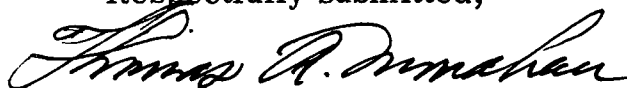


In transmitting this report, I take pleasure in expressing appreciation to the municipal officials and to the representatives of industry and commerce who have generously contributed their time and knowledge. Special thanks are due to Mr. Franklin S. Eggleston and Mr. Arthur H. Ferguson of the Providence Chamber of Commerce, who undertook the laborious task of compiling rail and truck freight rates between the ports of New England and inland destinations. Technical advice was also contributed by James J. Fisher, Providence Port Agent; Henry Ise, Chief, Division of Harbors and Rivers, Rhode Island Department of Public Works; Honorable James J. Reilly, Councilman from East Providence; Honorable John L. Lewis, Representative from East Providence; Frank H. Malley, Planning Director, Providence City Plan Commission, Charles F. McElroy, Director, Providence Public Works Department; John T. Reaves, Chairman, Providence Maritime Trades Council, Inc.; and Henry A. Whitcomb, Chief, Operations Division, New England Division, Corps of Engineers. While acknowledging the debt of the port study to these advisors, I should make clear that their contribution was principally technical in nature and that the conclusions and recommendations of the report do not necessarily reflect the opinions of the individuals named.

In certain instances where the Council and its consultants have been unable to endorse important recommendations received, reasons have been set forth in full.

Respectfully submitted,



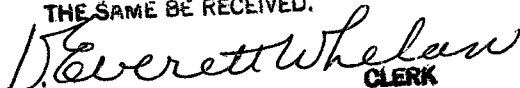
Thomas A. Monahan
Executive Director

IN CITY COUNCIL

AUG 4 - 1955

READ:

WHEREUPON IT IS ORDERED THAT
THE SAME BE RECEIVED.


CLERK

C O N T E N T S

PATTERNS OF COMMERCE

Total Tonnage Trends-----	3
Trends in Detail-----	3
General Ports-----	4
Petroleum Ports-----	4
Providence and Transportation-----	5
Patterns of Commerce - Significance -----	5
Petroleum	
Origins and Distribution -----	5
Trends in Receipts-----	6
Benefits of the Petroleum Trade-----	6
Physical Facilities-----	7
Petroleum Trade - Significance -----	8
Coal	
Origins and Distribution -----	8
Trends in Receipts-----	8
Benefits of the Coal Trade -----	9
Physical Facilities-----	9
Coal Trade - Significance-----	10
Lumber	
Origins and Distribution -----	10
Trends -----	10
Lumber Trade - Significance-----	11
Miscellaneous Commodities	
Pig Iron and Scrap Iron-----	12
Chemicals -----	12
Granite Building Stone-----	13
Frozen Fish-----	13
Miscellaneous General Cargo-----	14
Miscellaneous Commodities - Significance-----	14

COMPETITION AMONG THE PORTS OF SOUTHERN NEW ENGLAND

Facilities at the Ports of Southern New England-----	17
Petroleum and Petroleum Facilities -----	17
Channel Depths-----	18
General Cargo and General Cargo Terminals -----	18
Other Terminal Facilities -----	19
Freight Rates: Areas of Freight Rate Advantage -----	19
Effect of Shipping and Other Services on the Competitive Position of the Port of Providence-----	21
Conclusion-----	24

POTENTIAL COMMERCE OF PUBLICLY OPERATED TERMINALS VIA CONVENTIONAL SHIPPING SERVICE

Population of Inland Trade Area-----	26
Industry of the Inland Trade Area-----	27
Estimating the Ports Commerce Potential-----	28
Potential Receipts	
Wool -----	30
Canned Fruits and Vegetables -----	31
Fish and Fish Products-----	31
Raw Cotton-----	32
Iron and Steel Products-----	32
Sugar-----	33
Coffee -----	33
Miscellaneous -----	33
Lumber-----	34
Potential Shipments	
Machinery and Tools -----	35
Iron and Steel Products-----	35
Wire-----	36
Cotton Waste -----	36
Miscellaneous -----	36
Distribution of Potential Commerce by Area of Origin or Destination -----	36
Prospective Commerce Movements Via Conventional Shipping Service-----	38
Future Prospective General Cargo Commerce -----	40

NEW TYPES OF DOMESTIC GENERAL CARGO SHIPPING SERVICES

Container Service -----	43
Train-Ship Service-----	43
Trailer-Ship Service-----	45
The McLean Sea-Land Service	
Frequency and Range of Service -----	47
Inland Area to be Served-----	47
Speed of Service -----	48
Rates-----	48
Facilities Required at Providence -----	49
Prospective Commerce Movements by Trailer-Ship -----	50
Significance of New Trailer-Ship Service to Port of Providence -----	53

PORT SERVICES

Pilots -----	55
Tugs -----	56
Wharfage and Dockage -----	56
Stevedores and Longshoremen-----	57
Permanent Cranes for the Municipal Wharf-----	58
Fixed Heavy-Lift Crane -----	59
Gantry Wharf Cranes-----	59
Repairs -----	60
Lack of Drydock Facilities-----	61
Bunkering-----	62
Chandlery-----	62
Ships' Brokers -----	62
Banks -----	63
Federal Government Services-----	63
Fireboat for Port of Providence-----	64
Conclusions-----	65

PHYSICAL SETTING AND TERMINAL FACILITIES

Physical Setting -----	66
Ships Channels -----	67
Private Industrial Terminals-----	67
Public Terminal Facilities at the Port -----	68
State Pier #1-----	68
Municipal Wharf-----	70
Adequacy of Private Terminal Facilities -----	71
Private Enterprise Operations at the Municipal Wharf -----	72
Present Adequacy of Public Terminals-----	72
Area for Future Expansion of Public Terminal Facilities-----	74
Hurricanes and Port Development -----	76

LAND TRANSPORT

Railroad Connections-----	78
Additional Rail Service-----	79
Truck Transportation-----	82
Access to the Port - Providence-----	83
Access to the Port - East Providence-----	84

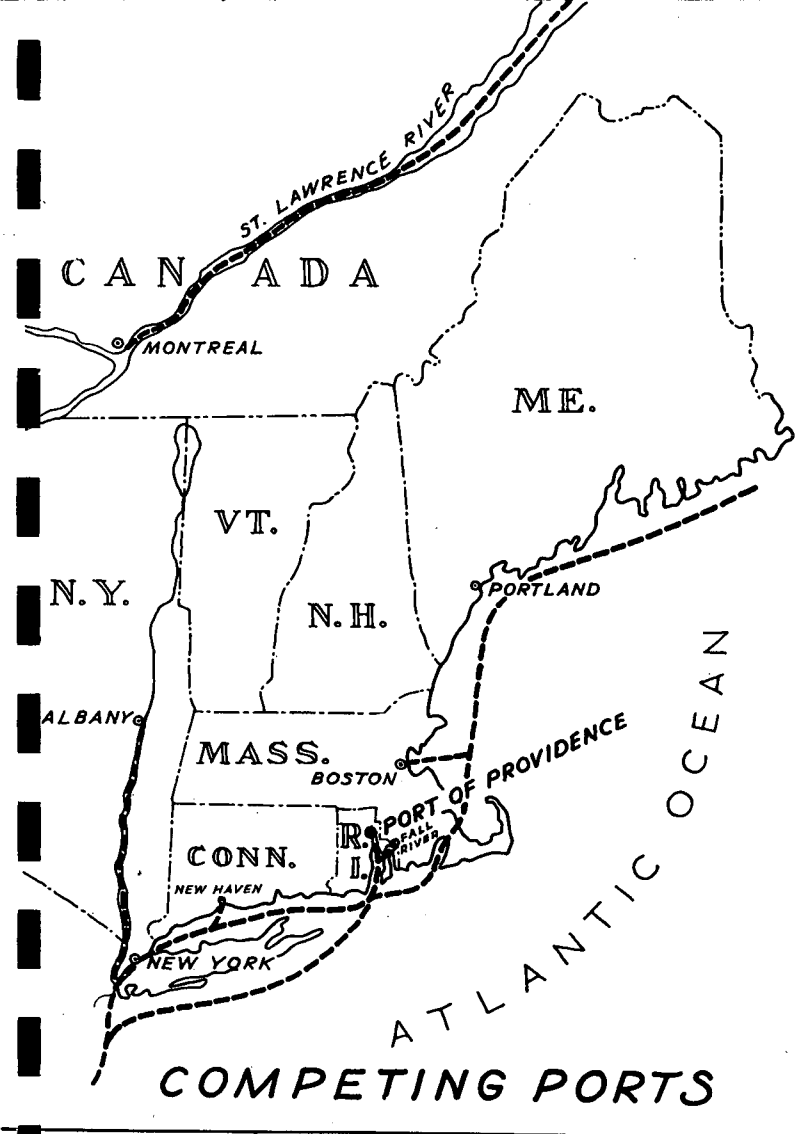
LAND USE PLANNING

Land Use Patterns and Zoning-----	86
Detailed Land Use - Providence Waterfront-----	87
Detailed Land Use - East Providence-----	89
Flexible and Fixed Land Uses-----	90
Watercourse Legislation and Regulations-----	91
Development Opportunities-----	92
Conclusion-----	94

PORT ADMINISTRATION AND PROMOTION

Administration of Municipal Port Facility-----	96
Financial Status of Municipal Wharf Operations-----	98
The Municipal Wharf	
Gross Revenues and Operating Expenses-----	99
Bond Financing of Terminal Improvements-----	99
Net Revenues After Debt Service Costs-----	103
Summary of Conclusions on Financial Status-----	103
Port Authority-----	103
Reorganization of Municipal Port Administration-----	105
Port-Linked Industry-----	105
Freight Solicitation-----	107

PORT OF PROVIDENCE
AN ECONOMIC SURVEY



PAWTUCKET
SEEKONK RIVER
PORT OF PROVIDENCE
FOX PT.
EAST PROVIDENCE
FIELDS PT.

FALL RIVER
MASS.
R.I.
POPASQUASH PT.
DREDGED CHANNEL
TUNNEL CHANNEL

NARRAGANSETT BAY
NATURAL

NEWPORT

CONN.
R.I.
WESTERLY

ATLANTIC OCEAN

WATER APPROACHES
TO THE
PORT OF PROVIDENCE



PATTERNS OF COMMERCE

The Port of Providence is located at the head of Narragansett Bay, 27 miles north from the Atlantic Ocean. Bounded by the City of Providence and the Town of East Providence, the Port extends from Pomham Rocks Light on the south to Red Bridge and Crawford Street Bridge on the north. Beyond Red Bridge and outside the boundaries of the Port of Providence (as defined by the U. S. Army Engineers) lies the Seekonk River, extending to the head of navigation in Pawtucket.

TOTAL TONNAGE TRENDS

Over the past quarter century, annual water freight at the Port of Providence has, in general, shown a slow, but steady increase. In 1931, a total of 5,000,000 tons were handled; in 1954, 7,000,000 tons. During this same period, Rhode Island rail freight (concentrated 80 per cent or more at Providence-Pawtucket) has held approximately constant at 2,000,000 to 3,000,000 tons while truck freight has grown spectacularly.

The Port of Providence ranks third in New England, being surpassed in tonnage only by Boston and Portland. Boston handles two and one-half times the tonnage of Providence while Portland, which moved into second place in 1947, holds its advantage by a relatively narrow margin.

TRENDS IN DETAIL

These facts and figures suggest something of the importance of water freight at the Port of Providence. Taken at face value, however, gross tonnage trends and gross tonnage interport comparisons can be deceptive. Their true significance can be appreciated only in the light of the nature of the traffic they represent.

GENERAL PORTS

The detailed analysis of commercial statistics indicates that ports differ not only in size, but also in type. New York and, on a lesser scale, Boston, are typical of the so-called "general ports." Through their facilities move a wide variety of commodities both packaged and bulk. Outbound tonnages are considerable; foreign imports and exports are varied, and account for approximately 25 per cent of total tonnage.

Within the New England region, Boston best illustrates the characteristics of a general port. Freight traffic in 1952 totalled 20,000,000 tons; passengers numbered 1,031,191. As in the case of all northeastern ports (New York included), petroleum and coal represented by far the largest part of the cargoes - the Boston total was approximately 82 per cent. Not the coal, oil, or other bulk goods, however, but passengers and miscellaneous freight placed Boston in the category of the general ports. The number of commodities handled in 1952 other than petroleum and coal was 160; their tonnage was 3,200,000. The quantity and variety of commodities of the type handled at general cargo wharves was such as to support foreign scheduled sailings averaging 110 per month.

PETROLEUM PORTS

A second type of port is exemplified by Providence, Portland, or Fall River. At these terminals little or no general cargo is handled; petroleum and coal account for as much as 97 per cent of all cargoes. Receipts exceed shipments nine or ten to one, and foreign trade, though varying greatly in quantity at the several ports, is characteristically dominated by petroleum receipts.

In the case of Providence, foreign traffic in 1952 totalled 7,800,000 tons; there were few passengers other than those destined for Block Island. Petroleum and coal represented 98 per cent of the total tonnage, the only other commodities arriving in substantial quantities being lumber, pig iron, chemicals stone and frozen fish.

