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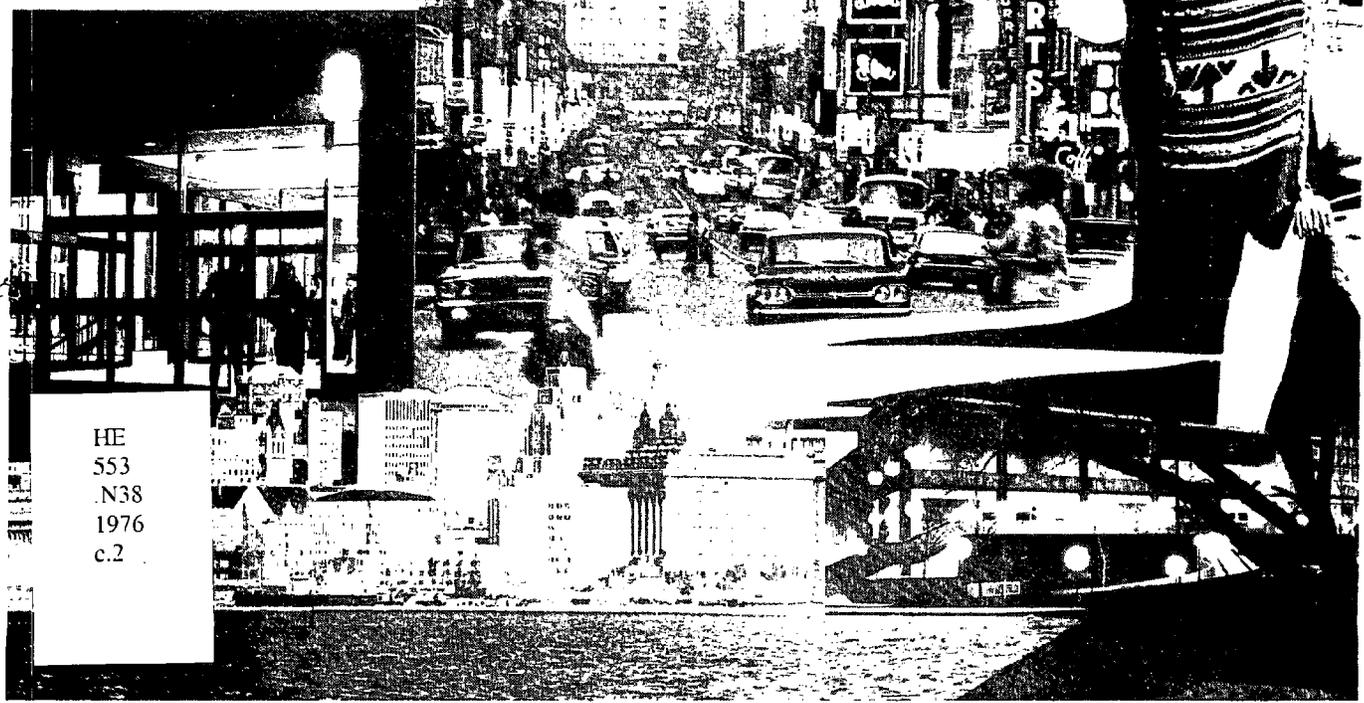
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PRESENTATION TO THE AMERICAN ASSOCIATION OF PORT AUTHORITIES

ON

THE PANEL ON FUTURE PORT REQUIREMENTS

OF THE UNITED STATES

COASTAL ZONE
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By

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INTRODUCTION

IT IS A PLEASURE AND PRIVILEGE TO BE INVITED TO PARTICIPATE IN THIS CONFERENCE. THE AMERICAN ASSOCIATION OF PORT AUTHORITIES IS PROVIDING A SORELY NEEDED CATALYST IN A VERY CRITICAL PERIOD. IN THE WORLD OF SHIPPING, RADICAL CHANGES ARE TAKING PLACE: NEW LOAD-CENTERS ARE BEING ESTABLISHED, NEW CARGO HANDLING METHODS ARE BEING USED, AND NEW TYPES OF VESSELS ARE USING OUR PORTS AND ARE ON THE ORDER BOOKS. MY TALK IS ABOUT THESE DEVELOPMENTS AND THE ISSUES CONFRONTING THE U.S. PORTS IN THE SEVENTIES. DECISIONS TAKEN WITHIN THE NEXT YEARS WILL AFFECT THE FUTURE OF MANY PORTS FOR AT LEAST THE REMAINDER OF THE 20TH CENTURY. I DO NOT DISGUISE THE FACT THAT SOME OF THE THINGS I WILL SAY MAY BE CONTROVERSIAL. IF THIS WERE NOT TRUE, ALL YOU DISTINGUISHED PEOPLE WOULD NOT BE HERE. BUT ANYONE WHO IS A STUDENT OF TRANSPORTATION, AND WE ALL ARE, MAY AS WELL ADMIT AT ONCE THAT IN THIS FIELD TRUTH IS A LITTLE ELUSIVE. "THERE IS NO MOUNT SINAI TO WHICH ONE MAY GO TO SECURE ONCE AND FOR ALL THE TABLETS UPON WHICH THE FINAL WORDS ARE WRITTEN."

The Panel on Future Port Requirements of the United States was formed by the Maritime Transportation Research Board to assess the implications of technological change and public policies on port function such as planning, development, and operations; to determine the impact of these functions on the respective ports, the localities in which they are located and which they serve; and on the interaction between port bodies and the Federal government. The purpose of this panel was to identify issues and problems of national concern that result from port activities in order to suggest procedures for coping with these problems and for analyzing future port needs of the nation.

The Panel has evaluated future challenges to U.S. ports in the context of these factors: a) decision-making on Federal, regional, state and local levels; b) measures of national, regional, and local requirements;

c) institutional constraints; and d) shoreline utilization. The problems come under the broad headings of finance, revenue, regulation, legislation, manpower, and environment. The Panel has not established a formula by which the number, type, and location of ports in the United States can be decided. Rather, guidelines are presented for determining port investments, taking into consideration the role of the Federal government in terms of support for port programs and activities; and a research agenda to provide a mechanism for solving problems arising from changing port roles is suggested.

The Panel has conducted its study in three parts:

... Major issues arising from current trends have been identified, and policy questions raised by these trends have been specified.

... The present performance of commercial functions by the port as well as institutional influences on ports have been identified and examined in the following context:

- The effects of major internal variables such as labor, commodity form, etc. and external forces such as trade patterns, new ship technology, the impact of competitive modes of transportation, etc. at work in the port and its hinterland.
- The Federal interest and role in ports.
- The local, state, and national needs related to port development and operations.

... Future challenges resulting from the interaction of the forces influencing port development have been addressed and alternative policy approaches are presented.

BACKGROUND TO THE PANEL'S FORMATION

The predecessor to the Port Requirements Panel was the Port and Cargo Systems Committee, organized by the Maritime Transportation Research Board, in January, 1969. This committee was formed to "identify the economic, political, technological and social forces that were influencing port development in the United States from international, national, regional and local aspects and to develop procedures to solve port problems caused by the interaction of these forces." The major objective of the Committee was to investigate means of effecting a reduction of port operating costs in the United States, which in 1969 were approximately 50 per cent of the cost of moving an international shipment from origin to destination.

During the latter part of the 1960's, containerization was becoming a major force in the water-borne carriage of general cargo. The technical and procedural needs of new technology for handling cargo appeared to be accommodated. However, the broad questions dealing with the impact of containerization or the results of technological change, so-called institutional problems, were unclear. Many questions were raised by the maritime industry and Federal agencies regarding the implications of containerization, such as these:

... Apparent overbuilding of port facilities for handling containers.

- ... Possible obsolescence of ports that were developed mainly for breakbulk cargo.
- ... Increasing costs for maintaining and dredging channels for ports, especially for those that might not be economically viable because of competition from "load centers."
- ... The role of the Federal government in port planning and development.
- ... Social problems resulting from the concentration and/or displacement of container traffic, on longshoremen and on the economic life of port cities and regions.

