical means is indicated.

A minimum service policy usefully justifies State intervention on the basis of fundamental need. In the past, uneconomic but needed service has had to compete for state dollars with projects that could clearly demonstrate greater feasibility. This policy helps to separate out the pursuit of social goals (access) from economic development goals.

Regional Coordination

The State encourages coordinated port development by cooperative regional planning.

A policy to encourage regions to coordinate port development stems directly from three goals: (1) support of activities which complement or augment marine commerce; (2) efficient and optimum use of land and water resources; and (3) a well-managed statewide system of ports emphasizing local control.

Port activity in Alaska is highly decentralized; however the State is a large contributor, along with the federal government, to marine facilities and harbor improvements. Within the Alaska Department of Transportation and Public Facilities (ADOT/PF), regional offices make important decisions about needs within the regions and project priorities. In some regions, marine activity is expanding and local communities are competing, sometimes destructively, for new development. Under the present regime, regional offices of ADOT/PF must arbitrate between competing communities.

This policy encourages communities to resolve differences among themselves and not make the State the arbiter of local disputes.

Local Government Participation

As a matter of existing policy, the Department of Transportation and Public Facilities has established three requirements of local government as conditions of State involvement in local port projects.

Local government must initiate a request for State assistance to improve transportation services.

Port projects must receive **municipal endorsement** if the project is located within a municipal jurisdiction.

State financing of port projects will be contingent on approval of a **local plan to assume management of operational responsibilities** for the facility.

These policies are consistent with procedural policy followed under the Port Facilities Development Act of 1974. They fell into disuse when project funding by direct legislative appropriation became the norm. We recommend that they be reinstituted as part of the overall policy framework considered here.

A fourth policy reinforces the State's commitment to local control of ports:

The State encourages local governments to assume port powers.

Title 29 of the Alaska Statutes grants municipalities the authority necessary to plan for ports; sponsor, develop and finance projects and operate port facilities.

Port Development in the Unorganized Borough

The discussion of policy options to achieve greater coordination and local control have so far assumed that most ports are under municipal jurisdiction. In the unorganized borough however, approximately 90 communities are unincorporated and do not have authority under Alaska law to develop ports and manage them.

For communities with no local government or for municipalities with small administrations, the State should consider various options for port development. These options should

address three areas of port administration:

Management of ports and enforcements of regulations.

Provision of maritime and transportation infrastructure.

Pursuit of economic development.

To simplify matters, the State may wish to apply the minimal service policy to all unincorporated areas or small local governments.

The State will provide assistance to all unincorporated communities in the unorganized borough to attain minimum levels of service.

Application of the minimum level of service standards assures some State assistance is required, but minimizes actual involvement by the State in the day-to-day affairs of a port. A more "hands-on" approach to port development would call for the Department of Transportation and Public Facilities to act as a *local port agency.*

The Department of Transportation and Public Facilities, if invited by an unincorporated area, will act as the local port agency.

As the local port agency, ADOT/PF would determine minimal service needs for the community to serve as the local sponsor to promote a particular project. ADOT/PF would work closely with the Army Corps of Engineers and the legislature to obtain project authorization and appropriation of funds. Once a project is funded, it would oversee design and construction. After project completion, ADOT/PF would continue as the operator of the facility or turn it over to the community under a management and maintenance agreement.

No new legislation is required for ADOT/PF to perform the functions of a local port agency. Section 44.42.020 of the Alaska Statutes empowers ADOT/PF to plan, build, manage, operate and maintain state transportation facilities. This approach however, does depart from existing policy which emphasizes construction of small boat harbors *as State facilities* and other port facilities *as local facilities* under the Port Facilities Development Act of 1974.

Relationship with Private Industry

The State of Alaska is on record in support of policies favoring economic development, stable employment and sustained growth *in the private sector.* The following are proposed policies which establish some general expectations about State and private roles in the development of marine facilities.

The State encourages development of marine facilities by private industry.

The State expects that private industry will spearhead development of resource or special commodity facilities.

The State may participate with private industry or local government in ports beyond a minimum level of service.

The State will not foster destructive competition by subsidizing a facility which duplicates the function of an existing facility.

These policies are pro-industry policies. They reflect a preference for private sector port development wherever possible with the recognition that some port development has public beneficiaries as well as private.

The policies convey three important ideas: (1) the State does not want to interfere where private industry can do the job; (2) the State will consider an active role in port projects, once there is local or private initiative and (3) the State expects that the main private beneficiaries of a project will share costs in proportion to direct benefits.

State Financial Participation

The State may participate in port development projects which are consistent with established priorities and

which qualify either as a minimum service project *or* as a project which demonstrates market justification, engineering feasibility and economic feasibility.