TOTAL COMMERCE

NEW ENGLAND PORTS

1931 - 1952

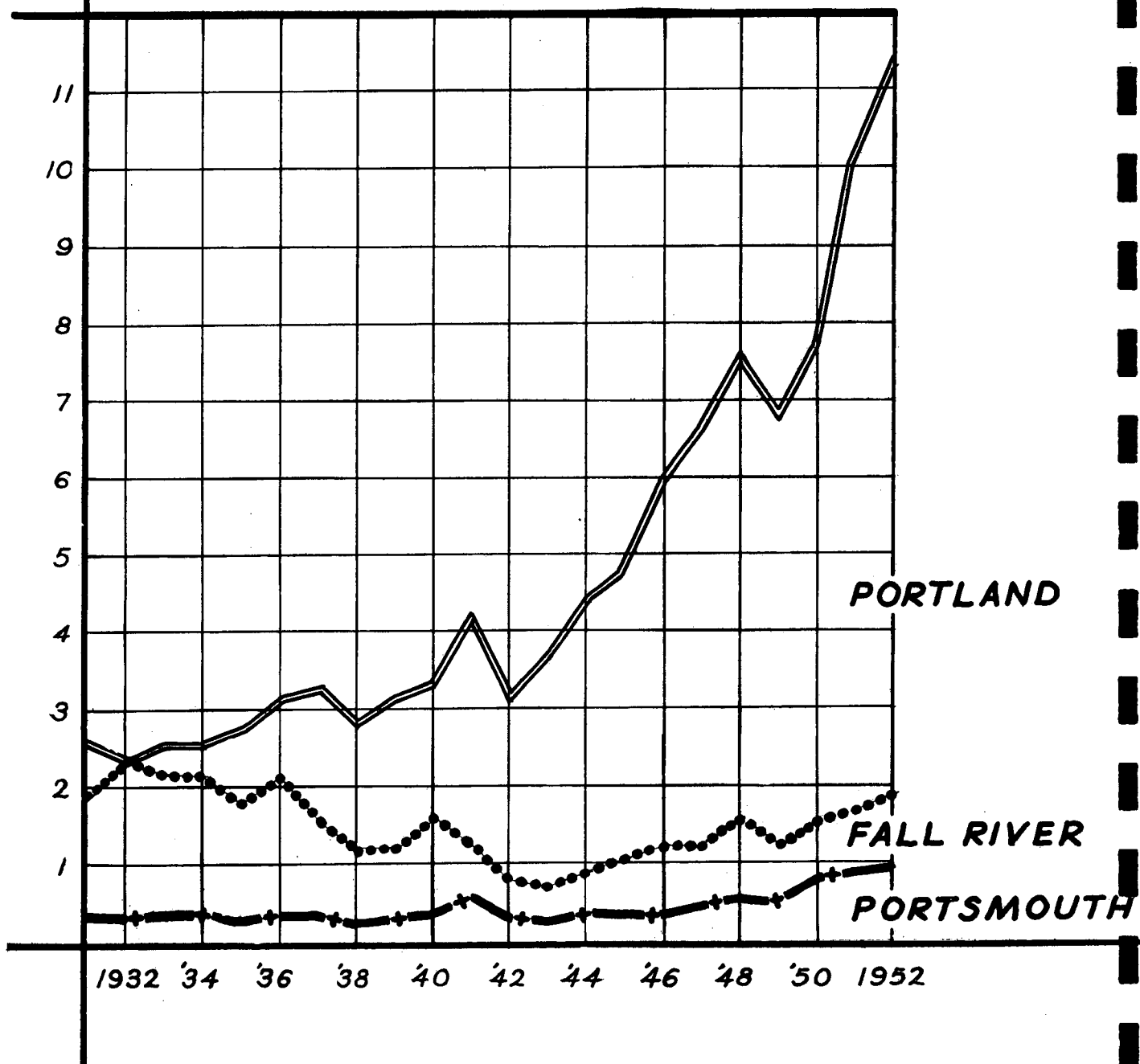
TOTAL COMMERCE

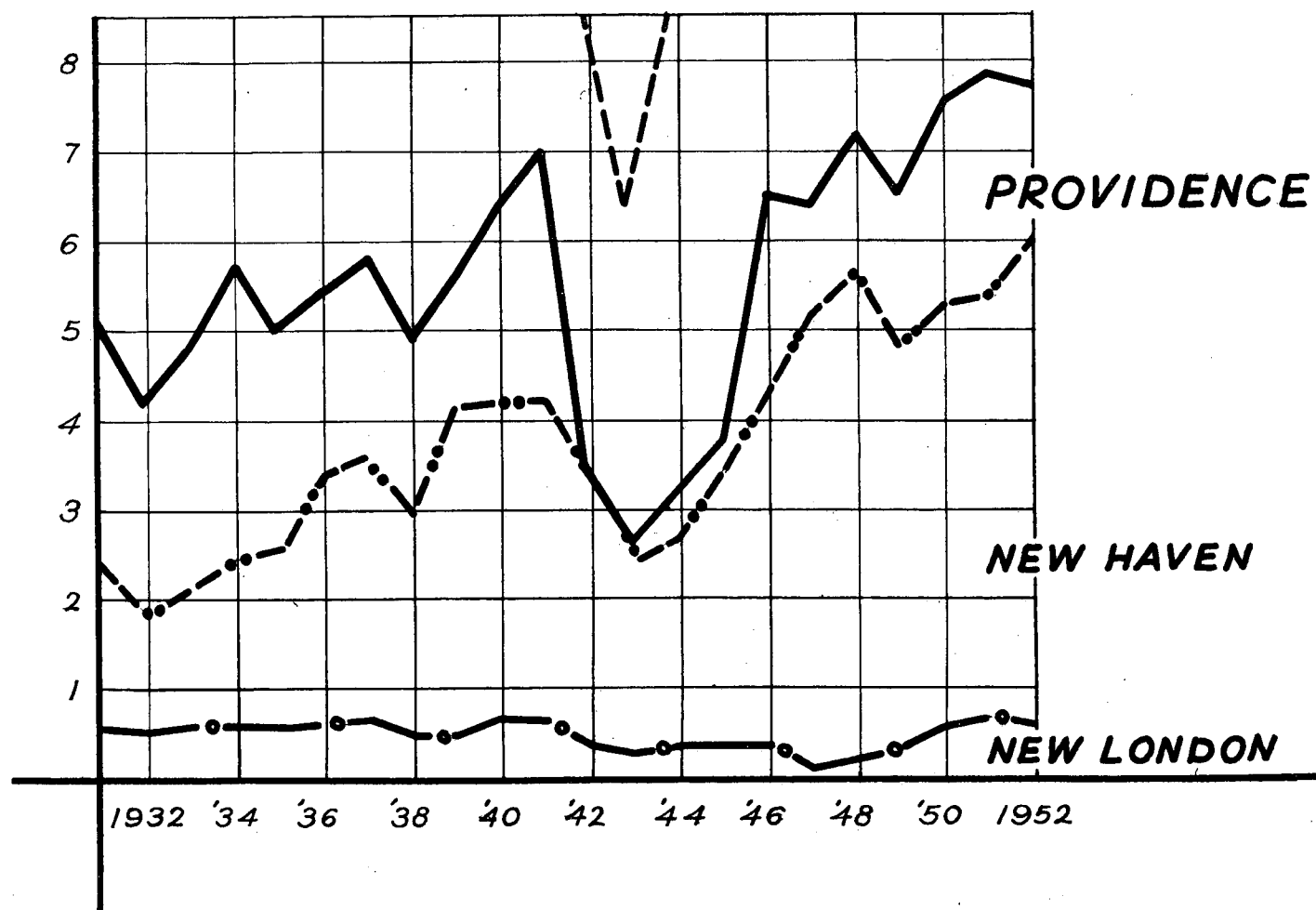
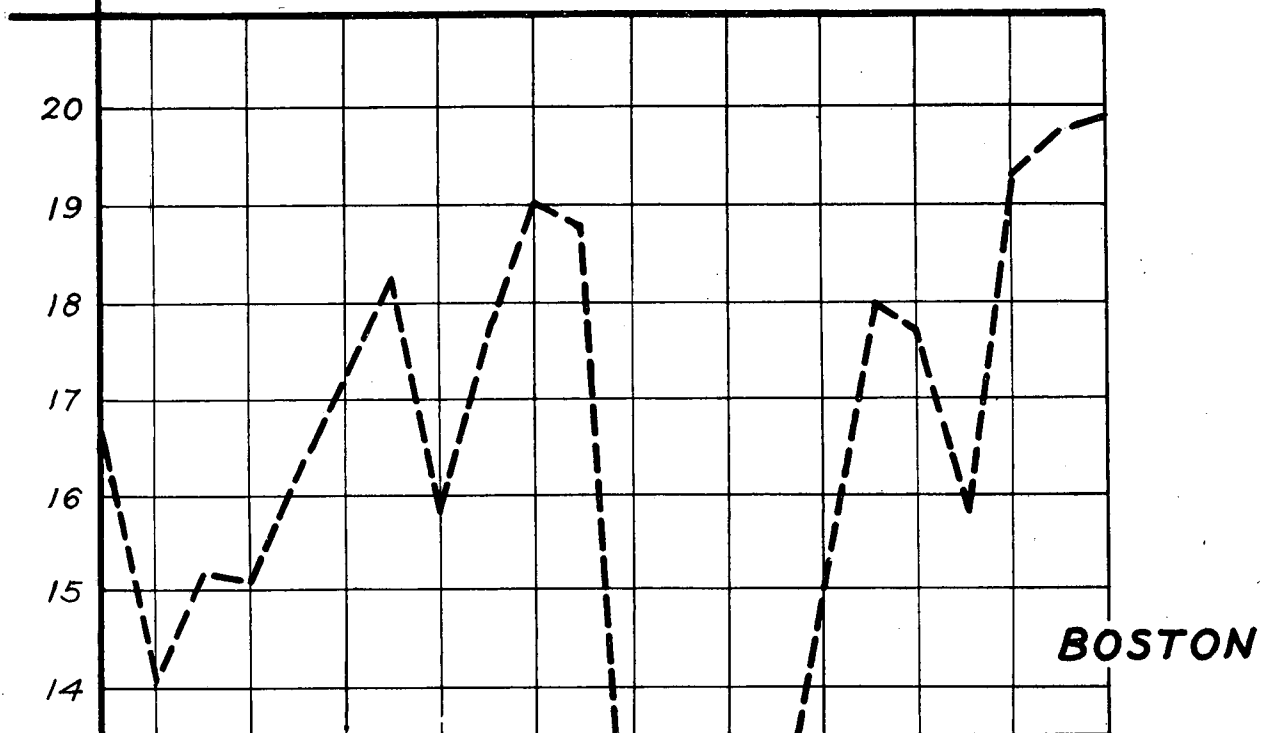
New England Ports

1931-1952

SOURCE: U.S. ARMY ENGINEERS DATA

FIGURES IN MILLIONS OF TONS





PROVIDENCE AND TRANSPORTATION

When both totals and details of commercial statistics are given their proper weight, the patterns of Providence commerce, sea and land, emerge in their true perspective. General freight moving into or out of the area is carried almost exclusively by rail or truck; when points of origin or destination are overseas, routing is usually via the ports of New York or Boston. Maritime tonnage is larger in total than either rail or interregional truck tonnage; but it is largely limited to receipts of bulk cargoes. In short, the Port of Providence today is a major northeastern coal and oil port with a small nucleus of general cargo traffic.

PATTERNS OF COMMERCE - SIGNIFICANCE

It is clear that economic factors affecting the expansion of petroleum, coal, and lumber receipts are not identical with those affecting the expansion of other types of commerce, especially general cargo. Therefore, in evaluating development potentials of the Port of Providence, it will be necessary to consider as separate and distinct, each of the major types of commerce.

PETROLEUM

Ten major oil companies and one electric utility regularly utilize the facilities of the Port of Providence. Their receipts and shipments account for approximately 85 per cent of the port's tonnage. On the east bank of the Seekonk in East Providence, two other oil companies maintain terminals - and one of the Providence companies has additional storage facilities.

PETROLEUM - ORIGINS AND DISTRIBUTION

The oil which arrives at the Port of Providence originates chiefly in the Gulf states. Lesser quantities come from the Philadelphia-Baltimore, the New York-Bayonne, and the Caribbean areas. The major products received are gasoline, distillate and residual fuel oil, asphalt, crude oil, tar and grease.

From the tank farms on shore, products are distributed principally by truck to consumers in Rhode Island and neighboring areas of Connecticut and Massachusetts. A considerable amount is trans-shipped by a privately owned pipe line extending from East Providence to Worcester, Springfield and Hartford; and small quantities are distributed by local water freight to nearby ports.

PETROLEUM - TRENDS IN RECEIPTS

Since limits between the service areas of Providence and competing ports are rigidly defined by costs per mile of transportation, there is no practical possibility of change in the boundaries. For this reason, trends in Providence petroleum receipts are closely related to the growth of population and the expansion of economic activity in the port's central service area - that is, the State of Rhode Island.

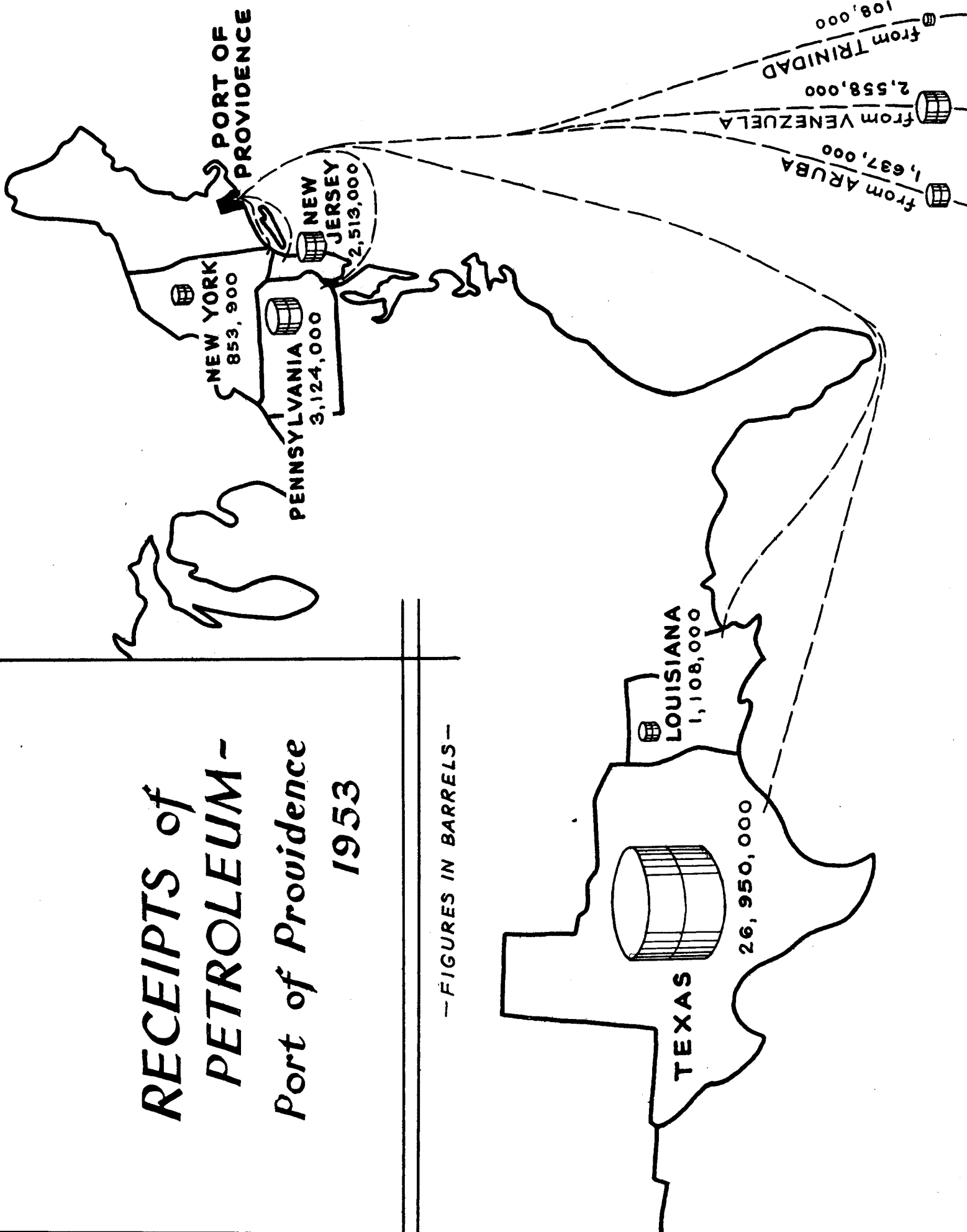
It is true that over a period of several decades, per capita consumption of both oil and gasoline has increased as factories, homes, utilities and means of transportation have shifted to petroleum. The long-term growth in petroleum receipts has, therefore, risen above the corresponding trends in population and general economic activity. But now the change-over to oil has been largely completed. Future trends in petroleum receipts should be nearly identical with general economic trends in the area.

BENEFITS OF THE PETROLEUM TRADE

The Port of Providence and the State of Rhode Island derive substantial benefits from the petroleum trade. Direct water delivery of oil and gasoline to the area's center of economic activity results in savings on the cost of distribution. For example, the "terminal price" in Providence for heavy industrial oil (bunker C fuel oil) was recently quoted at \$2.39 per barrel plus ten cents per barrel transportation charges for delivery within six miles of the port. The price for heavy industrial oil shipped through the Port of Providence to Worcester was the

RECEIPTS of PETROLEUM- Port of Providence 1953

— FIGURES IN BARRELS —



Providence "terminal price" plus approximately 25 cents per barrel transportation charges.

Employment of the major petroleum companies in the greater port area is over 1,250. Taxes paid by petroleum companies to the City of Providence and the Town of East Providence total over \$430,000 annually. Visiting tankers averaging about eleven weekly utilize the services of pilots, tugs, and ships' chandlers; crewmen patronize local merchants.

PETROLEUM TRADE - PHYSICAL FACILITIES

The petroleum traffic makes minimum use of public port facilities. The only indispensable requirement is an adequate channel. Tankers discharging at points along the Providence River normally draw less than 30 feet; those proceeding up the Seekonk, less than 15 feet. For such vessels, the present project depths of 35 feet (Providence River) and 16 feet (Seekonk River) are satisfactory. The trend, however, is clearly toward larger vessels. As this trend continues, the petroleum companies can be expected to present strong arguments for a deeper channel.

On shore, the petroleum companies maintain their own facilities: wharves, delivery pipes, tank farms and offices. Three firms operate small refineries and two have facilities for blending lubricants. Public wharves are not used except by two companies which lease discharge facilities at the Municipal Wharf.

As the petroleum traffic expands - and there is every indication that it will continue to do so - problems of storage space may become acute. Some additional tidewater frontage may be created by filling, but the possibilities are limited. It may be that expansion will eventually take place at points south of the port boundaries. However, even if economics and a shortage of real estate require this solution, the Providence area will continue to enjoy most of the benefits now derived from the petroleum trade.

PETROLEUM TRADE - SIGNIFICANCE

The petroleum trade is of first importance in the commerce of the Port of Providence, but its rate of expansion is entirely independent of public terminal facilities or port development programs. If present trends continue, receipts should reach a level of 7,650,000 tons annually by 1970; shipments should total 785,000 tons. Except in the matter of channel maintenance and enlargement, the industry may be expected to take care of its own needs.