These concerns, in turn, led to another level of questions directly concerned with the long-held position that the ports were competitive and operated in the spirit of free enterprise. They took the following form:

- ... How many ports are needed in the United States?
- ... Where should these ports be located?
- ... What kinds of ports are needed--specialized or multi-purpose?
- ... What is the division of responsibility between the Federal government and the port industry?
- ... What is the relationship of port development to Federal maritime policy in general?

FEDERAL PORT STUDIES

The issues raised by the preceding questions created concern in the port industry and led to a controversy between it, represented by the American Association of Port Authorities (AAPA), and several Federal agencies. The catalyst to this argument was the possible role of the Federal government in port planning.

In March, 1968, the Council on Marine Resources and Engineering Development (The Marine Science Council) issued its second report, which announced "a multi-agency research effort...to study requirements of a national system of ports with particular attention to regional aspects."¹ The result of this effort was the "Conceptual Plan for Harbor and Port Development Studies" under the lead of the U.S. Army Corps of Engineers. The plan stated the following objectives:

- a. Determinatin of the optimum number, type and spacing of deep-draft harbors which will be required for prospective foreign and domestic water-borne commerce and
- b. development of practical economic solutions to problems imposed by rapidly changing vessel and cargo handling technology including identification and evaluation of technically feasible alternatives to conventional harbor and channel modifications, with minimum disruption of the natural environment.²

In July, 1968, the Corps of Engineers issued a report, "Port Development and Redevelopment -- A Problem and an Opportunity." This report concluded:

Comprehensive surveys are needed to determine the optimum number and spacing of ports and the harbor and specialized terminal facilities required to accommodate changing vessel and cargo handling technology. The surveys cannot be confined to harbor or port development only. They must involve

detailed analyses of trends in industrial growth and location, commodity movements and fleet composition; identification of implications, by regions, of projected economic activity, traffic movement and vessel size; analysis of port cargo handling and associated facilities; including all foreseeable technology required to accommodate prospective traffic; plus evaluation and recommendations for financial participation by states, local political entities, and commercial and industrial interests.³

In January, 1969, the third report of the National Council on Marine Resources and Engineering Development, "Marine Science Affairs, A Year of Broadened Participation," reiterated the need for an inter-agency port study which would assist in meeting the goals of the Marine Sciences Act by:

Preparing for development and redevelopment of our ports and harbors which are too often characterized by obsolescent facilities and waterfront slums. It will be necessary to incorporate new technology into a national port system that will serve ocean shipping of the future, very likely to be characterized by much deeper draft bulk carriers, containerization, and express and feeder services. A conceptual framework is being developed to provide the basis for a major study of future port requirements to be conducted in cooperation with all interested parties.⁴

Finally, also in January, 1969, the Commission on Marine Science, Engineering and Resources issued its report, "Our Nation and the Sea."

The Commission recommended that:

A major inter-agency study of the Nation's ports and waterway system be initiated under the leadership of the Department of Transportation with the assistance of other interested agencies.⁵

This proposal was based on the report of the Commission's Panel on the Management and Development of the Coastal Zone, which made the following recommendations to the parent commission:

1. A National Port Survey should be conducted by the Department of Transportation in cooperation with the Department of Army, Commerce, and Housing and Urban Development to define the Nation's requirements in terms of major ports, offshore terminals, and other facilities for maritime commerce. On the basis of this National Port Survey, a rational scheme for port and harbor development can be established against which the real needs of this country can be measured.
2. The National Port Survey should examine closely the Federal-local cost sharing relationships to determine whether the local government should be a stronger participant in the development of its port facilities.⁶

POSITION OF THE PORT INDUSTRY, 1968-1973

The port industry was considered by many of its representatives to be competitive. Individual ports were considered capable of determining their capability for meeting this commercial and military shipping requirements. With the exception of some support for economically distressed port cities provided by the Economic Development Administration (EDA), ports were generally considered able to obtain their own financing for operation and development.

To thwart the suggestion of Federal control and direction of United States ports, the AAPA at its November, 1968, convention in Curacao resolved to:

Oppose any effort of the Federal government to control or tend to control port and terminal planning and development at the nation's ports (including their land transportation facilities) or to allocate or mandate port activity as to type, classification, scope or location; and that the American Association of Port Authorities strongly supports the right of the public ports of the United States to self-development in a climate of free competition; and that the American Association of Port Authorities insists on its right to and the need for its full participation in any Federal examination or study of the ports of this nation.

The AAPA fought hard and was successful in halting any type of study implying Federal comprehensive port planning or a national port scheme for the United States.

The AAPA, in its condemnation of Federal planning studies, reaffirmed its long-standing policy of non-Federal involvement in port financing, except for channel dredging and maintenance. This policy, however, is now in the process of change, as exemplified by two policy declarations expounded at the 1973 meeting of the organization in San Diego, California. These declarations called for: "a) federal funding assistance in connection with federal programs or policies that impose additional financial burdens on ports, and b) federal financial assistance for port capital improvement projects and a study of suitable source and equitable distribution of said funds." The policy change was caused by the increasingly greater competition for public funds by local and state agencies, the high cost for capital improvement, and stiffened environmental, ecological, and safety requirements that increase costs but do not lead to additional revenues, thereby creating financial difficulties for many ports in the United States.*

PROBLEMS AFFECTING PORTS

Ports in the United States are confronted with the problem of adapting to the world shipping revolution caused by technological advances in maritime transportation of cargo. Containerization and the appearance

* These resolutions were re-affirmed at the AAPA's 1974 meeting in San Juan, Puerto Rico. Pertinent to the discussion of Federal assistance is a bill (H.R. 16809) introduced by Congressman Peter Kyros of Maine, with the following preamble:

To amend the Merchant Marine Act, 1920, to establish a grant program to enable public ports to comply with certain Federal standards, to direct the Secretary of Commerce to undertake a comprehensive study of the present and future needs of public ports in the United States, and for other purposes.

of superships, notably oil tankers, have created a demand for services and facilities that has placed a burden on the ports. Containerships affect the general cargo trade and exert a demand for new and different marine terminals and cargo handling facilities. Superships primarily affect the bulk cargo trades, both dry and liquid, and influence port channel depths and the development of offshore berthing facilities.

Acres of high-value waterfront land are required to accommodate container operations or the larger-scale handling of bulk commodities. The containership, a striking concept less than fifteen years ago, has steadily increased in size and speed and is becoming the dominant factor in the United States' general cargo trades. Petroleum carriers of 500,000 deadweight tons, dry bulk cargo ships now approaching 200,000 deadweight tons, and containerships and lighter and barge-carrying ships, capable of carrying more than 30,000 tons of cargo, are evidence of the changes taking place.

The giant size of this new generation of ships provides inherent cost advantage, through economies of scale; however, large size also curtails flexibility on world trade routes. These large ships pose problems for ports, as their draft begins to exceed existing channel depths. This is true, particularly of the very large crude carriers (VLCC's), which usually require more than 73 feet of water under the keel; far more than any port in the U.S. other than those in Puget Sound, can provide.

A study by Arthur D. Little Company for the Institute of Water Resources, U.S. Army Corps of Engineers, has made some preliminary findings, suggesting at least eight (8) alternatives for the United States in dealing with the supership:

- ... Do nothing; continue status quo.
- ... Plan to lighten the supercarrier from deep water to inshore points.
- ... Develop a deepwater trans-shipment terminal outside waters of the United States.
- ... Attempt design of a shallow draft supercarrier.
- ... Deepen and expand existing port industrial complexes.
- ... Build new coastal United States trans-shipment terminals.
- ... Build new offshore United States trans-shipment terminals.
- ... Develop new United States deepwater port industrial complexes.⁷

We can assume that this nation cannot deepen and widen the channels, approaches, and anchorages at all major ports since it would be both physically impracticable and financially prohibitive. Environmental considerations at large population centers also work against the deep draft tanker, new refining centers, ore smelters, and petroleum-chemical complexes. The ports of this nation obviously face painful choices in terms of the environment, enormous capital expenditures, and national defense considerations.