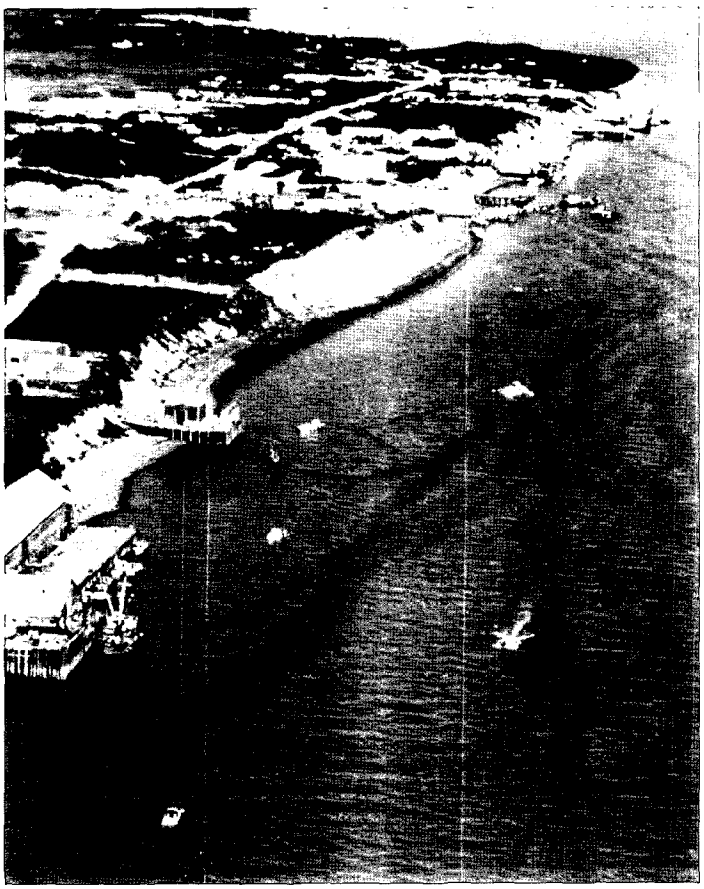
Investment guidelines for Alaska port development embody many of the principles already established. The functional classification system used in conjunction with a set of priorities could effectively target certain projects and postpone others.

Under a regime which adopts the minimum service approach, the State provides assistance to achieve reliable community access. The economic test for minimum service seeks the lowest-cost solution and accepts the benefits of achieving access as sufficient justification for State involvement.

Any project over and above minimum service *must demonstrate positive economic benefit*. The State does not wish to invest in "white elephant" projects. The Port Facilities Development Act of 1974 requires that project feasibility be shown as a prerequisite for funding. We recommend that the State consider contributing front-end funds to study feasibility. This approach is consistent with the endorsed goals to support economic development activities and to pursue a fiscally sound approach to State expenditures for marine facilities. The following policy suggests conditions for front-end feasibility funding.

The State may front-end funds to study feasibility of port projects. The funds will be subject to a match provided either by local government or private industry.

State participation in feasibility determination assures that a market justification exists for the project as does engineering and economic feasibility. It puts the State in a good position to check that assumptions about existing need and induced growth are realistic and consistent with statewide and regional forecasts. And finally, a well executed feasibility study is a good basis to determine whether further State involvement in a project is warranted.



Port User Conference Address

Introduction

The second Port User Conference took place on October 19, 1982. The consultant team summarized the findings and conclusions resulting from the year-long study. Ogden Beeman, a consultant from Portland, Oregon, with expertise in the development of ports, waterways, and marine facilities was a guest speaker at the workshop. He is former Marine Director of the Port of Portland. Since 1976 he has worked on port and waterway projects in the U.S. and internationally—Egypt, the Philippines, China, Mexico and Canada.

Mr. Beeman's address to the group was especially well received. As a "voice of experience," his insights are relevant to Alaska's port planning. The text of his presentation is included below:

Today I am going to briefly discuss some things I have learned in working on port development projects in the U.S. and abroad. Whether or not they are applicable to Alaska is for you to decide.

These things fall into five categories: defining the mission of ports; political control of ports; financing port development; the timeframe of port development; and the role of state government in port development.

In defining the mission of port development, a decision has to be made whether development is primarily for transportation access or resource development. This is a common area of confusion because every system has some of each.

Individual ports tend to start as trans-access ports. As connective inland infrastructure develops, they become sites for resource port facilities. Transportation ports are also part of the transportation infrastructure of the state. As such, they compete with highways and other modes for public funds. Resource ports are also part of the industrial base of the state.

Most states have never figured out the difference between transportation ports and resource ports. They bounce from Departments of Transportation to Economic Development Departments while real control of port development lies in local hands.

With political control of ports at the local level, allow for a level of independent action but not total autonomy from municipal or state governments. Elected/autonomous commissions tend to establish a separate power base and become less, not more, responsive.