COAL

Four major coal companies maintain docks on the west bank of the Providence River. Their receipts and shipments account for approximately ten per cent, by weight, of the port's commerce.

COAL TRADE - ORIGINS AND DISTRIBUTION

Bituminous coal is brought to the Port of Providence via Hampton Roads from mines in the West Virginia - Kentucky - area. From the docks of the wholesale operators in Providence, coal moves to consumers either directly or through retailers of whom there are approximately 125 in the State. Distribution is principally by truck with some movement by local water freight or rail.

TRENDS IN COAL RECEIPTS

As in the case of oil, service areas are limited to Rhode Island and nearby portions of Massachusetts and Connecticut. The costs of land transportation are such as to eliminate all practical possibility of extending the boundaries.

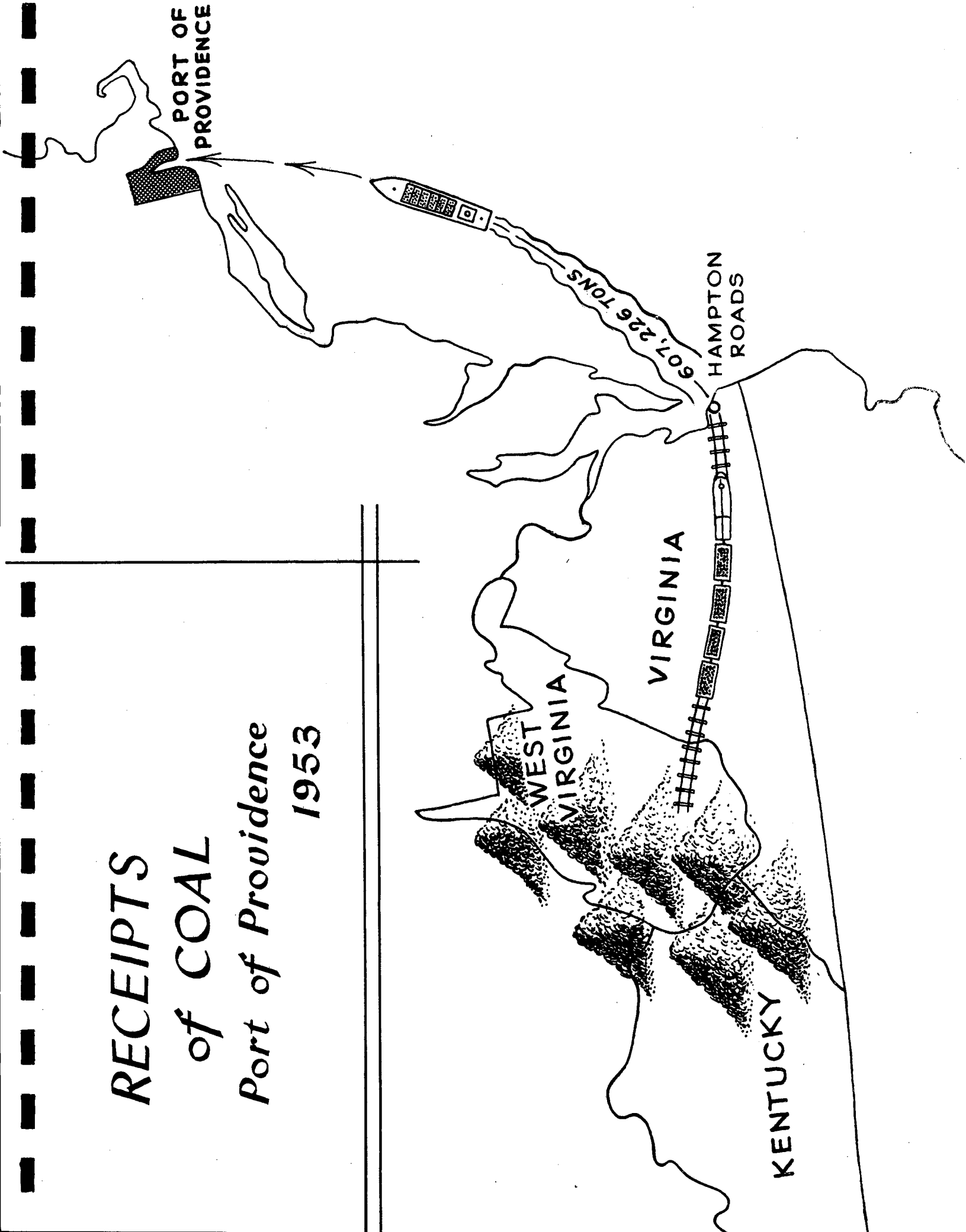
Trends in coal receipts are inversely related to trends in receipts of oil. While per capita consumption of petroleum products has gone up, per capita consumption of coal has gone down. Water receipts of coal have actually declined by 60 per cent since 1931.

In 1947, 67 per cent of the industrial fuel utilized in Rhode Island was oil. In 1953, the Providence Gas Company discon-

RECEIPTS
of COAL

Port of Providence

1953



tinued its large consumption of coal. While there is no reason to suppose that consumers who have shifted to petroleum will return to coal, it is generally believed in the fuel industry that those who still use bituminous coal today will continue to do so. Prospects, therefore, are for coal receipts at the Port of Providence to hold to their present level; that is approximately 600,000 tons per year.

BENEFITS OF THE COAL TRADE

Each month about four colliers pass through the port. These vessels utilize the services of Bay pilots, tugs, and ship's chandlers. The crews average 42 men per vessel and many of them are domiciled in the Providence Metropolitan area. In addition, about 150 men are employed on land by the wholesale coal dealers.

The price of West Virginian industrial "run of the mine" coal at the Port of Providence was recently quoted at \$11.75 per ton plus 51 cents per ton for transportation up to six miles. This same coal delivered to Worcester carried a transportation charge of \$1.65 per ton. However, Pennsylvania coal was delivered to Worcester by rail at a cost which compared favorably with the water rate to Providence plus transportation charges.

Taxes paid by the wholesale coal industry to the City of Providence total over \$50,000 annually.

COAL TRADE - PHYSICAL FACILITIES

Colliers, like oil tankers, require private docks. The product they carry is bulky and does not lend itself to unloading or storage at public facilities. It is possible, however, for coal dealers to take long term leases on portions of public docks. Of the four wholesale coal dealers in the port area, one leases property at the Municipal Wharf, one at the State Pier, and two utilize private docks. Other than public waterfront property leased, the only public port facility required by the coal trade is the ship's channel, the present depth of which is entirely adequate for average colliers of 20 feet draft.

COAL TRADE - SIGNIFICANCE

The coal trade ranks second only in tonnage to the oil trade in the commerce of the Port of Providence. However, recent trends do not indicate any probability of important expansion: the port facilities now available for coal are adequate, or more than adequate, when judged by future prospects.

LUMBER

Five major wholesale lumber companies regularly utilize the facilities of the municipal wharf in the Port of Providence. Their receipts, combined with those of other lumber dealers who occasionally utilize the port, amount to about 80,000 tons annually.

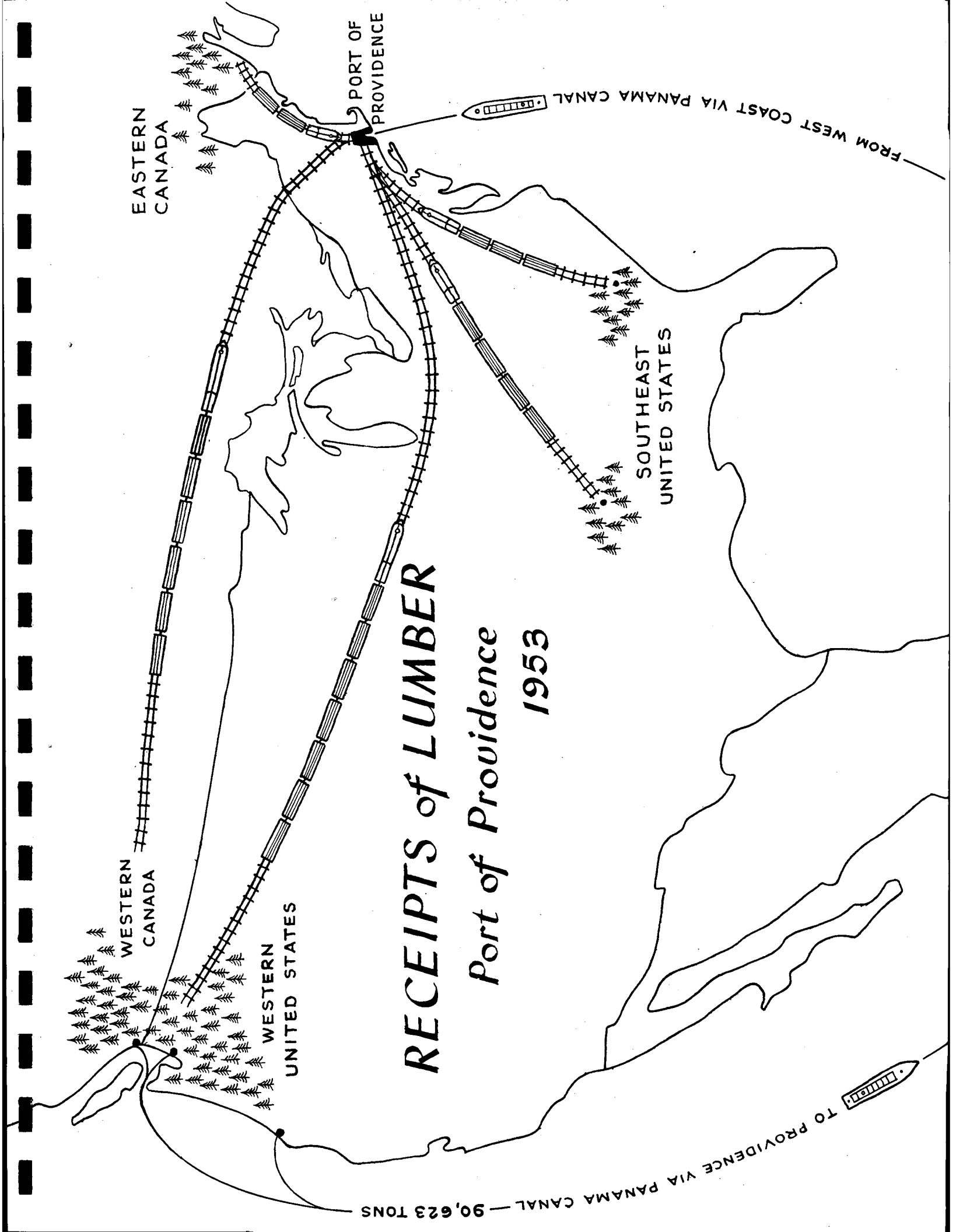
LUMBER TRADE - ORIGINS AND DISTRIBUTION

Lumber arriving by water at the Port of Providence originates almost exclusively in the Pacific Northwest. In addition, substantial quantities of forest products are received each year by rail -- principally from inland points of the Pacific Northwest, from the South, and from the Canadian Northeast. Water transport is preferred for western lumber when the points of origin are near the coast: a saving on transportation charges of approximately \$5.00 per 1,000 board feet enables Providence dealers to extend their effective area of competition by five to ten miles.

From the wholesale lumber yards, products are distributed by truck to contractors and retailers within a radius of about 50 miles, excluding points nearer Boston. Contractors and retailers also obtain supplies from nearby wholesale centers (especially Portsmouth, Rhode Island) and from eastern mill work operators.

LUMBER TRADE - TRENDS

Lumber receipts at the Port of Providence have held approximately constant for several decades, war and depression periods



EASTERN
CANADA

PORT OF
PROVIDENCE

FROM WEST COAST VIA PANAMA CANAL

SOUTHEAST
UNITED STATES

RECEIPTS of LUMBER

Port of Providence
1953

WESTERN
CANADA

WESTERN
UNITED STATES

TO PROVIDENCE VIA PANAMA CANAL - 90,623 TONS

excepted. So long as population and economic activity continue to expand as they have in the past, the demand for lumber should hold to its present level. There would not, however, appear to be much likelihood of a substantial increase in receipts, since new building materials are constantly being introduced and since the port service area is limited by the availability of alternative land and water routes.

As in the case of coal and oil, Rhode Island is benefited by the sea trade in lumber -- through lower prices for the commodity and through income generated by a port-linked industry. The lumber trade at Providence differs from the coal and oil trade, however, in that it is entirely dependent on public facilities.

Lumber vessels - about 35 annually - utilize the channel (which is adequate for their purposes at its present depth), the municipal wharf, the municipal transit shed, and the municipal open storage area. The municipal facilities are all well adapted to this use and more than sufficient in capacity.

LUMBER TRADE - SIGNIFICANCE

Lumber ranks immediately after petroleum and coal in tonnage handled at the Port of Providence. It is of particular importance at the municipal wharf and provides the principal part of that facility's business. But the nature of the trade - its relations to the economic base of the port's hinterland and to alternative means of transport - does not indicate any likelihood of marked expansion.

MISCELLANEOUS COMMODITIES

In addition to petroleum, coal, and lumber, several other commodities move through the Port of Providence in significant quantity. Among them are pig iron, chemicals, granite building stone, frozen fish and miscellaneous general cargo.

PIG IRON AND SCRAP IRON

Pig iron enters the Providence area principally by rail, occasionally by ship. Receipts by rail originate in Maryland, Pennsylvania, and Massachusetts; receipts by ship are from foreign sources.

The unloading of pig iron from railroad cars is considerably easier than the unloading of pig iron from ships. Furthermore, the pig iron which arrives by ship at the Port of Providence must be distributed by rail - even to local destinations. For this reason and because of favorable rail rates, domestic pig iron is not likely to be moved to Rhode Island by water.

Imports of foreign pig iron into the southern New England area are sporadic. A Worcester firm which brought in nine cargoes through the Port of Providence in 1952 has changed the nature of its operations and will no longer import foreign pig iron. However, a Rhode Island firm recently received a large shipment through the Port of Providence from Australia.

Traffic in scrap iron at the Port of Providence is irregular in volume, depending on the condition of the national and international markets for this commodity. Local manufacturers occasionally import scrap for processing; local scrap iron dealers, using their own wharves, ship to customers as far away as the Orient. Total tonnage has ranged, in recent years, from zero tons to 25,000 tons.

CHEMICALS

Chemical products are delivered to the Rhode Island area by truck, rail, and water. Outward movements of locally manufactured chemicals are shipped mostly by rail or truck.

Chemicals received in largest quantity by water are sulfuric acid, coal tar products and petro-chemicals. These cargoes originate at Gulf and East Coast ports and are distributed from Providence to consumers throughout Rhode Island. Other products received in smaller quantity include pharmaceuticals, paint materials, and fertilizer.

The volume of chemicals passing through the Port of Providence is limited by the availability of alternative forms of transportation which are cheaper or quicker. For example, receipts from Delaware, a coastal center of chemical manufacture, are exclusively by rail or truck. One Rhode Island company, however, regularly imports heavy industrial chemicals by barge from Edgewater, New Jersey. Other firms might well consider importing some portion of their raw materials by water.

GRANITE BUILDING STONE

Granite building stone is shipped to Providence from Jonesport Isles, off the coast of Stonington, Maine. A granite company in Providence processes and distributes this product to purchasers within and outside New England. In recent years, two shipments have been received annually at State Pier #1.

FROZEN FISH

During the past four years, increasing quantities of fisheries products have been brought from Newfoundland to the Port of Providence. A few cargoes have also been received from Iceland. In 1953, a total of 25 vessels arrived with 7,605 tons of frozen fish, 2,460 tons of fish meal, and small quantities of fish skin and fish oil. These cargoes were unloaded at the municipal wharf and constituted an important part of the Wharf's business for that year.

The fish trade has unusual economic significance for the port area. The frozen product is regularly distributed from a cold storage house in Providence to markets as far away as the Southeast and the mid-western states. This is the only instance in which the hinterland of the Port of Providence extends well beyond the limits of southern New England.

The frozen fish trade has been growing not only at the Port of Providence, but also at other ports which are ready to compete vigorously for the national market in this product. The Port of Gloucester has been especially active in this line and is now the site of several important processing plants.

If new cold storage facilities should be erected at tidewater in Gloucester, then the Providence facilities (three miles from

tidewater) would almost undoubtedly be eliminated from competition. Conversely, if plans which have been suggested for erection of a cold storage plant at Field's Point should be carried out, the frozen fish trade of the Port of Providence might be expected to increase.