Another problem related to technical advance in the carriage and handling of general cargo and to the competitiveness among ports in the United States is the duplication of expensive facilities. Unlike in many foreign countries, competition has always been a factor in the U.S. port industry. Competition has led to the introduction of new, modern, and efficient cargo handling facilities and operational procedures and has given impetus to port management to adapt to and advance technological progress. Coincident with this progressive approach, however, are large

investments in land and money. Such duplication of facilities could result in a waste of resources by different ports as they attempt to attract business.

The problem of competition is compounded because containerships and large bulk carriers are so expensive that economical operation precludes calls at numerous ports. In order to make an investment a profitable one, it is essential to minimize both time in port and numbers of port calls. The trend, therefore, is to concentrate cargo and calls at a limited number of ports on a given coast. The problem facing the port is whether to supply, at heavy cost, services that are economical and efficient in order to attract more traffic, or to wait for the demand to develop. The decision has usually been to make the necessary investments in anticipation of the traffic. Potential for inefficient allocation of resources is great, but the prevailing view has been that the climate of competition is basic to the free enterprise system and leads to a strong port system in the United States.

In addition to the question of proper resource allocation at individual ports, a matter of growing interest and concern is the provision and maintenance of adequate channels to handle the traffic demands. The Federal government, through its power to withhold or extend authorization and funding for channel projects, is capable of directly influencing port development and port usage. Because Federal funds are limited, there exists an inherent tendency to promote a selective policy towards ports that appear to be economically successful, thereby foreclosing on the marginal ports. Implicit in this discussion is the two-fold question:

Should a public policy for the port industry be established by the Federal government that will determine the number, type, and location of ports in the United States, or should the principle of competition and independence from Federal involvement and control be the guiding factor?

In addition to the delicate questions surrounding the allocation of resources, competition and Federal control, the ports at larger population centers are becoming increasingly involved in the area of social concerns. These concerns are associated with water pollution, recreational use of waterfront lands, threats to wildlife and fisheries, redevelopment of waterside areas, rapid transit programs, freeway systems, urban renewal, and others. Also, political and jurisdictional problems may arise as to local, state or national authority. If regional ports are resorted to, new forms of multi-state or intra-state authorities may be required.

New regional ports or new deep-draft offshore terminals, in turn, raise important jurisdictional, economic, and financial questions. If the ideal locations are remote and undeveloped, should new highway systems, new utility systems, and planned industrial complexes to serve each new development be designed? Will the transport economies be nullified by tremendous costs for land acquisition, environmental controls, highways and new utility systems? For years, community planning has been directed toward decentralization of industry and population with concomitant reductions in congestion. Perhaps offshore terminal development will provide the opportunity to test these ideas at several locations.

THE PORT'S ROLE IN THE ECONOMY

The ports of the United States play a vital role in the nation's economic structure and are becoming ever increasingly a national resource. They are agencies whose activities combine to form a link in the domestic and international cargo transportation and distribution system that is served by ships, railroads, trucks, and planes. The important part that ports have in the scheme of the American economy is highlighted by a consideration of the heavy volume of the nation's foreign commerce that they handle.

The total of water-borne exports and imports involved in United States foreign trade was approximately 600 million tons in 1973. This figure represented an increase of almost 173 million tons from 1969, or a 28 per cent gain. Much of this gain can be attributed to the huge tonnages inherent in the carriage of liquid and dry bulk commodities, but it must be recognized that high value general cargo commodities increased by 25 per cent from 1969 to 1973. The value of the commercial cargo carried in the country's oceanborne trade is also highly significant. From 1969 to 1973, the total value of exports and imports doubled, from \$41.9 billion to \$82.3 billion. The value of general cargo was \$49.2 billion for 1973. The total value of all United States exports and imports for 1973 was approximately \$140 billion.* United States ports handle approximately 58 per cent of this total. If the current trends for 1974 continue, United States foreign trade will approach a value of \$190.6 billion; the value of foreign commerce handled by ports will be almost \$106 billion.

* U.S. Department of Commerce, Bureau of the Census, Summary of U.S. Export and Import Merchandise Trade, July, 1974.

In addition to being a vital element in the nation's foreign economic policy, the ports are significant contributors to the economies of the cities and regions in which they are located. In national terms, according to a recent study by the Federal Maritime Administration, in 1972, the port industry handled over 1.6 billion tons of cargo, generated over \$30 billion in direct dollar income, provided jobs for over 1.2 million people, and contributed over \$1.1 billion to the balance of payments account.⁸

To handle the huge tonnages involved in the country's water-borne commerce, the port industry has invested over \$3.2 billion in facilities since 1966. The Maritime Administration, on the basis of a recent survey, estimates that United States port capital expenditures for the five-year period from 1973 to 1977 will be approximately \$1.5 billion.⁹ These large investments in port facilities underline the importance that states and localities place on port development. It is questionable whether the money will be found, given growing competition for the use of public funds and increasing alternative uses for waterfront property. Additionally, stringent environmental constraints could increase costs by delaying the execution of port plans.¹⁰

QUESTIONS FOR PANEL DISCUSSION

To place in focus the topic of port planning, port development, and the role of the Federal government in the process, the original Port and Cargo System Committee proposed the organization of the Panel on Future Port Requirements. There was clearly need for a study to investigate the status of ports in the United States in order to determine whether or not the numerous questions being raised were indeed valid.

During its deliberations, the Panel on Future Port Requirements has assessed the problems of the port industry and has addressed them in terms of policy issues, as follows:

1. Should there be concern for the scale and character of future ports in the United States nationally or regionally, or both? Since the panel was created in response to belief that there should be such concern, a parallel issue is this: who should be concerned, and who would best be equipped to make the investigations which would throw light on the future requirements?
2. Since the apparent national policy is for decentralized operation of port and terminal facilities, but provision and maintenance of waterways and channels is by the national government, it may be inappropriate to continue the present policy of having an agency of the national government--the U.S. Army Corps of Engineers--which constructs and maintains the channels, also conducts the cost-benefit studies of individual projects. Should these tasks be separated?
3. In general, or in specific instances, should the present policy of "no policy"; with regard to financing, constructing and operating ports be continued? In other words, is it, or is it not, desirable for free competition among ports, with survival of the fittest? Would shippers and the general public benefit to the greatest extent by a rational policy, with some federal control or direction, of attempting to balance the supply and demand of port facilities, or would it be better to continue the present competitive relations, even at much greater cost, thereby securing the benefits of use of competitive ports each attempting to secure greater traffic volumes by better service?
4. Since the rate structures and practices determine to a great extent the ports to be used, or, indeed, whether a movement will take place at all; should the inland components of intermodal movements be regulated in the same manner as domestic movements, and by the same agencies, or should some alternative policy be initiated? Or should there be no regulation of international intermodal movements?

5. What, if any, policies would be desirable for adoption by the Federal government and/or the states, with regard to offshore terminals on the continental shelves? Should there be international concern for this problem? Should such terminals be developed by private enterprise, or is there sufficient public interest to justify public ownership and/or operation? What public policies, if any, should be adopted to mitigate the effects of such terminals on existing shore-based facilities?
6. In developing Federal policy with regard to the environmental conditions associated with port operation, where, in general, is the balance or "trade-off" between the economic and other benefits of ports on the one hand and the environmental constraints on the other?
7. In estimating future port requirements, one important set of variables is the short-run-effects of decreased, or at least changed, labor requirements at the ports. To what extent, and how, should public agencies develop policies to cushion the effects of the prospective and indeed, existing, labor surplus? Should this problem be subsumed in the general national policies of dealing with technological unemployment, or should the problem be separately identified, and handled?

Discussion of these policy issues has resulted in a series of recommendations that the Panel anticipates will help port agencies, governmental bodies at all levels from local to national, and the general public to find an accord in their attempts to solve problems and future challenges to the port system in the United States. The intent of the study is to supply facts and a conceptual framework within which those parties concerned with the port industry can determine their respective roles in the planning, developing, and financing of port facilities. We have firm recommendations and conclusions a summary of which follows in the next two sections of this paper.

SUMMARY AND CONCLUSIONS (Chapter VI)

The future port requirements of the United States are subject to an almost infinite variety of conditions and forces, many of which are non-quantifiable and unpredictable. Maritime traffic is affected not only by changes in the technology of land and water transportation, but also by economic, political, and social conditions within the United States and throughout the world. In addition, national security considerations will have an impact on the traffic through a port, particularly in time of emergency.