There are excellent patterns for independent but politically responsive systems: Oakland, California (municipal); and Port of Portland, Oregon (state appointed).

If there is to be an advisory or separately empowered commission, have five or seven members. Three person commissions tend to be dominated by one person; nine person or larger commissions allow anarchy or nonparticipation. A five to seven member commission requires a working majority with a Plan.

Financing port development requires that you retain financial accountability and cost identification for all port investments. This is not to preclude subsidy, but to retain a measure of it and improve its chance of success.

Don't write off capital investment. Show a depreciation charge, even if it is fictitious. Identify all operations and maintenance costs; don't hide them in the Public Works budget.

In short, use an enterprise budgeting system. Compare real costs with real revenues. When you decide to subsidize, define who is benefitting and why!

Regarding timeframe for port development, most port successes of today were due to yesterday's port leadership. Port projects have a 10 to 20 year lead time. An example of land development/acquisition time is:

Port of Portland, Oregon

	Study	Benefits Realized
Rivergate:	1962	1977
Drydock No. 2	1964	1975
Drydock No. 4	1972	1982

In planning, assume the long term has more opportunities than the short term. Infrastructure creates opportunities; things get better.

If you give away too cheaply: get it back later, or get another look; facility leaseholds represent a way to do this.

State governments have a role in port development. Three things mandate this role:

1) *Regulatory: Federal and State environmental and coastal zone legislation forces this role on states.*

2) *Transportation Planning: Long recognized as a state responsibility; particularly in the absence of federal planning for port development.*

3) *New Federalism: Federal funds for navigation project features (breakwaters and channels, primarily) are being reduced. Cost-sharing/user fee concepts will come.*

These three factors mandate a State role in port planning. In addition, if the State chooses to invest directly in port facilities, the State's role is substantially increased!

Considering the above, even a minimum level of State involvement requires a policy which can be used to evaluate regulatory, transportation and cost sharing proposals for State action. The policy should recognize and differentiate the two types of port development: transportation access and resource or individual port facilities.

A plan or agenda is important. State activities need to be guided toward a goal. This requires a plan or an agenda for action. Without this, individual actions can be counter-productive; too much time will be spent arguing individual cases. In the lower 48, such a plan is mandatory to deal with resource agencies.

If the State is to directly finance or subsidize port development, the State takes on a third role: that of quality control. It includes: carrying out or participating in feasibility studies; giving priorities or guidelines for development; establishing uniform accounting standards for port facilities; and, probably blowing the whistle on ill-conceived projects contrived by local interests or private sector developers.

Today I have shared with you some of my experiences and thoughts on port development. Alaska ports have been slow to develop, partly due to the lack of a policy base for dealing with port development. There is, however, still time to do it right.

Epilogue

Future Port Planning Efforts

Summary

This report, with the Technical Appendix, is the result of almost two years' work by consultant firms and State staff. It has laid the groundwork for making rational port development decisions at the State level, provided a basis for detailed planning at the regional and local levels, and has suggested several policy options which would define an appropriate role for the State in port development. This study has provided a marine element for Alaska's transportation plan.

There is, however, a higher and broader level of policy related to ports which has yet to be formulated in Alaska. A policy for ports should be established within the context of the overall development of the State. Such an Alaskan Port Policy should be designed to achieve a port system with the following characteristics:

The Alaskan port system should be a positive force for achieving statewide, regional and local economic development goals; for maintaining Alaskan lifestyles; for achieving other social goals; and for increasing Alaska's share of international trade.

It should operate efficiently and should be cost effective.

Alaskan ports should provide accessibility and equitable treatment in the movement of people and goods to and from Alaskan communities.

Individual ports should have a high degree of autonomy to manage and operate their facilities and services consistent with the need to ensure the integrity and efficiency of the statewide system of ports.

Alaskan ports must be coordinated with other marine activities and other transportation systems.

Developing such a port system will require the State to establish new policy on other subjects which should determine transportation policies, such as statewide economic development, resource management, and social goals and objectives. Additionally, achieving a statewide port system with the foregoing characteristics will require the following specific accomplishments:

The establishment of local corporate bodies, either municipal or nonprofit, to manage and operate port facilities to be as financially self-sufficient as possible;

Leadership by State government in the planning, programming and administration of a statewide system of ports, as well as in the domestic and international marketing of Alaskan resources and port services; and,

The creation of a significant State level capability to provide technical assistance and training in the financial, management, operations and administration aspects of ports to Alaskan port managers.

After an appropriate period for public review and discussion of this report, work on the Statewide Port Development and Marine Commerce Plan project will continue. In the coming months, State staff will address: a statewide inventory of port facilities, a program for training and assisting local port managers, a continuing port planning process, programs and legislation to achieve port development objectives, an analysis of the continuing needs for port data and information, and other related studies.

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