MISCELLANEOUS GENERAL CARGO

In February, 1954 the Luckenbach Steamship Company resumed the general cargo service from the West Coast which it had offered in prewar years. Since that time, Luckenbach vessels have visited the Port of Providence at intervals of a few weeks delivering cargoes of canned goods averaging 1,000 to 2,000 tons. From Providence, the vessels continue to Boston and then back to the West Coast via the Panama Canal.

Luckenbach service through the Providence Municipal Wharf offers substantial advantages to wholesalers in and near Rhode Island - advantages arising from convenience of access, the modern design of the Providence transit shed, and (assuming that the alternative routing is through the Port of Boston) the savings of shorter truck haulage.

In addition to the Luckenbach service, some general cargo is received and shipped on the Canadian fish vessels; a local passenger and freight service to Newport and Block Island is maintained during the summer months; and occasional service is offered between Providence and the Cape Verde Islands.

MISCELLANEOUS COMMODITIES - SIGNIFICANCE

The potential for increased commerce in coal, oil, and lumber is directly related to the increasing level of economic activity in the port's immediate hinterland. So long as the ships' channel is adequate, these commodities will continue to be imported through the Port of Providence - regardless of port development programs or policies.

The potential for commerce in other commodities, such as chemicals, frozen fish, or miscellaneous general cargo, is determined by very different factors: these factors are measured chiefly by the extent to which the Port of Providence can win traffic from competing ports or from competing means of transportation.

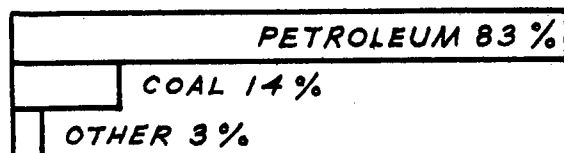
COAL and PETROLEUM TRADE

Northeastern Ports
1952

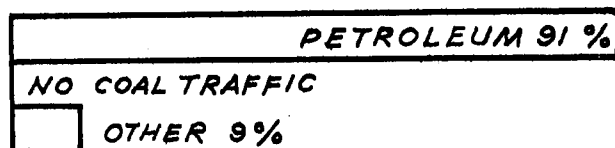
PERCENTAGES OF CITIES
TOTAL WATER-BORNE COMMERCE

SOURCE: U.S. ARMY ENGINEERS DATA

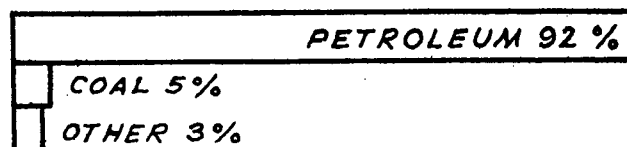
PROVIDENCE



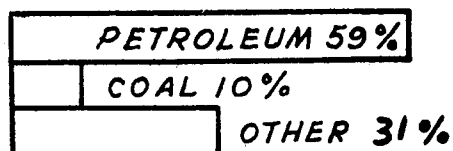
NEW LONDON



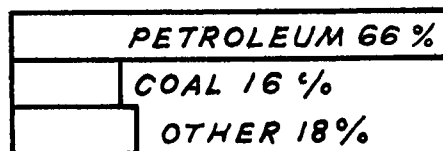
PORTLAND



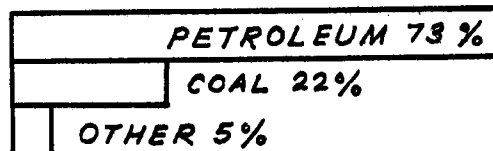
NEW YORK



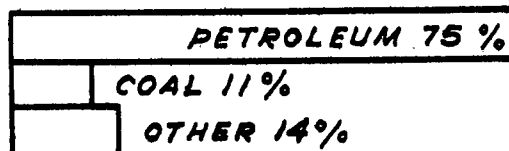
BOSTON



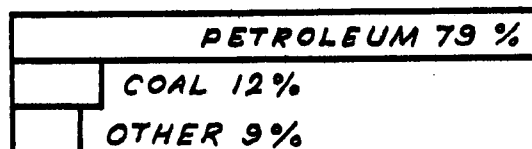
NEW HAVEN



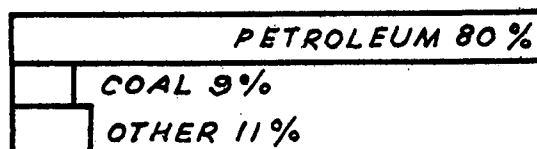
PORTSMOUTH



BRIDGEPORT



FALL RIVER



WATERBORNE COMMERCE OF THE PORT OF PROVIDENCE

1953

(All figures in tons)

Foreign Imports		
Fish	7,432	
Lumber	22,561	
Petroleum & Petroleum Products	873,281	
Pig Iron	42,798	
Other	7,990	
Total		954,062
Foreign Exports, Total		
		5,638
Coastwise Receipts		
Chemicals	23,394	
Coal, Bituminous	691,195	
Coal Tar Products	43,344	
Lumber	68,062	
Petroleum & Petroleum Products	5,038,951	
Stone, Sand & Gravel	2,800	
Other	458	
Total		5,868,204
Coastwise Shipments		
Petroleum & Petroleum Products	419,021	
Scrap Metal	24,177	
Other	3,482	
Total		446,680
Narragansett Bay and Local Freight		
Principally petroleum movements		323,685
GRAND TOTAL		7,598,269
Seekonk River (including Pawtucket)		
Principally petroleum movements		402,211

SOURCE: Compiled from data in U. S. Army Engineers Annual Report, 1954.

COMPETITION AMONG THE PORTS OF SOUTHERN NEW ENGLAND

The competitive position of any port within a regional group of ports (that is, those of Southern New England) is established by the several factors which influence manufacturers, wholesalers, distributors, or retailers in their choice of freight routes. A shipper or receiver of goods usually will choose for a particular movement that port which affords him the greatest over-all transportation economy. This choice involves consideration of:

1. The adequacy of physical facilities at the port to handle particular movements;
2. The savings resulting from lower inland freight rates to and from the port; and
3. Most important, the availability of good shipping schedules and extensive steamship and ancillary (freight forwarding, customs broker, and banking) services at the port.

These factors are largely interdependent, and are discussed below with particular regard to their effect on the development of commerce at the Port of Providence.

In assessing the competitive position of the Port of Providence, an analysis has been made of the principal ports in the Southern New England region, with respect to both marine terminal facilities and transportation savings. For the purposes of this study, the ports considered within this regional group are Stamford, Bridgeport, New Haven, and New London in Connecticut, Providence in Rhode Island, and New Bedford and Fall River in Massachusetts.

In the determination of the effects of shipping schedules, and of steamship and the various ancillary port services, comparisons have also been made with New York and Boston since it is these factors and these ports which ultimately limit the tributary area of the Southern New England ports to their own region and, in the field of general cargo commerce, severely restrict the competitive position of the Port of Providence. The effect of these factors is so important that the Ports of New York and Boston presently handle almost all of the general cargo commerce of New England.

FACILITIES AT THE PORTS OF SOUTHERN NEW ENGLAND

Where ports are as close together as they are in Southern New England, and where the region is so limited that transportation savings through the use of one of the region's ports rather than another are small or non-existent, the adequacy of terminal facilities is of considerable importance in fixing the relative competitive positions of the ports within the regional group.

Following are summarized the conclusions derived from a comparison of the physical facilities of the Port of Providence with those of the other Southern New England ports and, in general terms, with those of Boston and New York.

PETROLEUM AND PETROLEUM FACILITIES

Predominant in the commerce of the seven Southern New England ports are petroleum and petroleum products which, in 1952, represented 78 per cent of their total commerce of 20 million tons. This is reflected in the extensive oil terminal facilities found at all these ports and is due, first, to the relatively heavy demands in the immediate hinterlands of each of these ports for gasoline and fuel oil, and secondly, to the appreciable transportation economies which are realized when liquid products can be moved by water in large quantities.

These factors make economical the establishment of private petroleum terminals at almost every port having sufficient depth of water to permit the use of tanker ship or barge transport. The

net effect is that the Port of Providence is in direct competition with every other Southern New England port, both major and minor, in the handling of petroleum products, since the oil companies and others have established oil terminal facilities at these ports, which facilities are generally adequate to meet the demands of each port's immediate hinterland.

CHANNEL DEPTHS

It should not be thought, however, that every port is on an equal basis in the competition for petroleum movements serving points further inland. A port with a deep channel will be able to handle larger tankers than a port with a shallow channel. The cost of transportation is less with larger vessels, and the port with the deep channel is thus able to extend its tributary area farther inland in competition with a shallow channel port. The Port of Providence, with a project depth of 35 feet and an actual channel depth of about 33 feet, is in as favorable a position as most to handle commerce in petroleum and products. The deepening of Providence's main channel to 40 feet would further improve the Port's position with respect to the cost of water movements of petroleum products, and steps to this end should be encouraged. The fact that Providence might be called upon to play an important emergency role in case of wartime damage to the Ports of Boston or New York constitutes another reason for a deeper channel.

GENERAL CARGO AND GENERAL CARGO TERMINALS

Another fact of importance noted in examining the facilities and operations of the Southern New England ports is that these ports handle extremely small volumes of general cargo. (Relatively, this is true of most East Coast ports.) Of the seven ports in this group examined, only two, Providence and New Haven, are handling significant volumes of this type of commerce. Moreover, of the four that have general cargo terminals, only two, again Providence and New Haven, have taken steps to keep these facilities in a position where they are readily usable by general cargo shipping lines, and have attempted to create an atmosphere which would encourage the growth of general cargo commerce. It is notable also that, in terms both of the extent of available general cargo facilities and of the relative ease with which existing

facilities can be expanded, the Port of Providence is considerably more advanced than New Haven. This is due primarily to the excellent choice of site for and sound planning and development of Providence's Municipal Wharf over a long period of years.

The entire problem of general cargo and Providence's competitive position in this field is, however, more directly related to the foreign shipping schedule requirements of shippers and consignees and to the high cost of terminal handling for domestic water movements. These are discussed below. Considering the factors discussed in this section, however, it is apparent that the Port of Providence leads the Southern New England ports in terms of general cargo facilities and is in competition with the ports of New Haven, Boston, and especially New York in the handling of general cargo commerce.

OTHER TERMINAL FACILITIES

The other terminal facilities at the Port of Providence and the other Southern New England ports consist primarily of private industrial terminals handling special commodities, principally coal, some bulk chemicals and scrap metals. These facilities, in general, are adequate to serve local industry and distribution requirements and do not influence appreciably the relative positions of these ports with respect to inland areas of competition.

FREIGHT RATES: AREAS OF FREIGHT RATE ADVANTAGE

The area of freight rate advantage for the Port of Providence is that area within which inland transportation rates on movements to or from Providence are lower than or equal to rates to or from other ports.

With the assistance of the Providence Chamber of Commerce, rail and truck freight rates have been compiled for movements between twenty cities in the States of Rhode Island, Connecticut, and Massachusetts, and the coastal ports of Boston, New Bedford, Fall River, Providence, New London, New Haven, Bridgeport, and New York.

Rates were obtained for truck movements of Fifth Class goods and rail movements of Third Class goods, since these classes include a large number of manufactured commodities of average weight. The following commodity rates were also obtained:

- a) Fuel Oil
- b) Lumber
- c) Coal
- d) Machinery
- e) Canned Goods
- f) Automobiles

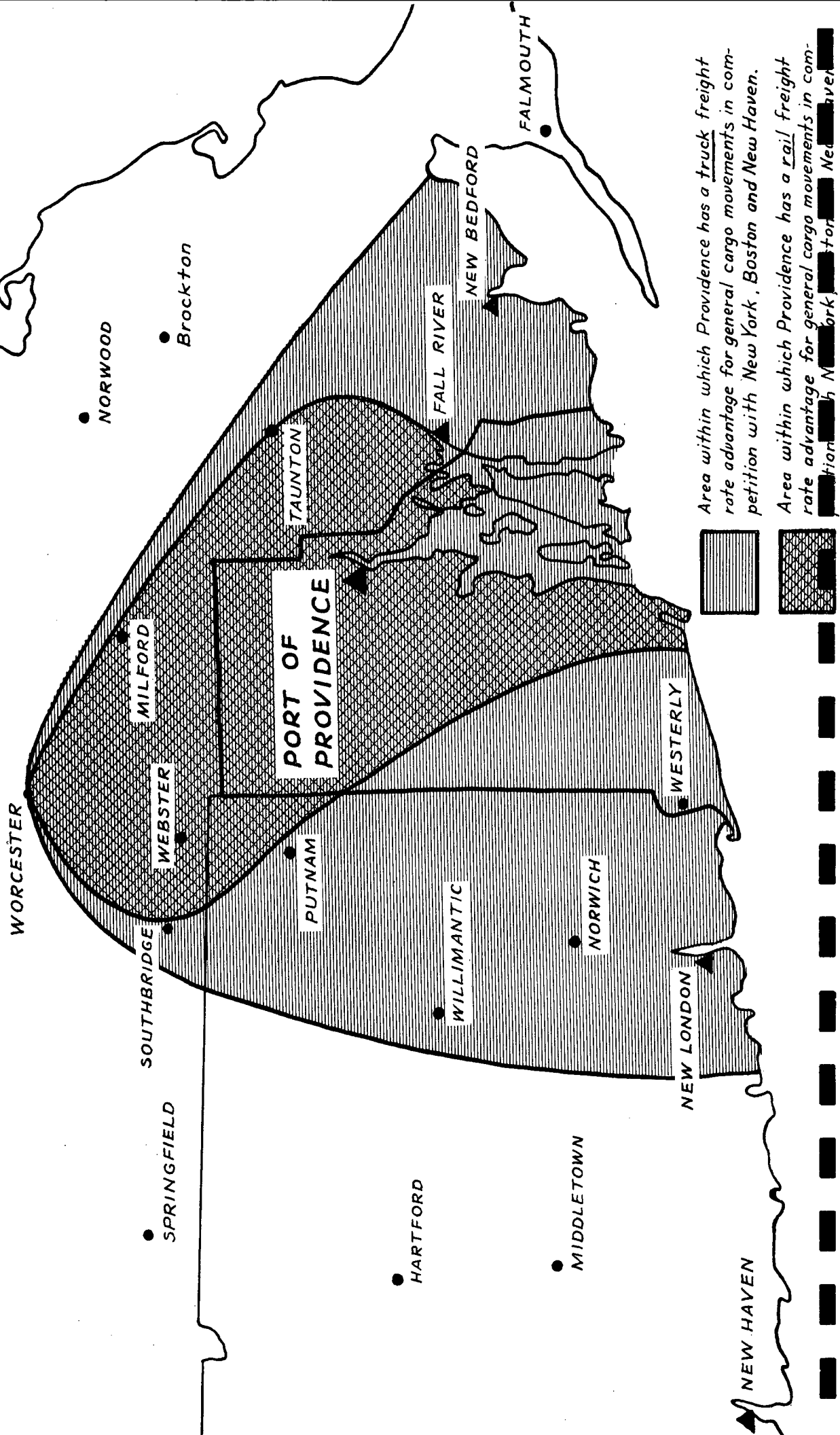
An analysis of these rates disclosed that only two major commodity groups need be considered: general cargo items and specialized cargo items. General cargo items are best represented by the class rates, but the commodity rates for machinery, canned goods, and automobiles are similar in structure. Specialized cargo includes fuel oil, lumber and coal; since petroleum products comprise the major movement through the Port, fuel oil rates are used to represent specialized cargo.

It was concluded in the foregoing that the only ports which would be competitive with Providence for general cargo commerce would be New Haven, Boston and New York. On the basis of a comparison of the rates from inland points to these ports, the limits of Providence's area of freight rate advantage for rail and truck movements is shown on the accompanying sketch map. The extent of the area within which Providence receives advantageous truck rates is much more extensive than that within which it possesses a rail-rate advantage.