The uncertainty of the forces affecting demand for port services presents a dilemma for decision-makers dealing with port development, a dilemma similar to that faced by planners in general. Long-term plans to cope with the population explosion, urban renewal, congestion in the central city, mass transit, suburban expansion and industrial sprawl, and other social problems, must all be evaluated, ranked in priority order and reconciled to a finite supply of funds, with no assurance that the conditions the plan is designed to alleviate will exist when the plan is fulfilled. Ports increasingly demand substantial long-term capital investments in channel improvements, land acquisition, landward transportation facilities, terminals and mechanical equipment. Plans must be developed to fulfill these needs and must be reconciled with future demand for port services. Since many of the tangible as well as institutional elements of port operations may become rapidly obsolete and may require replacement, modification, or abandonment within a relatively short time, port planners, too, face the possibility of committing large investments for schemes that do not materialize. Compound the problem is the unavailability of a sound and comprehensive data base for making informed judgments about port development needs.

Port Planning

A basic conclusion of the Panel on Future Port Requirements of the United States is that centralization of planning for United States ports is neither desirable or practicable. It is not feasible to determine in a centralized approach, either for the short-run or for the long-term, the optimum amount or character of port development which will be required for the Nation as a whole, for individual coastal ranges, or for local areas.

Unlike ports in other nations, those in the United States are characterized both by a fragmentation of responsibility and by seemingly overlapping responsibilities. Harbor improvements, for example, including the dredging of channels, is a Federal responsibility. The provision and operation of port terminals and associated infrastructure, however, are generally non-Federal responsibilities. They involve State, regional, county, and local agencies as well as private industries and carriers. Many ports consist of a multiplicity of operating and controlling organizations, with varying degrees of coordination. Very commonly, a lack of coordination, particularly with respect to planning, exists.

Managers of individual ports, as part of their planning process must, among other things, consider their port's competitive relationships with each other, their port's relationship to competitive hinterlands, and the impacts of port actions upon competitive ports. Alternative methods of satisfying the demands of prospective and present traffic and other aspects of the economic geography of associated regions must be taken into account, possibly leading to decisions precluding additional development. In addition, the effect of changes on the labor force and the economic base of the city or region in which the port is located must be considered.

For purposes of this report, "planning" is defined as a process which includes three stages, portions of which may be concurrent. The first stage is research and analysis, including generation, collection, collation, and interpretation of data. The second stage, plan preparation, is concerned with physical, organizational, and financial matters, and the interrelationships among specific plans. The third stage is plan effectuation, which includes public and community relations, intergovernmental and interagency coordination, public participation, and continuous monitoring of feedback as programs are implemented.

The Panel concluded that coordination among the ports in the first of these three stages, research and analysis, can and should be greatly improved, with the Federal government taking a major role in this process. The Federal role in the other two stages, in part related to legislation, should be subordinate to the non-Federal decision-making process.

While the Panel believes that port planning at the national level is neither practicable nor desirable, there are many instances in which regional port planning and development is essential. A prototype exists in the form of the Port Authority of New York and New Jersey, the first of several interstate port organizations formed to plan and develop a regional port. Even in the New York region, however, complete coordination of port planning and development has not been achieved, nor does it appear possible in the foreseeable future. Ports near each other can achieve greater effectiveness by some degree of coordination when, for example, they share a common metropolitan location or co-exist on a single harbor or waterway.

Redundancy

Another concern of the Panel was the issue of possibly redundant port facilities. Since modern ports are increasingly capital-intensive, the

commitment of large amounts of funds and the devotion of extensive waterfront and backup land areas to port facilities and operations involve important questions of public policy for the allocation of scarce capital and land resources. Waterfront land is especially scarce in many port areas, where other types of metropolitan land uses compete for these strategic waterfront locations. Also, demands for other public investments, either in physical infrastructure or for services, such as education and welfare, may compete with ports for funding.

The Panel has concluded that it cannot quantitatively determine the existence of redundancy. Redundancy implies excess capacity, and it is impossible to provide an adequate measure for the capacity of a port. There are many reasons for this measurement problem: one is that the nature of cargo ships, and productivity of facilities will vary greatly through time. Cargoes are not uniform. Peaking -- the concentration of demand during limited periods of time -- occurs in port operations as in all other aspects of transportation. It is economically and, in some instances, physically impossible to provide for the maximum peaks. At the same time, it is undesirable that undue waiting time, leading to costly delays to vessels and cargo, occur because of failure to provide for periodic peaks. Such delays, if common, could result in traffic being diverted to competing ports or, in some instances, not moving at all.

Excess capacity, in one sense, does not exist even though a port or terminal may have one hundred per cent utilization of its capacity for only short periods of time, if ever. Consideration of peak activities, other than for very infrequent occasions, is an important element of port planning. Capacity must be supplied in order to provide adequate service to the shipping public as well as to anticipate possible national emergencies, when even the largest ports may be crowded.

Another important reason, in the judgment of the Panel, for providing capacity in excess of normal demand is to create competition among the various ports and port services to the advantage of the shipping public. That is, the public can be reasonably assured not only of continued availability of port services in the event of accidents or other closures or reductions but also of competitive rates and services. Thus, the shipper receives a series of options which would not be available unless inter-port competition continued.

Investment in Port Securities

Public ports provide facilities through the use of exclusive land leases or by building for a specific tenant. Capital for such facilities is usually raised through issuance of revenue or general obligation bonds of the public port authority. As a rule, public general cargo facilities either incur financial deficits or do no better than break even. Although several do manage to produce a modest financial surplus, most public ports require and receive some form of public financial support.

For some ports, revenue bond financing is becoming more difficult, because port revenues are not sufficient to amortize bonds. In others, where general obligation bonds are the traditional financing vehicle, competition for local tax dollars with other public projects is intense. Because local governments must direct their resources to fields of great social and political pressure, such as urban redevelopment, transit, recreation, and environmental protection, port development often receives a lower priority.

Repayment of the principal and interest on general obligation bonds is done either from general revenues or through assessment of a special tax or levy on taxpayers. Some states require the port agency to return part of its surplus revenues to the state. These funds are used either to pay off the principal or debt service, or they are placed into a special construction

fund to help finance future port improvements.

From the port's point of view, there are several disadvantages to financing by general obligation bonds. Although the port is the direct beneficiary, the controlling government body assumes indebtedness. Such financial obligation on the part of the port, therefore, makes it subject to greater control and regulation by the parent organization. Many ports do not favor such controls because political controls are not always conducive to effective management and operation. A general observation in recent years is that new capital-intensive facilities can be fully self-supporting in only a few ports.

Since the public, which typically must approve general obligation bonds, might place a higher priority on parks, hospitals, or schools, the port's fate can depend on the vagaries of an electorate indifferent to the economic impact of the port on the community. Similarly, as local citizens have become very conscious of the need for a cleaner environment, the port has often been denied expansion opportunities on the grounds that increased traffic, liquid bulk in particular, would have a deleterious effect on the environment.

Finally, another disadvantage of general obligation bonds is the ceiling placed on such indebtedness by the character of the parent organization or the bond market investors. Generally, this ceiling is predicated on the state's or city's assets, taxing authority, overlapping debt, and business potential. Once this ceiling is reached, further funding is denied, regardless of how financially attractive the proposed improvements may be.

Aside from these disadvantages, general obligation bonds are considered attractive because of their relative safety for the investor. Since these bonds are supported by the state, county, city or port authority, they

carry a lower rate of interest and are not subject to Federal income taxes. Such financing also permits the port to use its general revenues for other expenditures which would not be eligible under the provisions of general obligation bonds.

Ports have traditionally resisted any Federal financial assistance, except for Federal funding of channel and harbor improvements. This reluctance stemmed partly from a lack of cohesive national policy regarding the role and status of ports, and partly due to a fear by the ports themselves that Federal aid might result in Federal control and would restrict the competitive nature of the port industry. In short, the port industry believed that acceptance of Federal financial support might be the beginning of nationalization of the industry.

Environment and Safety Regulations

Superimposed upon all needs and prospective capital outlays for current and future port development in the United States are recently enacted Federal, state, and local laws and regulations embracing waterfront workers' safety, environmental preservation, and cargo security. These new regulations require port agencies to expend substantial sums for compliance; such regulations are often burdensome, and lead to unnecessary and costly delays because each of a multitude of different Federal, state, and local agencies requires different certificates, licenses, permits, and approvals for port, navigation facility, and water resources development projects.

The Federal government has established mandatory occupational and health standards that apply to any activity affecting interstate commerce. The states can enact similar standards, which must be at least as high as the Federal ones, subject to approval of the Secretary of Labor. With respect to

port safety, meeting such standards requires significant expenditures, and the port industry has unsuccessfully sought to obtain relaxation of some of the more stringent regulations. The industry believes that it has responded readily where use of extra precautions or safety measures has been warranted, but feels that existing state and city regulations, as well as industry standards, are sufficient to ensure the safety and health of port workers.

Regulations which require environmental impact statements for any new construction, expansion, or dredging are of particular concern to ports. These statements are time consuming and costly. They may take several years to prepare and must clear several Federal agencies. Some ports are not equipped with personnel or resources to undertake a comprehensive environmental impact statement. They must, therefore, rely upon consultants or state water and air quality control boards to perform the task. Compounding their problems are often confusing, ambiguous, and conflicting Federal and state guidelines as well as overlapping jurisdictions of government agencies. A detrimental effect of such delays is the possibility of a shift in the economic need if the facility is not built within a reasonable time. A shipping line seeking to locate at a port will not wait two or three years for the environmental impact statement to be completed preceding actual construction of the facility. Instead, it might elect to bypass that port in favor of one with existing facilities. No doubt, the economic loss to the port being bypassed would be significant.

Traffic Diversion

A complaint commonly heard in the United States is that Canadian ports are able to divert substantial volumes of United States cargo. This is particularly true of the North Atlantic and Great Lakes ports, where cargo that would normally move through such ports is moving through Halifax, Montreal, and St. Johns. Canadian ports are supported directly by the national

government through the National Harbors Board. Thus, individual United States ports must compete with government-supported Canadian ports; for example, the Canadian National Railway has been offering full container service between such American cities as Detroit and Chicago directly to the Port of Halifax. The foreign flag steamship lines that serve Halifax have been absorbing the segment of the rail rate between Montreal and Halifax, a distance of over 300 miles. Thus, the shipper in the Midwest pays only the rail costs from origin to Montreal, while his cargo moves all the way to seaboard.

United States shippers and consignees route overseas traffic through Canadian ports in non-strike years to take advantage of lower door-to-door rates. Economic and regulatory differences between the two countries work to the advantage of the Canadian carriers and ports. They not only have lower costs, but also have the freedom to use them in adjusting rates and services to the requirements of individual shippers. Additionally, ocean carriers serving Canadian Atlantic ports can absorb inland transportation costs, can receive lower tariffs on volume shipments, can issue through bills of lading and have lower cargo-handling costs. Regarding the latter advantage of Canadian ports, for instance, collective bargaining provisions permit an eight-man longshore gang size at Halifax; at New York, a gang is substantially larger, on the order of 18 men. An additional advantage that the Canadian railways have over the United States railroads is the option to enter into "agreed charges" with shippers. This type of agreement is illegal in the United States.

Rate-making philosophies of the United States and Canadian governments differ fundamentally. Unlike the United States railroads, which are subject to ICC regulations, Canadian railways enjoy great flexibility working

in conjunction with ocean carriers and are thus able to offer rates far more attractive than those offered in the United States. Their pricing flexibility is reflected in the favorable volume rates that they are able to offer in comparison to United States railroads. Rate flexibility has also allowed Canadian railways to capture container movements. Furthermore, there is no Canadian regulatory body which exercises jurisdiction over ocean freight rates from Canadian ports, such as the Federal Maritime Commission which exercises authority over ocean rates through United States ports. Thus, free from the constraints of regulatory bodies such as the ICC and FMC, the Canadian transport system is more geared to true intermodal service at considerably less cost. This freedom from constraints results in a stronger position for Canadian ports, enabling them to divert cargo from United States ports.

Load Center Concept

Containerization and the demands that container operations place on vessels, terminals and ports have led to the concept of the load center. The concept is that of a small number of ports -- one or two in each port region-- serving as the major terminal centers for all container cargo of the port region. Large, fast container vessels would call only at the load centers. Cargo for other ports in the region (range) would move by smaller feeder container vessels or by rail or truck. Inland points would be served by trains, trucks, or by barge -- depending upon the distance, the volume of cargo, and the available internal transportation.

Load centers have occurred and will continue to occur nationally as a result of economies of scale in port and terminal operations and in vessel utilization. Container vessels are expensive and undue port time reduces their

annual throughput potential. Container terminals are expensive and the utilization of berths, cranes and other equipment should be as high as possible, commensurate with the avoidance of congestion.

Some ports have used the regulatory process in an attempt to maintain direct call service by established operators. The fight to preserve markets has resulted in some underutilization of capital investment because the port must have adequate facilities if it petitions for service maintenance and, perhaps, an excessive number of calls by container vessels.

Operators who can only attract a small market share in major load centers may be attracted to secondary ports. In this way, such ports can capture cargo from the load centers without competing directly. Such tactics are only effective on major trade routes with adequate cargo generation at many ports, such as the North Atlantic - Europe/UK routes.

Mini-Bridge

Although "land bridge" movements between the Far East and Europe across the United States have been infrequent (they have become quite common across Canada), numerous "mini-bridge" operations exist. For instance, goods for Europe are now hauled overland from hinterlands normally tributary to Gulf Coast ports to the port of Charleston, South Carolina, rather than to nearer ports that formerly handled the cargo. As many as ten days are saved by this diversion. Gulf Coast ports have sought to have such service halted, arguing that its facilities are the rightful recipients of the traffic. Several of the ports in the North Atlantic range and the ILA have also sought to prevent diversion of traffic to West Coast ports. In the opinion of the Panel if the free flow of goods is to take place most efficiently, then traffic should be allowed to flow through whichever port offers the minimum cost to the shipper. The regulatory process should not interfere with such movements.

Offshore Terminals

Offshore terminals are an alternative to the provision of new extremely deep channels to port facilities. Several Federally-funded studies have been completed which thoroughly discuss the alternatives, types, and potential locations of offshore terminals for use by deep-draft tankers. Recent Federal legislation (Deepwater Ports Act of 1974) provides for Federal licensing of the location, construction, and operation of the deep-water port facilities. The current emphasis is on the adequate development of a sufficient number of deep-draft offshore oil transfer facilities to permit achieving economies of scale in the long-distance transport of oil by use of very large crude carriers (VLCC's).

In most cases, the projected offshore deep-water terminal facilities should not adversely affect existing ports. Rather, there is likely to be increased activity in existing ports in support of the operation of any offshore deep-water facility. Some port officials, however, believe that onshore ports can be developed to service the supertankers, and they view the projected development of offshore ports as not in their best interest. Each potential offshore port location must be viewed individually with respect to effects upon existing ports. Alternative sites, including expansion of existing port capacity, should be examined from the viewpoint of both economic and environmental impact.

Labor

The changing technology of cargo handling, exemplified by unitization (in particular containerization), has led to a change from the labor-intensive method of handling breakbulk cargo to the capital-intensive systems utilizing containers, barges and lighters, and roll on-roll off (RoRo) ships. The impact on longshore labor has been great and has resulted

in dislocation of waterfront labor in many ports. Advances in cargo handling techniques affect overall demand and require shifts from unskilled to skilled types of labor. The need then is one of re-training and accommodating a shrinking employment base. The problem of unemployment, too, is very real. The number of workers required to handle containerships is small, and the productivity is much higher than with conventional ships. The number of workers in the ancillary freight terminals, loading and unloading containers, will probably rise, but not in sufficient amounts to compensate for the labor displaced from the holds of ships. Therefore, it will be necessary to institute training for the upgrading of workers who will need new skills and to develop a plan for maintaining a stable labor supply.