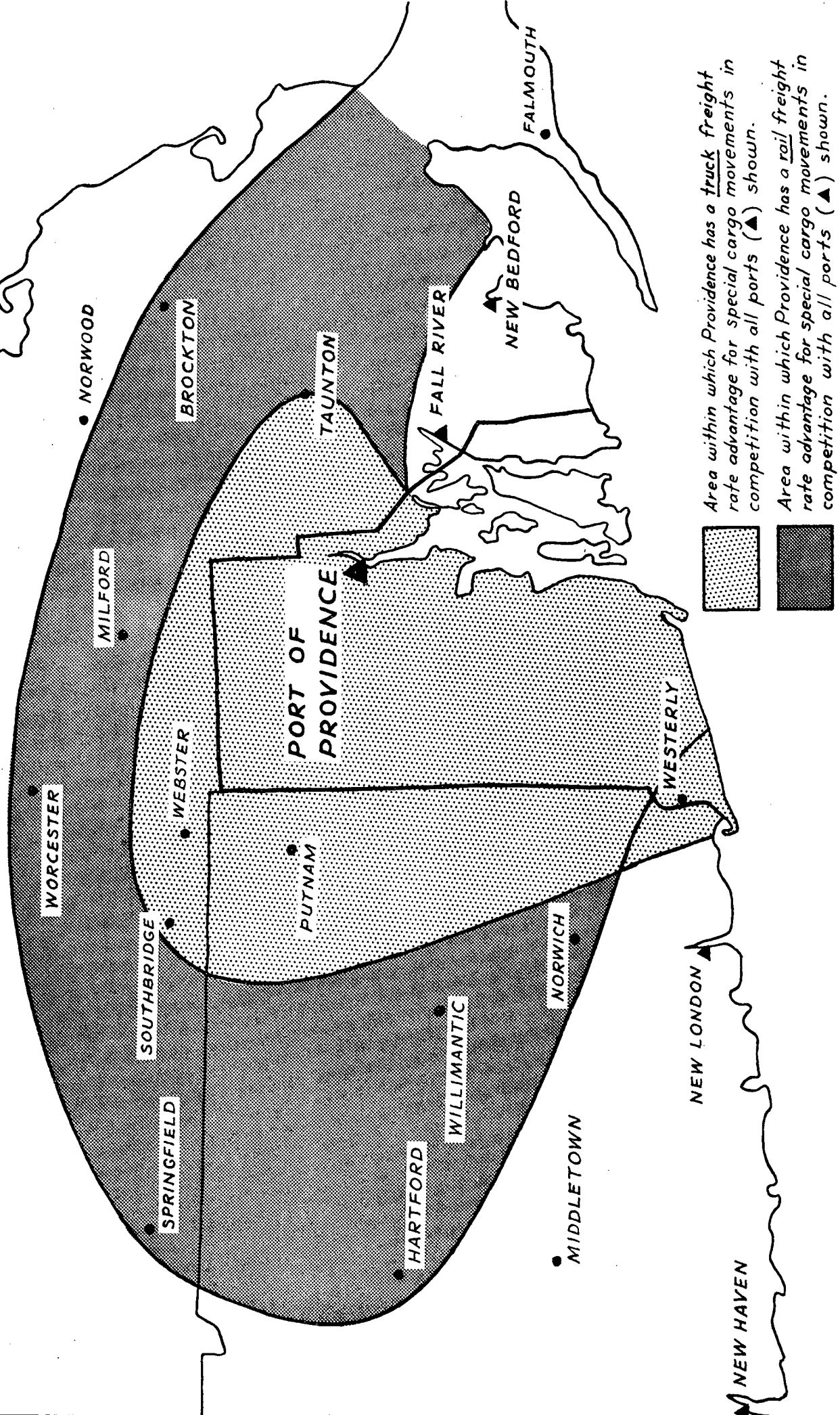
The area of Providence's truck rate advantage for specialized cargoes (for example, petroleum, coal) is more limited since common carrier truck rates are established almost exclusively on a mileage basis, and distribution by common carrier truck lines is available at all Southern New England ports. The area of Providence's rate advantage for the rail movement of specialized cargo, however, is much more extensive, illustrating the lack of any consistent basis for the development of commodity rates. The limits of these areas are shown on the accompanying map.

AREAS OF FREIGHT
RATE ADVANTAGE
SPECIAL AND GENERAL CARGO

AREAS of FREIGHT RATE ADVANTAGE - GENERAL CARGO PORT OF PROVIDENCE



AREAS of FREIGHT RATE ADVANTAGE - SPECIAL CARGO - PORT OF PROVIDENCE



In addition, it would appear on the basis of freight rates alone, that Providence would have an opportunity equal to that of New York, Boston and the other New England ports to handle the foreign commerce of the Central Freight Association Territory. Other factors are so much in favor of New York, and to a lesser extent Boston, however, that it is doubtful if any of the commerce of that area would move through the Port of Providence. To substantiate this view, it may be shown that, even though the rates between the Midwest and Philadelphia, Baltimore and Norfolk are generally lower than corresponding rates between the Midwest and New York, these three ports have been able to obtain only a relatively small portion of the competitive general cargo commerce, in comparison with the amount moving through New York.

EFFECT OF SHIPPING AND OTHER SERVICES ON THE COMPETITIVE POSITION OF THE PORT OF PROVIDENCE

The primary disadvantage that faces the Port of Providence in any attempt to expand appreciably its general cargo trade, is the present lack of scheduled ocean ship sailings and the apparently limited schedule of sailings that could be developed. This disadvantage overrides the Port's apparent freight rate advantages in its natural hinterland and even within the City of Providence proper.

This problem is not restricted to Providence, but affects, to some degree, every port on the East Coast except New York. For example, there are about 550 to 600 general cargo ship sailings monthly from the Port of New York to foreign ports. From the Port of Boston, there are about 100 to 110 foreign general cargo ship sailings monthly. The infrequent foreign sailings from Providence cannot be considered as "regularly scheduled." The only regular general cargo service at Providence is that provided by the Luckenbach line, consisting of calls at intervals of a few weeks to discharge cargo from the West Coast.

The competitive status of Providence and the Southern New England ports as a group, with respect to the ports of Boston and New York, is indicated by the number of marine terminals and, even more vividly, by the annual volume of waterborne commerce

at these ports, as summarized on the following page.

It is seen that the Port of Boston has almost as many marine terminals as there are in all seven of the Southern New England ports (Providence, Stamford, Bridgeport, New Haven, New London, Fall River, New Bedford), and that the Port of New York has almost four times this number. In terms of total waterborne tonnage, the Port of Boston handles an annual volume almost equal to the total for all the Southern New England ports, while the total volume at New York is seven times as great.

Moreover, in general cargo commerce, traditionally the chief field of activity for municipal and other public port agencies, the Port of Boston ships and receives over six times the volume, and the Port of New York handles over 150 times the volume of all the Southern New England ports combined. The Port of New York handles about 35 per cent of the general cargo commerce of the nation, and New York and Boston combined handle almost all of the general cargo originating in or destined for New England.

As noted previously, the principal reason for this condition is the great disparity which exists in the extent of steamship and ancillary port services available at New York (and to a lesser extent, Boston) on the one hand, as compared to Providence and the other Southern New England ports on the other. The relative levels of service available at Boston, New York, Providence and the Southern New England ports are illustrated, in the following table, by the number of general cargo vessels entering these ports each year. Perhaps even more impressive is the fact that steamship lines offering regular berth services at the Port of New York recently scheduled over 1,400 entries at 130 major foreign harbors in a single month (October 1954), whereas only a few unscheduled sailings to foreign ports are made annually from the Port of Providence.

The effect of this great disparity in number of sailings is shown by a survey conducted by the U. S. Department of Commerce for the year 1928, which revealed that 65 per cent (by value) of the exports of New England manufacturers were

PORTS OF SOUTHERN NEW ENGLAND COMPARED WITH PORTS OF BOSTON AND NEW YORK

	Totals for			Providence
	New York	Boston	Southern New England Ports *	
Project Depths Main Channels (feet)	45	40	15 to 35	35
Marine Terminals (number)	830	210	221	27
Total Waterborne Commerce 1952 (short tons)	140,400,000	20,000,000	20,100,000	7,770,000
Total General Cargo Commerce 1952 ** (short tons)	24,900,000***	1,000,000	160,000	35,000
Annual General Cargo Vessel Arrivals # (number)	7,000 ##	1,200 ##	less than 200	50##

* Includes Providence, Stamford, Bridgeport, New Haven, New London, Fall River, New Bedford.
 ** Includes all packaged, bagged, cased and barreled goods, iron and steel products, pig iron, food products, and the like; excludes bulk movements of oil, coal, grain, chemicals, sand and gravel, etc., and lumber, scrap metal, sugar and similar specialized cargoes.
 *** Includes 9,254,000 tons of intraport and local general cargo, the major portion of which is general cargo moving between a ship and a wharf via lighters. No other port in the United States makes such extensive use of lighters for handling cargo as New York.

In addition to vessels handling only miscellaneous general cargo, includes those carrying specialized cargoes (e.g., lumber, sugar, fish products) frequently handled at general cargo terminals.

Approximate average (estimated) for recent years.

Total cargo vessels calling at Municipal Wharf in 1952, excluding tankers and colliers; number of cargo vessels in 1953 was 72; number estimated for 1955 is 75 to 80.

SOURCE: U. S. Army Chief of Engineers, Annual Report, 1952.

shipped through the Port of New York. Similar studies conducted by the Federal Reserve Bank of Boston for the years 1939 and 1948 showed that 88 per cent and 81 per cent (by value), respectively, of New England's manufactured exports were shipped through the Port of New York in those years.

In the Federal Reserve Bank's study, the companies surveyed were requested to state their principal reasons for by-passing New England ports. The most important reasons given were:

1. More frequent ocean ship sailings at New York. A cargo might wait only a few days at New York for a sailing, whereas a wait of a week or more might be incurred at a New England port.
2. More extensive geographical coverage of the shipping service available at New York. All major ports in the world are served by New York, and there are some foreign ports served directly by no United States port other than New York. The use of another port might involve costly trans-shipment overseas.

These factors are the most important restraints to the movement of foreign commerce through the Port of Providence as they are also, but in a lesser degree, to movements through Boston.

CONCLUSION

The bulk of the Atlantic Coast's scheduled shipping, freight forwarding, customs broker, banking and similar commercial services are concentrated in New York. This domination of a region by one or two ports is not peculiar to the North Atlantic Coast. It usually results when there exists within a coastal region one or two strategically located natural gateways (such as New York or Boston) which are served directly by all the primary arteries of commerce and through which very large volumes of commerce traditionally move. The effect of this domination by a few major traditional ports is to relegate the smaller ports in the region to the handling, primarily, of bulk or special industrial

cargoes (oil, coal, ore, sand and gravel, bulk chemicals, lumber) moving in large lots to or from their immediate hinterlands. Moreover, unless several sizeable, consistent general cargo movements (each in the order of several hundred tons and repeated one or more times each month) can be developed at a "smaller" port, such a port cannot expect to gain the services of even a few of the regularly scheduled steamship lines. Without such services, the successful promotion and attraction of a portion of the myriad smaller, inconsistent general cargo shipments that may be generated in that port's natural hinterland becomes a virtual impossibility.

POTENTIAL COMMERCE OF PUBLICLY OPERATED TERMINALS

VIA CONVENTIONAL SHIPPING SERVICE

The potential commerce of the publicly operated terminals of the Port of Providence (for the purposes of this section) includes all traffic which might, under the most favorable conditions, move by conventional shipping service into or out of the port's inland trade area. Of this "potential commerce" only the more promising part may be termed "prospective."

POPULATION OF INLAND TRADE AREA

A precise geographical definition of a port hinterland is seldom possible. On the basis of considerations presented in the preceding section, however, the Providence inland trade area may be approximately defined as the port's limits of motor freight rate advantage for general cargo movements. In 1950, the population of that area was 1,600,000; the distribution by States was as follows:

Port of Providence Population of Inland Trade Area - 1950

<u>State</u>	<u>Total Popula- tion of State</u>	<u>Portion of State's Population within Inland Trade Area</u>	<u>Population within Inland Trade Area</u>
Rhode Island	792,000	100.0%	792,000
Connecticut	2,007,000	10.4%	208,000
Massachusetts	4,691,000	12.8%	600,000
Total	7,490,000		1,600,000

In the ten-year period from 1940 to 1950, the population of the United States increased about 14.5 per cent; during this same period, the population of the State of Rhode Island increased 11.0 per cent and that of the port's inland trade area as a whole 10.8 per cent.

On the basis of U. S. Bureau of the Census and the Rhode Island Development Council projections, it is estimated that the 1970 population of the port's inland trade area may be 1,825,000 to 1,935,000. If this rate of growth is attained, the demand for consumer goods will increase by at least 14 per cent to 21 per cent and a greater demand for industrial raw materials will be realized.

INDUSTRY OF THE INLAND TRADE AREA

Manufacturing accounts for about 45 per cent of the total employment within the area, and represents by far the largest single employment group. Within the State of Rhode Island alone, manufacturing employment averaged 127,800 persons during 1939. By 1950, average manufacturing employment in the State had increased 15 per cent to almost 147,000. Rhode Island Development Council projections based on long-term trends indicate a probable 12 per cent to 27 per cent increase in Rhode Island manufacturing employment between 1950 and 1970 - to a total of 165,100 to 186,000. (On the basis of 1954 figures, this would represent a 27 per cent to 43 per cent gain.)

Rhode Island Manufacturing Employment

<u>Industry Group</u>	<u>Average 1950</u>	<u>Minimum Projected Average 1970</u>
Textiles	62,719	45,200
Jewelry, Silverware	19,882	31,200
Machinery (not electrical)	11,256	19,300
Fabricated Metal Products	7,293	9,400
Electrical Equipment	6,854	10,000
Rubber Products	6,531	8,500
Primary Metals	5,801	5,900
Other	<u>26,373</u>	<u>35,600</u>
Total	146,709	165,100

Because of the close correspondence noted in the past between the growth of Providence's inland trade area and the State of Rhode Island, it is believed that these rates of growth are representative of those that will occur in the trade area.

Major increases may be expected in the metal fabricating, machinery, electrical equipment, instrument; chemical, plastics, and related industries. Increases might also be made in the food processing, cement, and petroleum refining industries, if additional plants are established in the port's trade area. It should be noted that the two latter types require locations on navigable water for maximum economy in the receipt of raw materials and finished products. Textile employment, which declined from an average of 38,705 in 1954, is expected, on the basis of long term trends, to rise to 45,200 by 1970.

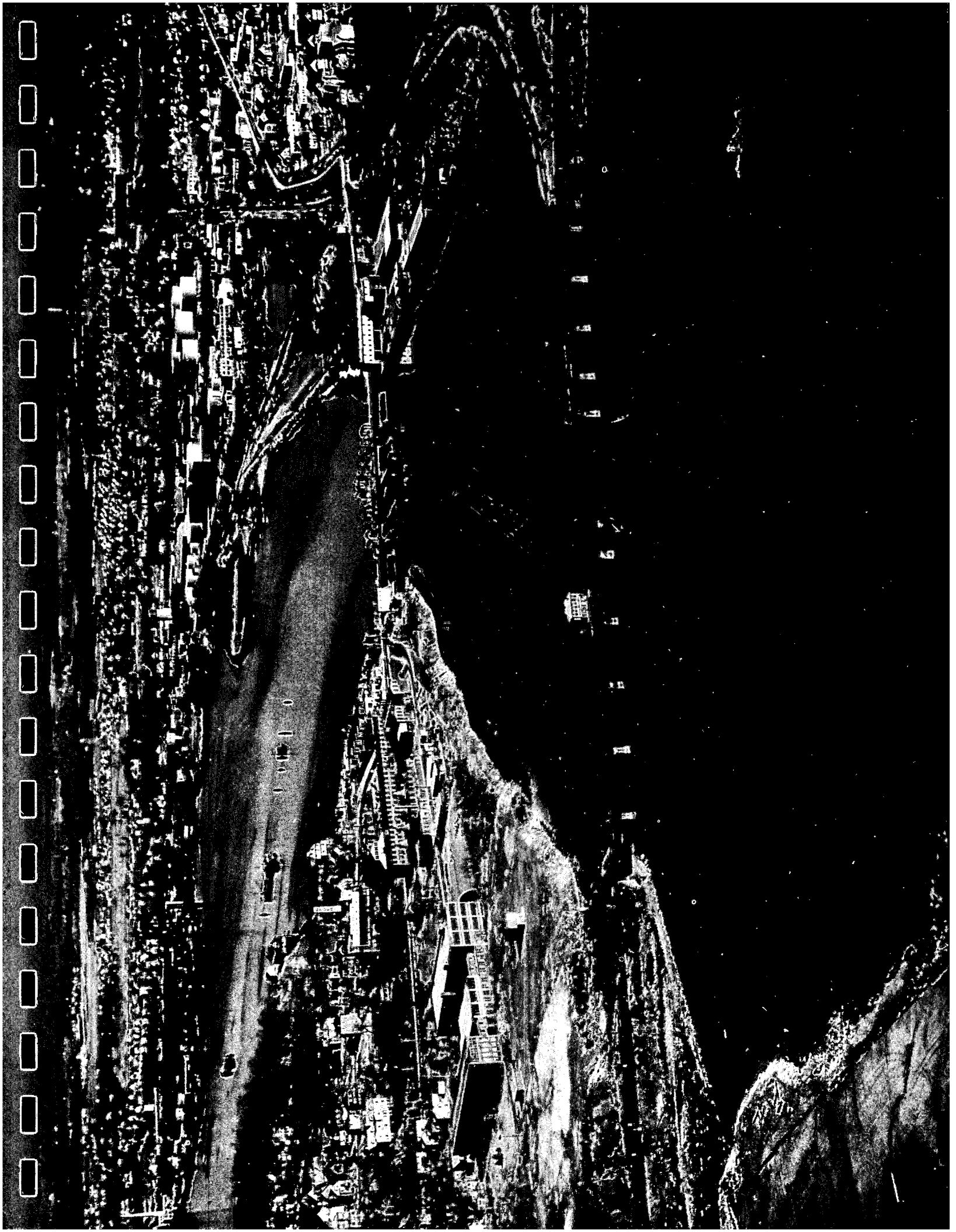
ESTIMATING THE PORT'S COMMERCE POTENTIAL

From the above projections of population and manufacturing employment, it seems reasonable to expect a 15 per cent increase in economic activities within the port's inland trade area between 1950 and 1970. To determine the effect of this expansion on both potential and prospective waterborne commerce, commodity movements have been analyzed in detail and the expansion factor has been applied in the light of information obtained through personal interviews, questionnaires, and official statistics.