Port Development Funding

The difficulties which the port industry is increasingly encountering portend a potentially serious financial crisis. Prices of all elements of port planning, development, operation, and maintenance have increased drastically in recent years. The financial problem is compounded because some communities attach lower priorities to port development than to some other public service. This is especially true of those communities in which ports are supported with legislative appropriations, and where they must compete for available funds with education, hospitals, housing, recreation, and highway projects among others. The result is that ports are placed very low on the public priority list, and port development financing is difficult to obtain. Other pressing needs of the urban centers have gained priority over local port development programs; consequently, port agencies are facing intense competition for local funding of expanded facilities.

If the ports are to continue to play the vital economic role they have played to this time, they will probably require some additional sources of funding. Containerization and other unitized forms of cargo-handling have changed a labor-intensive industry to one of capital intensiveness. This change has required significantly greater capital investment in new terminal equipment and supporting services to increase port productivity and lower unit costs. As the benefits of port activity are both regional and national in scope, it could be argued that the responsibility for port development may be regional or national, at least in part, as well as local. Some segments of the port industry believe that because the Nation as a whole enjoys some of the benefits of port development, it is logical that it share in the cost of port development. However, there are also important elements of the port industry that do not accept the premise of Federal cost-sharing except for certain specific port expenditures.

The port industry, as a matter of record, has accepted financial assistance from the Federal government. The biggest program which has been used by the ports is the Economic Development Administration (EDA) program of public works and technical assistance grants and loans for communities with high unemployment rates or depressed economic conditions. Even though the EDA program is not aimed specifically at the port industry, over \$100 million of financial assistance for construction and planning purposes has been obtained since 1965. Thus, a precedent does exist for federal financing of United States ports.

The present system of local financing of port development has well served the port industry, and the commerce of the United States. In some cases needs have not been met, primarily because response has been

blocked by environmentally inspired court actions or delayed because of an intricate maze of Federal and state and Federal permitting requirements. However, at present, many ports are faced with economic constraints which will not allow the construction of needed and planned facilities. With the national policy of revenue sharing in effect, it appears that the ports, which are a positive economic factor in the growth of the United States, should not be excluded from financial aid programs. But, given the present method of relatively free competition among ports, it is axiomatic that any Federal financial assistance must be given on a uniform and non-discriminatory basis.

Goals of Port Policy

Questions relating to appropriate size, location and type of facilities, and the environmental impact of these facilities, are critical when expansion of older ports and construction of new ports is considered. Responses to these questions must be made within the framework of general goals that determine the reason for developing a port or new facilities. Some will view a port as serving primarily to benefit the trade and commerce of a particular city or region, while others will view a port as a means for insuring a coordinated and flexible transportation system for the country as a whole. Thus, individual goals will have different implications for the future development of a given port or port area.

There are several possible goals that will help to determine port policy. First, there is a need for an economically efficient transportation system in the United States. Port facilities are the important link between water and inland transport and must be of sufficient capacity to handle traffic flows carried by different modes. Decisions on the number and type of port facilities are connected to the location, size, operating characteristics, cost of the entire transportation system, and levels of service of

alternate modes.

Second, another general goal is provision of sufficient port capacity to satisfy national security considerations. In times of emergency, the capability to move large amounts of military equipment, and sometimes personnel, is essential. Also, it is important that, unless such emergencies are of an extremely severe and extended nature, regular commodity flows should not be disrupted significantly.

A third broad goal of future U.S. port policy is the economic development of depressed regions. This is especially true if a new port is being proposed. A port can act like a magnet, attracting industrial development for the surrounding area. Industry will tend to locate close to a port if the savings in transportation charges to and from the port are greater than any increased costs in the movement of goods to hinterland markets.

Finally, a fourth goal of U.S. port policy is the maintenance of environmental quality. Port expansion and/or construction could result in explicit and implicit environmental costs that exceed all transportation cost savings and other benefits derived from such expansion. Economic theory then would dictate the quantification of environmental costs and benefits along with all other costs and benefits if a port project's impact is to be evaluated properly.

The goals of U.S. port policy must be established by all interested parties. There will of necessity be trade-offs, the extent of which must be determined by the appropriate decision-making body. These decisions must be made in the context of a national interest that is increasingly centered upon societal and environmental needs. The Federal government, with a high

degree of cooperation between local governments, regional planning groups, and private interests, is involved in planning urban renewal and conservation programs that deal with rehabilitation and conversion of existing waterfront lands and facilities. In many cases, there will be a direct effect on future port development programs sponsored by public and private interests in the port industry. Therefore, it is most important that transportation plans and goals be coordinated and clearly understood by all parties involved in the decision-making process of port development.

Conclusions

The Panel has arrived at the following conclusions with respect to United States Ports:

1. Ports are in the national interest of the United States.
(Port's Role in the Economy, page 1-7).
2. Ports should remain competitive and free to develop within a local, state, or regional frame of reference without any Federal comprehensive plan. (Institutional Aspects of Port Development, page 3-2).
3. The benefits of the port industry redound to the welfare of the nation; since the country as a whole enjoys the benefit of port development, it is only logical that the Federal government participate in some of the expenses of port development. (Port Economics, page 3-3).
4. The basic objective of United States transportation policy should be reliance upon unsubsidized, privately owned facilities, operating under the incentive of private profit and the checks of competition, with more reliance on

the market place to determine price. To attain this goal at the lowest economic and social cost to the Nation, public policy should provide a consistent and comprehensive framework for equal competitive opportunity. (Regulation and Rates, page 5-5).

5. Public participation in financing port development, maintenance, and operation may be justified in proportion to public benefits, both economic and social, since ports are public utilities whose benefits are not always or necessarily reflected in a profit and loss accounting by the port agency. (Port Economics, page 3-7).
6. Existing national transportation regulations fail to reflect adequately the cost of producing transport services and lead to inefficient use of transport facilities, misallocation of traffic, and unsound financial conditions in the transportation industry. (Basis for Ratemaking, page 5-10).
7. Changes in rate structures and transportation technology have led to the growth of load-centers, thus creating "de facto" regional ports by enlarging hinterlands and bringing distant ports into competition with each other. (Containerization, page 2-13).
8. The proper role of the Federal government in port planning should be confined to guidance and coordination. (Ownership and Control, page 3-4).

9. Port planning should be undertaken primarily at the local or regional level and should be consistent with the Water Resources Council's "Principles and Standards for Planning of Water and Related Land Resources." (Environmental and Economic Considerations, page 5-23).
10. Substantial expansion and improvement of data collection, assembly, collation and publication of flow data are required. (Chapter IV).
11. Data collection, processing and dissemination would be greatly facilitated if the current data gathering and publication activities were consolidated into a single Federal agency. (Chapter IV).
12. Quantitative analyses of the effects of alternative transportation policies must be part of the local and national transportation decision-making process. (Chapter IV).
13. New research methods and better cost and trade flow data are needed to aid the development of a coordinated, inter-modal transportation policy. (Chapter IV).
14. Port efficiency cannot be judged by the availability of some apparently under-utilized port facilities since some over-capacity is desirable for competitive flexibility and normally recurring peak loads. (Port Capacity, page 5-3).
15. Environmental issues do and will continue to play major roles in shaping port development. (Evaluation of Ecological Impact, page 5-20).
16. The market system cannot be the only decision-making mecha-

nism in coastal zone management because it is difficult if not impossible to specify the acceptable economic costs for the conservation and preservation of desirable coastal environmental conditions and human values. (Economic Considerations, page 3-31).

17. The market system, operating in a local decision-making political setting, often fails to allocate resources properly and is therefore by itself an ineffective mechanism for balancing economic and environmental considerations in port development. (Economic Considerations, page 3-29).
18. Statewide coastal programs may emerge from the Coastal Zone Management Act which will have significant effects upon port development, thus requiring that port agencies be active in developing such programs. (Legal Consideration and the Environment, page 3-21).
19. Delays in the issuance of required permits and the awarding and completion of contracts for dredging and other port projects increase development costs and reduce the possibility of economic advantage that might accrue from the investment. (Port Financing, page 5-13).
20. The Federal government should continue to install and operate traffic systems, similar to the U.S. Coast Guard's Vessel Traffic System, to monitor and control ship movements in congested ports and channels with high accident

potential. This will help to reduce ship casualties, improve navigation in coastal waters, and enhance the protection of the environment. (Current Federal Assistance Program, page 5-16).