During the summer and fall of 1954, staff members of the Rhode Island Development Council completed more than 100 interviews with representatives of major Rhode Island industry groups.

Coverage of Selected Manufacturing Industries

<u>Industry Type</u>	<u>Proportion of Rhode Island Employment Included in Sample - Per Cent</u>
Textiles	28
Jewelry, Silverware	20
Machinery (except electrical)	45
Apparel	39
Electrical Machinery	24
Fabricated Metal Products	20
Primary Metals	50
Printing and Publishing	32



SEEKONK RIVER - LOOKING TOWARD EAST PROVIDENCE

Rhode Island Development Council Photograph

The proportions shown in the above table were used to expand the commerce data received from industrial interviews to a total approximately representative of all similar manufacturing establishments in the inland trade area. Questionnaires were also completed by a limited sample of Rhode Island distributors and out-of-state manufacturers.

The data obtained from interviews and questionnaires were supplemented with information on present commerce movements (from port records and the reports of the Corps of Engineers and the Interstate Commerce Commission), and on the production and consumption of various commodities within the inland trade area (from statistics prepared by the State of Rhode Island, the U. S. Bureau of the Census, and the Committee of New England of the National Planning Association).

In making this analysis, consideration was limited to commerce movements which originated at or were destined to distant points which could conveniently be reached by conventional water transport. It was then necessary to determine the minimum frequency of shipping service which each commodity movement susceptible to the conventional type of general cargo service would require for routing through the Port of Providence. It was found that several of the general cargo commodity movements which were favorably oriented to Providence by freight rate savings would require at least weekly shipping service for their capture by the port. The criterion of weekly general cargo service, then, has been used in the analysis of present movements to determine whether or not they may be considered "potential." All movements which could be satisfied with weekly or less frequent service have been included; all movements requiring more frequent service than once weekly were eliminated from consideration.

The volume of commerce found to be "potential" was further analyzed to determine whether it would be sufficient to attract a regularly scheduled line offering weekly shipping service. Commerce volumes of sufficient magnitude to attract this basic service could be considered "prospective" to the port, since these probably would be susceptible to diversion by water transport at Providence.

POTENTIAL RECEIPTS

From the information received in the course of the interview and questionnaire survey, coupled with an examination of land transport statistics and statistics of production and consumption in the port's inland trade area, it is estimated that about 190,000 short tons per year of waterborne receipts are potential (but not necessarily prospective) to the port's public terminal via conventional shipping services. This total is summarized in the following table by commodity:

Port of Providence Potential Waterborne Receipts at Public Terminals

	<u>Foreign</u> (Tons per year)	<u>Domestic</u>
Receipts		
Wool	15,000	15,000
Canned Fruits and Vegetables	--	20,000
Fish and Products	15,000	--
Raw Cotton	--	10,000
Miscellaneous	<u>15,000</u>	<u>--</u>
Total	45,000	45,000
Other		
Lumber, Foreign and Domestic	<u>100,000</u>	
Total Receipts	190,000	

POTENTIAL RECEIPTS - WOOL

Expansion of the commerce volumes determined during the interview survey indicated that the potential annual waterborne receipts of wool and wool tops at Providence are about 20,000 tons for the State of Rhode Island alone. During 1952, waterborne receipts of wool at Boston were 145,000 tons.

In 1952, about 10,000 tons of wool were shipped into the Providence trade area by rail from the Pacific Coast. In spite of recent reductions in textile employment, it is believed that 30,000 tons annually would be a realistic estimate of Providence's potential waterborne receipts of wool. About half of this volume would be from foreign sources, principally Australia.

POTENTIAL RECEIPTS - CANNED FRUITS AND VEGETABLES

During 1952, about 97,000 tons of canned fruits and vegetables were received by water at Boston. Although no canned goods were received at the Port of Providence in that year, the institution of service from the West Coast to Providence in 1954 brought an estimated 11,000 tons to the port in that year. While it appears on the basis of per capita consumption that receipts of about 60,000 tons annually are potential to the port, certain other factors must first be considered.

The Atlantic and Pacific Tea Company has a large warehouse near the Municipal Wharf in Providence, and undoubtedly finds it economical to handle large volumes of canned goods by water. The First National Stores, the only other food distributor of comparable size in this area, maintains a warehouse in East Providence. At this warehouse large quantities of west coast products are received - partly through the Port of Providence. The other food distributors in the Providence area are probably not of sufficient size to support warehousing facilities of the magnitude needed to handle the large-volume movements. Consequently, it is estimated that Providence's potential for this movement is about 20,000 tons annually.

POTENTIAL RECEIPTS - FISH AND FISH PRODUCTS

For the past several years, approximately 9,000 tons of frozen fish and fish meal have been received annually at the Port of Providence. The frozen fish is shipped from Providence to points throughout the Southeast and Midwest. Consideration is presently being given by a private concern to the construction of a cold storage warehouse at the Municipal Wharf. If this

development is undertaken, it should substantially increase the commerce in this commodity. However, as previously noted, it is realistic to recognize that if new cold storage facilities should be built at Gloucester, Massachusetts (a principal center of the frozen fish trade) and not built at Providence, then Providence might be altogether eliminated from this trade.

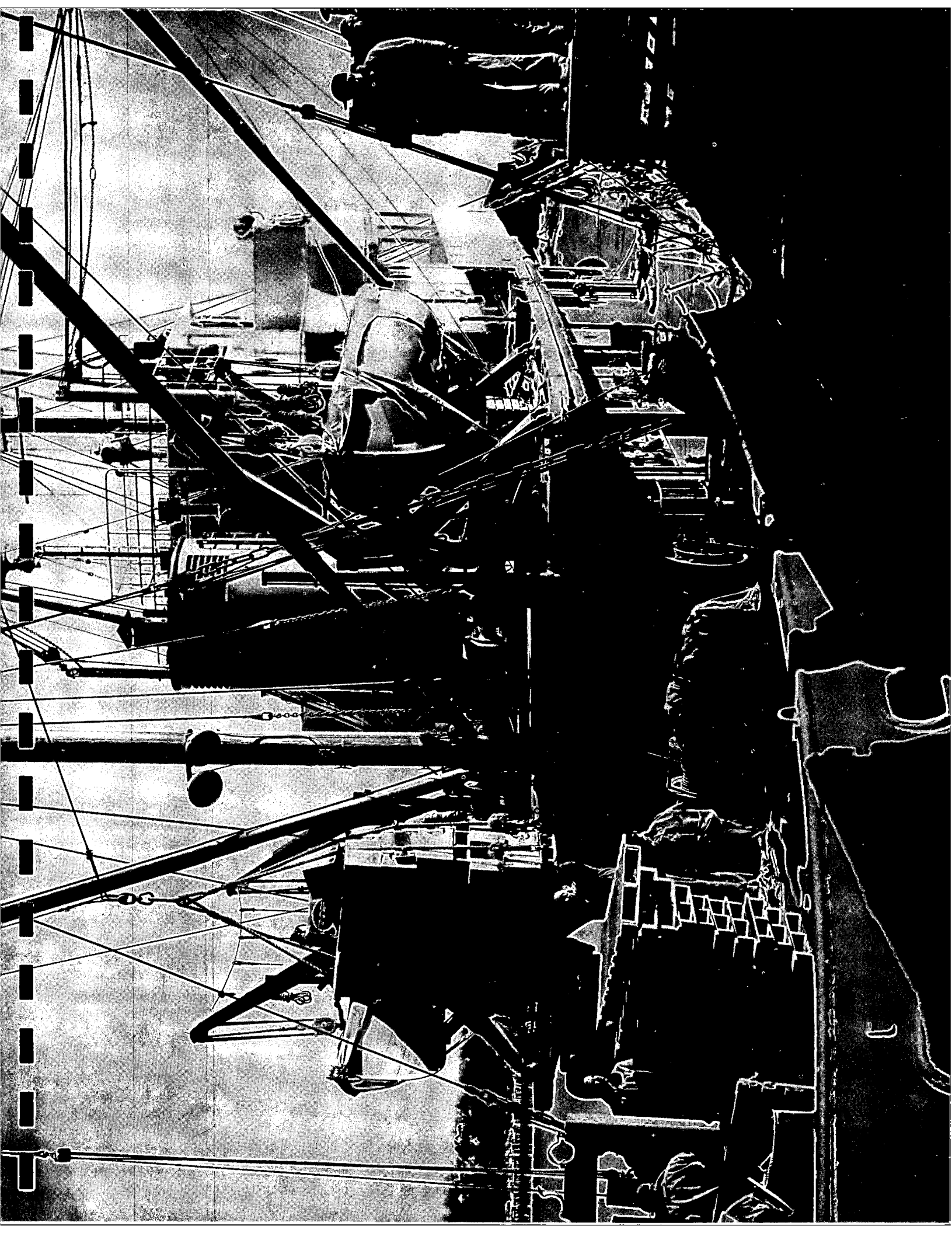
POTENTIAL RECEIPTS - RAW COTTON

During 1952, about 20,000 tons of raw cotton were received at the Port of Boston. The questionnaire and interview survey showed that about 25,000 tons of raw cotton, originating in Mississippi, Texas and California, are moved to Providence's inland trade area by rail annually. At least 10,000 tons of this movement should be considered as potential to the port.

POTENTIAL RECEIPTS - IRON AND STEEL PRODUCTS

Receipts of semi-finished and finished iron and steel products at the Port of Boston in 1952 were only 66,000 tons. In a pre-war year (1939), over 340,000 tons were received at the port. The 1952 volume was unusually low because steel at that time was in short supply and savings in time by the use of land transport were more important than savings in costs by the use of water transport. At present, the steel supply is more plentiful, and water transport has begun to regain some of its traditional movements. The high handling charges of domestic shipping, however, tend to deter the resumption of this trade.

Of greater importance to Providence is the recent construction of the Fairless Plant of the United States Steel Corporation on the Pennsylvania side of the Delaware River near Trenton, New Jersey. From a study of the comparative distances involved, it would appear that land transport from this plant to Providence would be cheaper than water. Since, of the nation's major steel plants, this is the one nearest to Providence, it is believed that most of the area's iron and steel requirements will be met from it.



UNLOADING FROZEN FISH - MUNICIPAL WHARF

Rhode Island Development Council Photograph

During 1952, approximately 26,000 tons of pig iron were imported at Providence, principally because of the difficulty of obtaining any iron and steel products in that year. During 1954, only about 2,000 tons were imported. It is believed that neither the import nor coastwise receipt of iron and steel products constitute a reliable potential for the port. There may, of course, be sporadic movements of these commodities at the port, depending on the rapidly changing supply-demand situation.

POTENTIAL RECEIPTS - SUGAR

In 1952, 470,000 tons of refined sugar were received by water at Boston. This level has been maintained since the war. With an average per capita consumption of nearly 100 pounds per year, nearly 80,000 tons per year are consumed in Providence's inland trade area. While this volume of commerce is not included in the port's potential because of the extensive and specialized handling and processing facilities that would be required, it might be worthwhile to determine if this volume would be sufficient to justify construction of such facilities.

POTENTIAL RECEIPTS - COFFEE

Receipts of coffee at Boston in 1952 totalled 34,000 tons. On the basis of the average per capita usage of 16.6 pounds per year, the present consumption in Providence's inland trade area is estimated at about 13,000 tons annually. Much of this, however, is supplied by packers with facilities established outside the Providence port hinterland. It does not appear that the volume processed locally at the present time would be sufficient to support direct waterborne shipment of green coffee from the producing areas to the Port of Providence.

POTENTIAL RECEIPTS - MISCELLANEOUS

The total miscellaneous receipts of 15,000 tons, all foreign, would be made up of small volumes of packaged chemicals, silk, carbon black, aluminum, hides and skins, jute and hemp, rubber, and other commodities consumed in the area.

POTENTIAL RECEIPTS - LUMBER

Although lumber is generally considered to be a bulk cargo commodity, large volumes are handled at the Municipal Wharf. Lumber is also handled at a private wharf below the Port of Providence on Narragansett Bay. During 1952, approximately 80,000 tons of lumber were received at the Municipal Wharf. In that same year, rail movements of lumber to the port's inland trade area totalled about 150,000 tons, principally from the West Coast, but also including an appreciable volume of posts, poles and lumber from the South Atlantic states.

Nearly all of the movements of lumber from the West Coast that are susceptible to water transport are presently being handled at the port. It is believed that only about 10,000 tons of West Coast lumber now moving by rail, and about 10,000 tons of the present rail movement from the South Atlantic states, might be diverted to water transport. The remaining tonnage now handled by rail would probably not be susceptible to water transport because of the nature of certain types of lumber and because of the movement, in recent decades, of many Western mills to points far inland from the Coast.

At present, the total volume of lumber receipts "potential" to the Municipal Wharf is estimated to be about 100,000 tons annually.

POTENTIAL SHIPMENTS

The volume of waterborne shipments "potential" to public terminals at Providence via conventional shipping services is less than 25 per cent of the volume of potential receipts. This unbalance is common to all New England ports. These estimated potential shipments at Providence total about 45,000 tons annually. The major commodity movements comprising this total are shown in the following table:

Port of Providence
Potential Waterborne Shipments at Public Terminals

	<u>Foreign</u> (Tons per year)	<u>Domestic</u>
Shipments		
Machinery and Tools	10,000	--
Iron and Steel Products	4,000	6,000
Wire	10,000	2,000
Cotton Waste	10,000	--
Miscellaneous	<u>3,000</u>	<u>--</u>
Total Shipments	37,000	8,000

POTENTIAL SHIPMENTS - MACHINERY AND TOOLS

During 1952, shipments of machinery and tools from the Port of Boston were less than 14,000 tons, even with the relatively wide range of shipping services and frequent sailings offered at that New England port. Although the interview survey conducted within the State of Rhode Island indicated an outbound potential of about 17,000 tons annually, and the total outbound potential for the port's inland trade area as a whole is about 30,000 tons per year, it is doubtful whether more than 10,000 tons could be considered potential to the Port of Providence with the limited range of shipping services and sailing schedules (once-weekly) that has been adopted as maximum for purposes of this study.

POTENTIAL SHIPMENTS - IRON AND STEEL PRODUCTS

Expansion of the commerce volumes established during the questionnaire and interview survey indicates that the potential annual shipments of iron and steel products (principally pipe and fittings) from the Port of Providence is about 10,000 tons annually. Approximately 60 per cent of this movement would be domestic, and the remaining 40 per cent, foreign.

POTENTIAL SHIPMENTS - WIRE

Approximately 12,000 tons annually of insulated wire (principally copper wire) appear to be potential to the commerce of the Port of Providence; of this, 10,000 tons would be foreign, 2,000 tons domestic.