21. Port planning must be undertaken with full awareness that the port is not operating in a vacuum, but rather with the understanding of the interplay between the port and the institutional, environmental and economic structures of the area in which it is located. (Environmental and Economic Considerations, page 5-21).

RECOMMENDATIONS (Chapter VII)

The Panel on Future Port Requirements of the United States concentrated on the identification and classification of the immediate problems and future needs of ports in the United States and the development of a mechanism for providing port agencies with the necessary tools for solving these problems and meeting these needs. The Panel believes that decision makers at local levels can and must bear the responsibility to respond to changing demands for port services caused by advances in technology and changes in traffic volume, and that their actions will "de facto" change the port structure of the country. The Panel further believes that the nation's port development would be adversely affected if any single agency or group (including the Panel itself) were to establish the port requirements of the United States in specific terms of number, location and type.

The Panel has examined issues of national concern within a local, state, regional and national framework with special consideration of the Federal interest and role in port development and operations. Technical, social economic and policy trends currently influencing the ports of the nation have been identified. The effects of these trends on the port and the impact of the port on 1) land use, 2) the economic base of cities and regions, 3) the labor force, 4) the social and physical aspects of cities and metropolitan areas, and 5) the environment of the coastal area form the basis for the Panel's conclusions, recommendations, and approaches to current and future challenges.

The Panel has agreed that its suggestions and recommendations

are concerned with a time-period of no more than one generation, or roughly between 1975 and the year 2000. Several of the recommendations deal with the near-term and can be instituted almost immediately, while others involve gradual changes in policy and implementation. Because new port development will necessitate the commitment of continuing financial investment for extensive periods and will set in motion a chain of consequences affecting port regions, coastal zones, and hinterlands, the effects of exogenous variables over long periods cannot be confidently projected. Consequently, the chosen time-frame represents a compromise between the need to look beyond the immediate and the difficulty (if not the impossibility) of making valid predictions for longer periods.

The following recommendations pertain to the major topics of port planning, development and operations, rate regulation, environmental concerns, labor, and port finance. The recommendations represent the unanimous opinion of the voting members of the Panel.

Port Financing

To Provide for financing of port development:

The Federal government should participate in the financing of a portion of the total capital costs for port development by establishing a Federal Aid to Ports Program.

The Panel has concluded that the funds necessary to meet the requirements for port development can no longer be obtained solely from traditional sources. Since the entire nation derives benefits from port authority, a specific allocation of Federal funds for capital expenditures for port development should be authorized and appropriated.

The Federal government should participate in port financing on a partnership principle, whereby basic decisions are made by local port agencies and are reviewed for conformity to accepted standards of feasibility, safety, and environmental protection by the Federal funding agency. Any system of Federal participation in port financing should recognize that the strength of the port industry is derived from local autonomy and freedom to operate competitively, and therefore local decision-making should be fostered. It is further proposed that a single Federal agency be assigned responsibility for the funding program.

The Federal Aid to Ports Program would authorize the use of Federal funds as direct grants for port development. The Act would provide for a formula whereby the total funds appropriated (after deduction of an amount for national data collection and research) would be allocated to all coastal states for use in subsequent grants in connection with port development projects. Coastal states would include all those so defined in previous acts relating to coastal zone management. The allocation formula would be based on various parameters which reflect port needs and their contributions to the national economy.

Allocation of funds would provide money on a state by state basis. It is proposed that grants be made only after port agencies prepare and submit a justification report for any project on which Federal participation is requested. The justification report would include the considerations established in the "Principles and Standards for Planning for Water and Related Land Resources" developed by the Water Resources Council, as well as other requirements for environmental impact analyses, safety standards under OSHA,

and similar Federal requirements. When the locally-prepared justification report is approved by appropriate State and local agencies and found to demonstrate the economic, social, and environmental desirability of a project, the Agency would obligate Federal funds to the project on a matching basis. Actual payment of the Federal funds would, as in other Federal programs, occur after the expenditures by the local port agency.

Eligible projects would be limited to capital investments for construction or improvement of marine terminals, channels, anchorages, breakwaters, and other harbor works. Also included are such ancillary improvements as sewage treatment plants, security facilities, and recreational facilities. Privately-owned industrial terminals, such as oil and ore docks, would be excluded from the program. Detailed studies are required to determine the appropriate Federal share, which might range from nothing to 100%, for various types of projects. The Federal government should continue to bear 100% of the costs for the maintenance and operation of channels, harbor works, and aids to navigation as traditionally performed by the Coast Guard and Corps of Engineers. Following precedents in other Federal aid programs, such as for highways and airports, the Federal shares of participation are presented as possibilities for further study as follows:

Channels, anchorages, and breakwaters	90%
Federally-mandated costs	70%
Marine terminals	50%
Public amenities	10%

In view of the need for more than \$375 million per year for new port development and the widespread benefits that accrue throughout the

nation from development, it is recommended that \$200-250 million per year be appropriated for implementation of the proposed Federal Aid to Ports Program.* This amount should be reviewed frequently so that it fully reflects the changing needs of the port industry, the effect of inflation on capital expenditures for port development, and the increasing benefits to the United States of the nation's deep-draft port facilities.

Port Planning and Development

To enable the ports of the United States to develop efficiently:

1. Centralized port planning for the United States port system should be avoided because it is neither feasible nor desirable.
2. The Federal role should be expanded beyond the present emphasis on dredging and routine functions dealing with public health, immigration, and other control activities, to include financial assistance for port planning, development, operation, and maintenance.
3. The number of Federal agencies concerned with ports should be reduced and, wherever possible, the Federal authority and responsibility for port affairs should be consolidated.

* This money does not include the traditional expenditures of \$150 million for aids to navigation, removal of obstruction and maintenance dredging.

4. The Federal government should discontinue channel maintenance when the cost of maintenance exceeds transportation benefits derived from the channel.
5. The Federal¹ government should take the leading role in port research and in the collecting, analyses, and dissemination of planning data, such as inland and overseas origin and destination data by commodities and ports, determination of hinterlands by commodities, port ranges, and individual ports, modes of inland transportation, and the effects of technological change upon ports.
6. The Corps of Engineers should conduct regional as well as specific cost-benefit analyses to be certain that benefits are not overestimated when evaluating port improvement projects.
7. The mechanisms for securing authorization from the many government agencies for development within the coastal zone, including environmental impact statements, should be simplified to expedite port development.

Decision making authority for the planning and implementation of port construction, growth, and direction presently rests with local or state governing authorities. The impetus for growth of ports directed by such authorities results from their positive and substantial economic impact and

ability to attract port-related industry. The presence of a port has been a sufficiently attractive economic factor to warrant direct and indirect local financial support. Any consideration of shifting this authority from local or state government to a national level would meet with resistance from port authorities, labor, and carriers alike. Master port planning for the entire United States appears to be politically unrealistic and economically unacceptable in a free, competitive society functioning under the constraints of the marketplace.

The current policy of the Federal government providing free channels and the local port authorities acting as landlords for private terminal operators has worked very well from a service standpoint. Adequate facilities for the rapid handling of all kinds of waterborne commerce have been built. The port system has not been a minimum cost system for either the Federal government or local port authorities because inter-port competition has fostered a certain amount of apparently redundant capacity to provide a normal peaks and options to shippers and carriers. Some argue that central government planning or guidance would prevent redundant facilities and forestall the waste of financial resources in such poor investments. This argument disregards the economic utility of some over-capacity and the acceptance of those who finance port development of the philosophy of "risk-taking." Additionally, because of the diverse and dynamic nature of port activities, it is not really possible to measure with confidence any redundancy nor, for the same reason, is it possible to measure future port requirements quantitatively.