POTENTIAL SHIPMENTS - COTTON WASTE

At present, about 10,000 tons of cotton waste are annually shipped from Providence's inland trade area to the Ports of New York and Boston for export. This volume of cargo is potential to the Port of Providence.

POTENTIAL SHIPMENTS - MISCELLANEOUS

The total miscellaneous shipments of 3,000 tons shown in the summary would be made up of small volumes of garments, textile products, and other products of the manufacturing industries in the port's inland trade area. All would be shipped to foreign destinations.

DISTRIBUTION OF POTENTIAL COMMERCE BY AREA OF ORIGIN OR DESTINATION

As shown above, the annual volume of commerce presently "potential" to the public general cargo terminals at the Port of Providence is about 235,000 tons including 100,000 tons of lumber receipts, 90,000 tons of general cargo receipts, and 45,000 tons of general cargo shipments.

The proportion of the port's "potential" which could probably be diverted to water transport (that is its "prospective" commerce) is dependent on the availability of an adequate, dependable shipping service and frequent sailings to many ports of the world. Based on the information obtained during the interviews and an analysis of commodity origins and destinations, the

distribution of Providence's potential commerce among the various areas of the world would be about as shown in the following table. The widespread distribution of the trade areas shown in the following table makes it apparent that each would require a separate service from Providence.

Lumber and general cargo are considered separately because lumber is a specialized commodity moving in large, often shipload, lots, whereas general cargo commodity movements are usually only a few tons each.

Port of Providence
Distribution of Potential General Cargo Commerce by
Area of Origin or Destination

<u>Potential Commerce between Providence and</u>	<u>To Providence (tons per year)</u>	<u>From Providence (tons per year)</u>
Pacific Coast	25,000	5,000
East and Gulf Coast	20,000	3,000
Northern Europe and Scandinavia Area	7,000	22,000
Mediterranean Sea Area	8,000	11,000
South Pacific Area	15,000)	4,000
Other Areas	15,000)	
Totals	90,000	45,000

Distribution of Potential Lumber Movements

Pacific Coast	90,000	--
East Coast	10,000	--
Totals	100,000	--

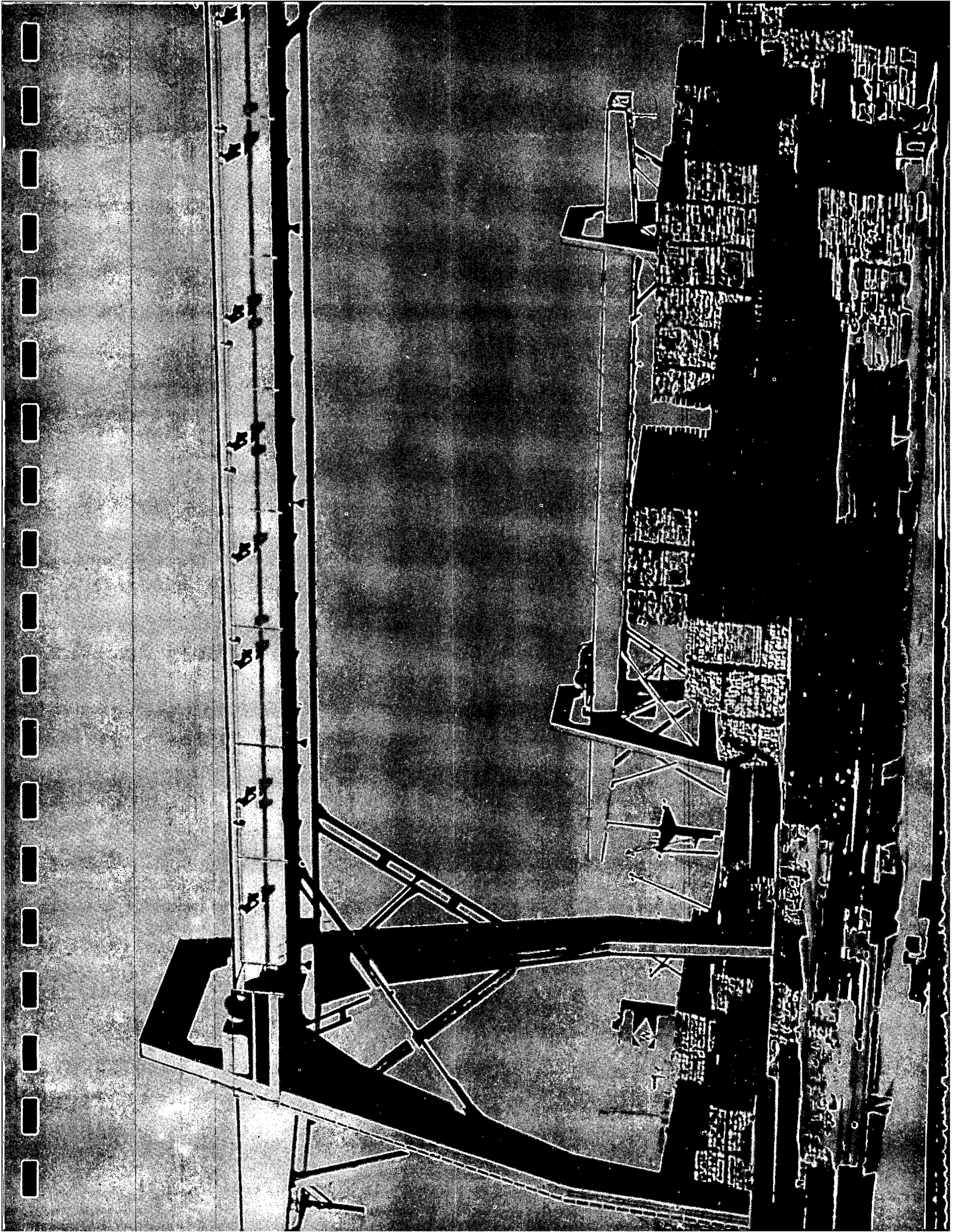
PROSPECTIVE COMMERCE MOVEMENTS VIA CONVENTIONAL SHIPPING SERVICE

As noted previously, several of the services between Providence and the major trade areas listed above would have to be on at least a once-per-week schedule to attract commerce in the port's trade area which might utilize conventional general cargo shipment. The nature of many of the major commodities handled (for example, machinery, textile materials) is such that less frequent service would almost entirely discourage these movements through the port.

As indicated in the foregoing table, the general cargo commerce "potential" to a shipping line serving the U. S. Pacific Coast totals 30,000 tons per year, or an average of about 600 tons (500 tons inbound and 100 tons outbound) per week. Consideration of the competition of land carriers for all movements between points on the U. S. mainland indicates that this average weekly potential must be further reduced to allow for the strong resistance of railroads and truckers, currently transporting more than half of the cargoes concerned, against any diversion of their present traffic. This competition would probably reduce the commerce "potential" to a weekly intercoastal service to 450 to 500 tons, if not less.

In determining whether it would be reasonable to expect that an intercoastal line could be induced to establish a weekly service at Providence for this volume of commerce, three principal factors must be considered:

1. The great degree of unbalance between inbound and outbound movements - a vessel entering the port with about 400 tons of cargo would leave with an average of 100 tons or less and 300 tons of unused space;
2. The proximity of New York and Boston - at least a portion of this commerce is presently being handled at New York and Boston, and shipping lines would generally prefer to



LUMBER STORAGE AREA - MUNICIPAL WHARF

Providence Journal Company Photograph

retain as much as possible of their operations at those ports where larger volumes of cargo can be concentrated; and

3. Additional costs - the cost of pilotage, towage and terminal services at Providence, while not excessive, would have to be distributed over a relatively small volume of cargo (as compared to New York or Boston), resulting in a high average cost per ton.

While it is often true that a general cargo vessel will call at a port for 200 to 500 tons of cargo, the establishment of a regularly scheduled berth service at a port usually requires a considerably larger commerce potential. In view of the above factors, it is doubtful if a shipping line could be induced to schedule regular service at Providence for much less than about 1,000 tons of general cargo per visit, particularly since at least some of this cargo would in any event accrue to the line concerned at either of the nearby ports of New York or Boston.

With only 450 to 500 tons of general cargo "potential" to weekly intercoastal service at the Port of Providence, and even less commerce "potential" to coastwise and the various foreign services, it is doubtful that additional shipping lines could be induced at present to provide weekly scheduled calls at the port.

The movement of lumber, which is a specialized cargo and thus is not considered above, differs considerably from that of general cargo. Lumber movements must be large enough in themselves to command relatively frequent shipping schedules, since this commodity is most economically handled in shipload lots. However, lumber does not require as frequent nor as rapid a service as the high-value general cargo commodities. Based on these considerations, the entire 90,000 tons of "potential" lumber receipts from the West Coast (including approximately 80,000 tons now moving through the port and an additional potential of 10,000 tons which presently moves all-

rail from that area) is considered "prospective" to the port. In the more distant future, waterborne receipts may decline, as western mills move inland. The 10,000 tons "potential" receipts from the South Atlantic Coast does not appear to be sufficient to command an adequate shipping service.

To summarize, the volume of waterborne commerce presently "prospective" to the Port of Providence is about 90,000 tons of intercoastal lumber receipts, most of the latter already moving by water. There are at present no general cargo movements which could be considered immediately "prospective" to a regular weekly shipping service of the conventional general cargo type. However, it is likely that occasional unscheduled general cargo service would be provided at the port from time to time, whenever sufficient cargo was offered.

Moreover, for certain commodity movements where the usual requirements for frequent service can be modified by the use of warehouse storage, it is possible that additional infrequently scheduled services on an approximate once-monthly schedule, as now provided by the Luckenbach Line, might be supported at some future time.

FUTURE PROSPECTIVE GENERAL CARGO COMMERCE

The volume of general cargo potential to conventional shipping services at the port is expected to increase at a rate approximating the rate of industrial development anticipated for the port's inland trade area -- 15 per cent or more by 1970. This increase in potential would somewhat improve the port's chances of attracting one or more additional shipping services and thus realizing at least a part of its general cargo potential.

The possibilities, however, of obtaining the necessary additional shipping services of the conventional type would be greatly heightened and, to a considerable extent, would

be largely dependent on the development within the port's inland trade area of one or more shippers or consignees who could be relied upon to generate fairly large individual movements (each in the order of a few to several hundred tons) for the port, on a regular, consistent basis. To assist in attracting a scheduled service, such movements must not only occur regularly each week or each month, but must also be consistent in overseas origins or destinations; that is, they must move to or from the same general range of foreign ports (the Mediterranean, the Caribbean, or Northern Europe, for example) each time.

Sources generating ocean-borne movements of this magnitude, regularity and consistency, and requiring the service of conventional general cargo shipping lines, apparently do not exist at present in the port's inland trade territory. Neither the sampling interview survey conducted by the Development Council nor the past solicitation efforts of municipal port officials have uncovered individual commerce sources meeting these criteria. Although considerable ocean-borne general cargo commerce is generated within the port's inland trade territory, it is comprised principally of a large number of relatively small shipments moving to or from a wide variety of places overseas, frequently on irregular schedules. While the few major, consistent movements necessary to attract additional scheduled services may well develop in the years to come, positive evidence that such a development is impending was not found during the course of this survey, as far as the conventional type of general cargo shipping service is concerned.

NEW TYPES OF DOMESTIC GENERAL CARGO SHIPPING SERVICES

During World War II, a large number of dry cargo (bulk and general) vessels in the coastwise and intercoastal trades were diverted to foreign service. Only a few of these vessels were returned to domestic service after the war. Since that time, the number in the coastwise trade has continued to decline and, while the number of vessels in the intercoastal trade has slowly increased, the pre-war level of service has never been regained.

Vessels in Domestic Dry Cargo Service (as of June 30 of year shown)

<u>Year</u>	<u>Number of Ships in Coastwise Service</u>	<u>Number of Ships in Intercoastal Service</u>
1939	229	137
1952	58	36
1953	59	43
1954	44	58

With only a few vessels in the coastwise and intercoastal dry cargo trade since World War II, shipping schedules are necessarily irregular. Moreover, high rates due to high ship operating costs and terminal expenses and relatively slow speeds have diverted many domestic cargoes to rail and truck transport, causing a further decline in this shipping service.

The primary cause of these high costs and slow speeds is the inefficiency inherent in loading and unloading freight in groups of small packages. In an effort to expedite terminal operations,

reduce vessel time in port, and minimize the labor involved in handling and rehandling each unit package in the transfers between ship and shore, several new methods of cargo movement by water carriers have been tested.

Principal of the special types of shipping service designed to speed vessel loading and reduce costs of waterborne general cargo movements are: container service, train-ship service, and, more recently, trailer-ship service.

CONTAINER SERVICE

One approach to the solution of the general cargo handling problem has been the use of various types and sizes of containers to be moved intact from shipper to receiver. It has been stated (Via Port of New York, July 1954) that more than 3,000 steel containers of 275 cubic feet capacity each are in use by a score of steamship lines and several freight forwarders at that port. Fundamentally, however, the method is merely a concentration of many small packages into fewer large packages. The containers must still be moved in and out of trucks or railroad cars at each end of the water movement. The next step is apparent: the use of a freight car or truck as the container.

TRAIN-SHIP SERVICE

The best known train-ship service is the Seatrain Line, which has been in operation for more than twenty years and which now operates between New York, Savannah, New Orleans, and Texas City. The ships operated by Seatrain Line have a speed of 16 knots or more and carry approximately 100 railroad cars on four decks. Cars are transferred between shore and ship by specially designed shore-based heavy-lift equipment, which lowers them to the various decks through hatches. Movement within the ship is on rails. The Interstate Commerce Commission has recently granted Seatrain Line a permanent operating certificate for the New York-Savannah trade, which had been operated on a temporary basis for several years.

In addition to the Seatrain operation, other operations of a similar functional character have been established between Florida and Cuba and in Western Europe. The Newtex Corporation (steamship operators) is presently considering the initiation of a train-ship service between New England and the Southwest, with Providence as a possible location for its northern terminal. There would appear to be a reasonable basis for such a service in the commerce which now moves between these two sections of the nation and which can probably be expected to increase with the further development and expansion of regional and national economies. Typical of the types of commerce which might utilize this service would be machinery and electrical equipment moving to the Southwest, and industrial chemicals (organic and inorganic) moving to New England.

A detailed commercial and economic study would have to be made, however, before definite conclusions could be reached as to the magnitude of the commerce movement which would ultimately utilize a train-ship service between Providence (or any other New England port) and the Southwest. Among the principal points which might be included in such a study are the following:

1. Examination of the cargo records of the Newtex Corporation to determine the types and volumes of commodities which moved by ship in past years between New England and the Southwest;
2. Similar examination, if possible, of the records of other coastwise shipping companies which operated comparable services in the past;
3. Comparison of New England manufacturing industries (and their products) with those now developing in the Southwest;
4. Review of the types and volumes of commodities which are produced in the Southwest and are consumed in New England; and

5. Analysis of present and possible future consumption requirements of New England (for products of the Southwest) and of the Southwest (for New England's products), in the light of population, industrial and over-all economic trends in the two regions.

It should be noted that the approval of the Interstate Commerce Commission must be obtained prior to the initiation of a new service of this type. The problem of obtaining Commission approval should be considerably simplified by the fact that Newtex already possesses operating rights between New England and Texas ports. Nevertheless, it must be demonstrated to the Commission that a train-ship service between these points would be both desirable and justifiable economically and in accord with the national transportation policy established by the Congress in the Interstate Commerce Act.

TRAILER-SHIP SERVICE

With the recent rapid increase in motor truck haulage over substantial distances, similar experiments with the movement of truck trailers by water have been inaugurated. All have the common operating method of carrying trailers by water with the road haulage at each end performed by highway tractor.

The American and Overseas Chartering Corp. began service on the Hudson River between New York and Albany in May 1952. Operations were suspended in April 1953, but were resumed in November 1953 and are continuing today. The vessels used are two converted LST's with a speed of 15 miles per hour. Trailers are loaded and unloaded by a roll-on, roll-off method. On October 7, 1954, the president of the corporation stated that the two ships had performed more than 900 voyages, carrying more than 250,000 tons of cargo with very few delays.