Port planners require substantial amounts of accurate and timely data to determine market trends and costs and to form sound fiscal and policy guidance. The Federal government also needs information to perform cost-benefit analyses to evaluate harbor improvement projects under consideration by the Corps of Engineers. In the past, Federal planners had considered each harbor as a separate planning entity with little if any, evaluation of the competitive forces existing among harbors or ports in a given region. Although analyses usually were made of the comparative costs of supplying a harbor's trade territory by utilizing an adjacent harbor as the receiving or shipping point, evaluations were not made of the possible expansion or contraction of trade territories that could result from improvement of one harbor vis-a-vis another. Evaluation of projects on an independent basis resulted in double counting of benefits. This led, in some cases, to a bias in favor of over-investment in harbor improvements either because the region over which maximization of benefits occurred was incorrectly defined, or the impact of projects under construction for different harbors was ignored. Thus, the benefits anticipated as the result of expenditures on Port X could have been eroded in part or completely by expenditures on ports Y and Z. If this erosion had been considered, a different and perhaps smaller total level of expenditures may have been justified.

Regulation and Rates

To achieve true intermodalism and to gain efficiency
in traffic flow through ports.

1. Interstate and foreign commerce of the United States should be subjected to an absolute minimum of Federal regulation.

2. A single Federal regulatory agency should be established to regulate interstate commerce and the foreign commerce of the United States.
3. The principal basis for ratemaking that will insure economic efficiency in the movement of goods should be cost of service.

Changes in rate structures can affect ports even more than those imposed by the need to accommodate to containerization. The concept of inter-modalism and the load-center have greatly increased the areas of some port hinterlands, thereby increasing the distances between competing ports. In many cases a regional port becomes less vulnerable to cargo diversions due to changes in rate structures, because the high costs of container facilities have tended to "fix" regional shipping to a set pattern utilizing load-center ports. However, a regional port becomes more vulnerable to cargo diversion when viewing the nation's market as a whole, because its hinterland is so much larger that a rate-making policy intended for a local situation may affect a load-center port a thousand miles away, or on another coast.

Containerized and breakbulk general cargo movements to and from port hinterlands depends on rail, highway, and inland waterway modes of transportation. As international trade accelerates and cargo handling becomes more mechanized, intermodalism becomes a major factor in goods movement.

The division of Federal regulatory jurisdiction at the seaport no longer makes sense because of increased efficiency in the physical handling of cargo. Regulatory changes, either inland or offshore, affect overall cargo flow. When Federal regulatory agencies were originally created the domestic

transportation system was viewed as nationwide. This concept should now be applied by the U.S. government in its perception of international trade in order to obtain maximum benefits from a free interchange of goods. Just as the nation can no longer afford isolationism as a political or economic alternative, neither can it allow international trade to remain under several separate regulatory jurisdictions developed during earlier phases of the nation's transportation history.

Environmental Concerns

To provide for environmental quality and land use planning:

1. Problems of coastal zone management and land use affecting port location, design, operation, and maintenance should be resolved at local and regional levels, subject to Federal guidelines such as the Water Resources Council's Principles and Standards for Planning of Water Related Land Resources and international agreements.
2. Comprehensive local, metropolitan, state, and regional land-use planning should be a continuing process to assure allocation of sufficient land of appropriate character for government development and for port-oriented industries, as well as for other use.
3. A procedure should be developed to determine the value of the social benefits accruing from

the conservation and preservation of desirable environmental conditions, so that decisions between conservation and development may be made more equitably.

Coastal zone management programs are an attempt to develop effective mechanisms for making social policy and solving social problems in the complex setting of the coastal zone. A socio-political process is needed to balance environmental and economic considerations related to port development. The problem is an economic one, but the nature of the resources involved are inherently difficult, if not impossible, to include in the present market system. Environmental resources of the coastal zone must be brought into the economic system, whereby the real costs of both resource alteration and improved environmental quality can be determined and incurred by those seeking specific objectives.

One alternative to current procedure, is a pricing mechanism that might prove effective for pollution control. If benefits and costs could be measured and if those users who receive the benefits and pay the costs can be identified, then government could levy effluent charges or sell a fixed number of licenses to pollute. Under a system of levies, graduated to cause an increasing marginal cost of pollution, funds could be obtained to maintain a given level of environmental quality. Under a system of a fixed number of marketable licenses to pollute, those individuals and groups who feel strongly about environmental protection could purchase the licenses, through auction, and prevent any lowering of the environmental quality of a given area. In

either case, such plans would incorporate the costs of using scarce environmental resources into the costs of port development. One difficulty with this approach is the fixing of effluent charges. Whose values count in the setting of charges? In addition, certain benefits and costs will always remain unquantifiable.

Port Labor

To meet the changing needs of port labor:

1. Issues of labor-management relations should be resolved through the normal processes of collective bargaining, with minimal governmental participation.
2. Policies to accommodate the surplus labor force and to discourage an excessive number of persons from entering the port labor force should be developed to ameliorate the effects of drastic reductions in requirements for waterfront labor, continuing even in the face of traffic increases at some ports. Labor should be assured a fair share of the economic benefits of increased productivity.

When advances in technology reduce the labor demand of a port, there is a move to reduce the number of workers. This reduction in numbers can be accomplished by reduced hiring rates, the institution of early retirement programs, and by offering bonuses to those who leave voluntarily. When the increase in productivity caused by new technology has created a supply of labor beyond that which can be lessened through these methods, the

problem becomes more serious. Either the extra workers must be carried until attrition reduces the labor force sufficiently, or there must be direct layoffs. Any worker who may be laid off due to the inability of the port to sustain high volumes of traffic needs retraining for more promising fields or advice about regions of the country in which his particular skills remain in demand. If a situation involves such large numbers of workers that the economy of the surrounding area becomes depressed, then specific programs by government agencies may be required to attract new industry and to develop what latent resources, including human resources, the area may possess.

To a large extent, the problems of labor surplus caused by new technology in the shipping industry are similar to those caused by technical progress in other industries. A primary goal is retraining surplus workers. This retraining may be part of a general public manpower usage program. In any retraining program an effort should be made to build on the specific skills of the port worker, to adapt them for work in other areas. Only as a last resort should the skills be abandoned for total retraining.

FOOTNOTES

1. Marine Science Affairs - A Year of Plans and Progress. The second report of the President to the Congress on Marine Resources and Engineering Development, February, 1968, United States Government Printing Office, Washington, D.C., p. 87.
2. Conceptual Plan for Harbor and Port Development Studies, Interdepartmental Ad Hoc Task Force for the Committee on Multiple Use of the Coastal Zone, National Council for Marine Resources and Engineering Development, November, 1968.
3. This report was included in the Report of the Panel on Management and Development of the Coastal Zone, Commission on Marine Science, Engineering and Resources, United States Government Printing Office, Washington, D.C., February, 1969, pp. III-61 to III-73.
4. Marine Science Affairs - A Year of Broadened Participation. The third report of the President to the Congress on Marine Resources and Engineering Development, January, 1969, United States Government Printing Office, Washington, D.C., p. 9.
5. Our Nation and the Sea. Report of the Commission on Marine Science, Engineering and Resources, January, 1969, United States Government Printing Office, Washington, D.C., p. 66.
6. Report of the Panel on Management and Development of the Coastal Zone, Commission on Marine Science, Engineering and Resources, February, 1969, United States Government Printing Office, Washington, D.C., p. III-4.
7. Arthur D. Little, Inc., Foreign Deepwater Port Developments, Cambridge, Massachusetts, 1971.
8. A Survey of Public Port Financing. U.S. Department of Commerce, Maritime Administration, June, 1974, United States Government Printing Office.
9. North American Port Development Expenditure Survey, U.S. Department of Commerce, Maritime Administration, March, 1974, United States Government Printing Office.

10. Schenker, Eric, and Brockel, Harry C., eds. Port Planning and Development as Related to U.S. Ports and the U.S. Coastal Environment. Cambridge: Cornell Maritime Press, 1974.
11. National Academy of Sciences, Port Development in the United States, Report prepared by the Panel on Future Port Requirements of the United States of the Maritime Transportation Research Board, Washington, D.C., 1975. Chapter VI.
12. Ibid., Chapter VII.

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