The Alaska Freight Lines, Inc. is presently moving trailer vans (the van only, with the wheels and chassis detached) between Seattle and Alaska. The vans are loaded and unloaded by shore-based heavy-lift equipment. A tug and barge service, handling loaded truck trailers and other cargo, has been in operation for

several years on the Gulf Intercoastal Canal. On November 18, 1954, a new ferry service for trailers was inaugurated between Port Newark, New Jersey, and San Juan, Puerto Rico, when a 10,000-ton Liberty ship took on 25 loaded truck trailers for delivery to San Juan.

THE McLEAN SEA-LAND SERVICE

The most recent development in the trailer-ship field is the proposal of the McLean Trucking Company to build, initially, four ships of 10,000 gross tons each, 638 feet long and 90 feet wide, with a cruising speed of 19 knots, a draft of 20 feet, and a capacity of 286 trailers on four decks. Trailers would be loaded on these ships through stern ports to the two main decks, via bridge-ramps from the shore. These decks would hold a total of 208 trailers. Space for 78 trailers on two other decks would be reached by elevators from the main decks.

The project of the McLean Company is presently before the Interstate Commerce Commission in a proceeding involving a merger between McLean and the S. C. Loveland Company, a domestic water carrier which already has water carrier rights to serve the Atlantic Coast territory.

In January, 1955, a further step was taken which may have the effect of speeding progress towards establishment of the McLean sea-land service. The newly formed McLean Securities Corporation of New York, headed by Mr. Malcolm P. McLean, formerly of the McLean Trucking Company, purchased control of the Pan-Atlantic Steamship Corporation. A press report indicates that Pan-Atlantic, under its new ownership, may acquire trailer-ships to supplement its own services and also to charter to the McLean Trucking Company - if and when the Interstate Commerce Commission approves merger of the McLean Trucking Company and the S. C. Loveland Company. The following paragraphs discuss the service to be offered if the decision of the Interstate Commerce Commission is favorable.

THE McLEAN SEA-LAND SERVICE - FREQUENCY AND RANGE OF SERVICE

In the initial operation, the McLean Company proposes to offer three sailings and arrivals weekly at both New York and Providence as the northern termini of its coastwise service. If it appears to be desirable, however, the weekly sailings and arrivals at either New York or Providence might be reduced to two, in order to provide a once-weekly service at Norfolk, Baltimore, and Philadelphia as northern termini. No service would be offered between Providence and any of the other northern termini.

All vessels, both northbound and southbound, would call at a central terminal to be located at Wilmington (or Southport) North Carolina. As southern termini, Charleston, South Carolina, Savannah, Georgia, and Jacksonville, Florida, would receive weekly service from each of the northern termini.

The McLean Company estimates that the proposed initial service would be doubled by 1960. If and when this is done, daily service would be provided between Providence and Wilmington and twice-weekly service between Providence and Charleston, Savannah, and Jacksonville.

THE McLEAN SEA-LAND SERVICE - INLAND AREA TO BE SERVED

Initially the McLean Company plans to route all its New England traffic through the Port of Providence, excluding of course the traffic of western Connecticut and south-western Massachusetts which normally would use facilities at New York. If, as appears probable, service is ultimately offered at Boston also, Providence would be restricted to serving an area bounded approximately by a line through New Haven, Pittsfield, Worcester, and Brockton. The McLean Company has estimated, however, that there would ultimately be sufficient traffic moving to and from this area to support daily service at Providence, even after daily service is provided at Boston.

On the basis of the announced intentions of the McLean Trucking Company and the Newtex Corporation to serve two such widely separated coastal areas as the South Atlantic Coast and the Texas Gulf Coast, it appears that at the outset there would not be areas of serious competition between these two carriers. It would appear that the proposed Newtex train-ship service would complement other services, present and contemplated.

THE McLEAN SEA-LAND SERVICE - SPEED OF SERVICE

The transit times estimated by the McLean Company are:

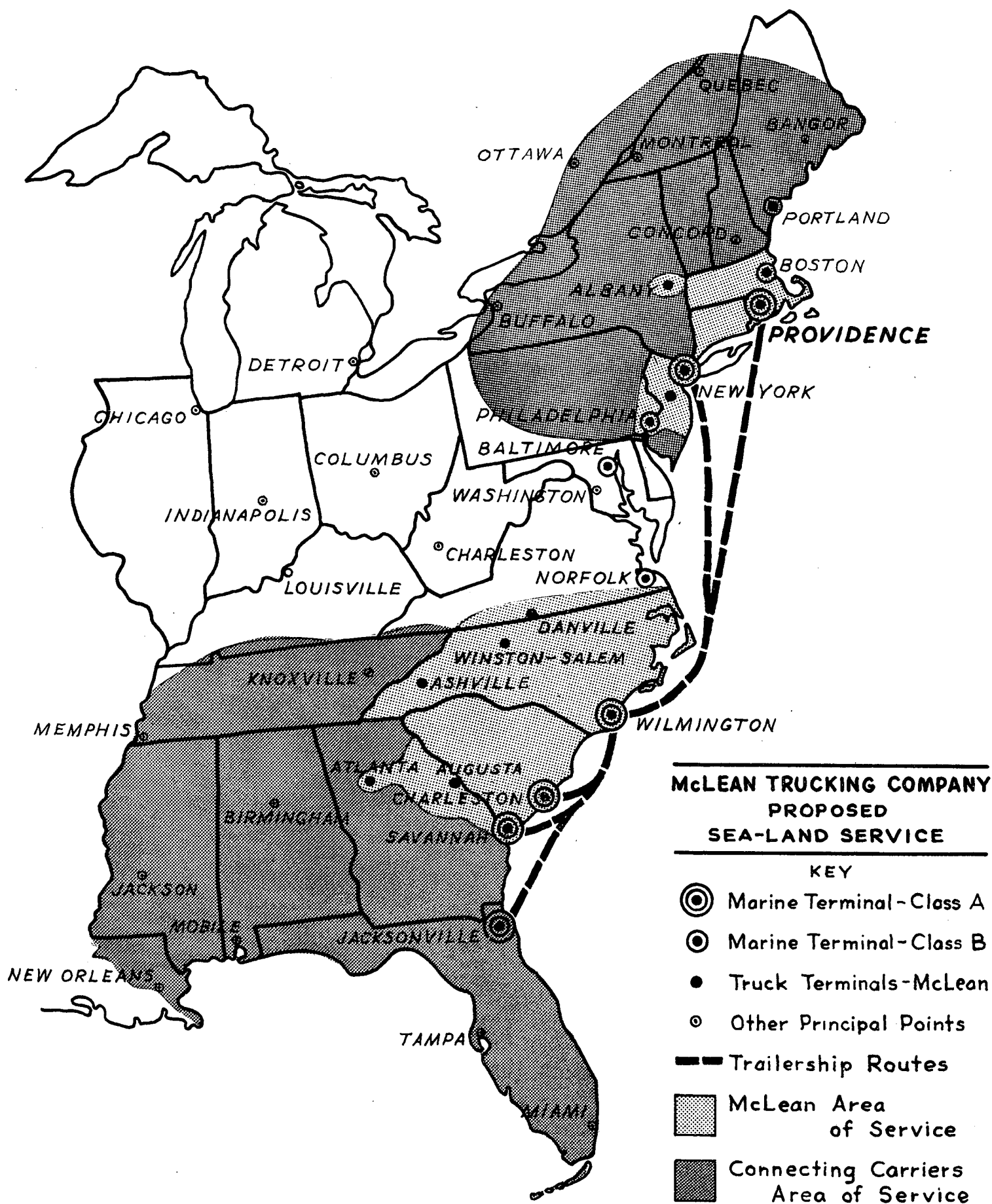
Providence-Wilmington	38 hours
Wilmington-Charleston	12 hours
Wilmington-Savannah	16 hours
Wilmington-Jacksonville	21 hours

The McLean company also expects to load or discharge a full shipload of trailers (approximately 4,300 tons of cargo) in four hours, as compared with the loading or discharging time of 25 to 40 hours (three to five 8-hour days) for a conventional general cargo service.

It is estimated that the over-all transit time for this service will be one or two days slower than motor carrier service, equal to carload rail service, and substantially faster than less-than-carload rail service.

THE McLEAN SEA-LAND SERVICE - RATES

In a service of the type proposed by the McLean Company two basic alternative methods of operation are possible: the service can be operated either primarily as a ferry service available to any and all truckers, or primarily as a means of transporting trailers owned by affiliated trucking companies. Revenues in the latter case would be derived by participation in joint through-rates rather than by merely charging tolls based on the size of the vehicles carried.



The McLean Company has apparently chosen the second method of rate-making. Joint through-rates will be established with both truck and rail common carriers. Port-to-port rates (based on commodity carried) will also be established for the use of exempt and private carriers.

It is possible, however, that there might be a conflict between McLean and other trucking companies in the fact that the McLean company would enter into joint rates with common carrier truck lines and, at the same time, provide this type of service itself. The American and Overseas Chartering Corp. faced the same problem when it initiated its service on the Hudson River in 1952. At first the company offered solely a ferry service, but later it joined in a truck-water-truck tariff with trucking lines. A water differential tariff was filed and considerable truck and trailer equipment was purchased. The company finally discarded the idea of getting its own cargo on a water differential tariff in May 1954. The president of the corporation summarized his experience by saying, "... you cannot expect a highway common carrier to patronize your service if you are at the same time an actual or potential competitor for his customers."

While definite rates are not as yet available for this service, the McLean Company has estimated very approximately that the savings which would result from the use of their service for movements between inland points in New England and inland points in the Carolinas, Georgia, and Northern Florida would range from four per cent to ten per cent of the present all-land rates. Slightly larger savings have been estimated for direct port-to-port movements.

THE McLEAN SEA-LAND SERVICE - FACILITIES REQUIRED AT PROVIDENCE

In consultation with the City of Providence and its Port Agent, the McLean Company has chosen a site in Providence at Fields Point, just to the south of the new transit shed at the Municipal Wharf. This company estimates that it would require an area of about ten acres for its ultimate development, with a special slip-

type ship berth. In addition to the special berth, the facilities required would include a two-level loading and unloading ramp, paved parking areas for the trailers, and accessory buildings and freight sheds. The McLean company estimates that these facilities would cost approximately \$1,500,000 exclusive of land cost. It is planned that these facilities would be provided by the City of Providence and leased to the McLean company. In furtherance of this, the Providence City Council, on March 19, 1954, adopted a resolution encouraging McLean's proposal. By authorization of the State Legislature, a proposal to issue municipal bonds in the amount of \$2,000,000 for this purpose was submitted to the electorate in November 1954 and passed.

PROSPECTIVE COMMERCE MOVEMENTS BY TRAILER-SHIP

The McLean Trucking Company, in the proceedings before the Interstate Commerce Commission on the McLean-Loveland merger, presented an estimate of the total "traffic currently moving between New England and North Atlantic States north of Maryland on the one hand, and North Carolina, South Carolina, Georgia, Florida, and Alabama on the other, which could profitably be transported by 'sea-land' trailerships operating between New York-Providence and Wilmington-Charleston-Savannah-Jacksonville." This estimate follows:

<u>Type of Carrier</u>	<u>Millions of Tons Annually</u>
Common Carrier Motor	4.1
Unregulated for-hire and private motor	2.7
Carload Rail	6.6
Less-Carload Rail	0.5
Water	<u>0.1</u>
TOTAL	14.0

In their initial operations, the McLean company estimates that they would attract about 15-1/2 per cent of this traffic, or approximately 2,170,000 tons annually. About half of this, 1,060,000 tons, is estimated by the McLean company to be the volume which

would move through Providence initially with three-time per week service. When daily service is instituted, McLean expects the volume moving through Providence to reach 2,120,000 tons per year.

The major commodities that the McLean Company expects to handle are: northbound -- cotton piece goods, cotton yarn, rayon piece goods, tobacco, wire and cable, metals (other than iron and steel), machinery, plywood, and other textiles and products; southbound -- paper and products, cotton piece goods, machinery, paint, food products, drugs, electrical appliances, hardware, and wire and cable.

In the proceedings before the Interstate Commerce Commission, witnesses for Eastern Railroads have estimated that the total annual tonnage "susceptible" to trailer-ship service in East-South service is about six million tons. Of this total, they estimate that McLean could attract only 1,155,000 tons.

The interview survey conducted within the State of Rhode Island by the Rhode Island Development Council indicates a prospective annual commerce volume of 295,000 tons for the McLean Company service from this State alone.

In addition to 220,000 tons of prospective commerce specified by various industries, a substantial volume of commerce would undoubtedly be generated by firms which indicated that they would use the proposed service if schedules were adequate and appreciable savings in transportation costs could be made, but which were unable, at the time of the interview, to furnish commerce estimates. Based on the present commerce movements of these firms, it is conservatively estimated that an additional 75,000 tons of commerce annually would be prospective to trailer-ship service at Providence from the State of Rhode Island alone. About 35,000 tons of this volume would consist of shipments from the port.

Commerce Volume for McLean Company
Trailer-Ship Service

State of Rhode Island

	<u>Tons Annually</u>
Inbound	
Cotton Piece Goods	72,000
Cotton	19,000
Synthetic Yarns	14,000
Cotton Cloth	10,000
Cotton Yarn	9,000
Cotton Waste and Linters	9,000
Miscellaneous and Unspecified	<u>56,000</u>
Total - Inbound	189,000
Outbound	
Wire	20,000
Finished Cloth	18,000
Machinery and Tools	9,000
Cotton Yarn	9,000
Miscellaneous and Unspecified	<u>50,000</u>
Total - Outbound	106,000
	<u><u>295,000</u></u>
Total Commerce	295,000

For the purpose of estimating the trailer-ship commerce prospective to the Port of Providence, it was assumed that this service would also be offered (ultimately) at Boston and that Providence would be limited to serving a fairly extensive tributary area for trailer-ship service, extending westward to New Haven and Pittsfield and northward to Worcester and Brockton. (The population within this area was approximately 4,200,000 persons in 1950, and its manufacturing employment about 710,000, as compared to a population of 790,000 persons and a manufacturing

employment of 130,000 for the State of Rhode Island alone.)

The total commerce volume prospective to the Port was then determined by expanding the volume generated within the State of Rhode Island to a figure representing the total available within the tributary (trailer-ship) area of the Port, on the basis of relative population and manufacturing employment. Even though it was assumed, for the purposes of this estimate, that similar service would be offered at Boston, it was found that the volume of trailer-ship cargo which would be presently prospective to the Port of Providence would be in the order of 1,600,000 tons annually or a weekly average of 31,000 tons. It is estimated that about 60 per cent of this total would consist of inbound movements, and the remainder in shipments. Since the proposed capacity of the vessels is 4,300 tons, it is clear that the volume of cargo would be adequate to support three to four round trips per week. Furthermore, additional commerce movements would probably be generated when the proposed service is placed in operation.

SIGNIFICANCE OF NEW TRAILER-SHIP SERVICE TO PORT OF PROVIDENCE

The decline of domestic general cargo shipping services during the pre-war years and their virtual disappearance from the coasts of the United States in the postwar period have resulted in the withdrawal from Providence of five or more regularly scheduled shipping lines. These lines had served the once prosperous trade between this city and New York, Philadelphia, Baltimore, Norfolk, and other major U. S. ports. As noted earlier, the principal factors which led to the failure of these long established services to compete successfully against modern rail and truck transport were: (1) the considerable increases which occurred, particularly in postwar years, in cargo handling and vessel operating costs; and (2) the delays and relative slowness of delivery inherent in the old, conventional types of domestic general cargo services.

It has been seen that the only way in which domestic general cargo commerce can be successfully revived, would be by effecting major improvements and economies in cargo handling and terminal operation, reductions in over-all costs of these movements, and the speedy dispatch and delivery of general cargo shipments. One of the most effective means by which these ends could be achieved is through the institution of a modern trailer-ship service utilizing the best in modern ship and terminal design and operating techniques.

The McLean company proposes to institute such a service at Providence. The Legislature of the State of Rhode Island and the responsible municipal officials and people of the City of Providence exhibited knowledge of this problem and sound judgement in lending their support to the institution of the service proposed by McLean. This service will have value not only to the Port, by increasing the tonnage of freight moving across its wharves, but also the people of Rhode Island and of New England in general, by offering them once again a general cargo service which can take advantage of the economies inherent in efficient waterborne transport.

PORT SERVICES

Port services and the charges to which they give rise are important elements in interport competition. Most important among the services ordinarily required by a vessel visiting the Port of Providence are pilotage, towage, wharfage, dockage, stevedoring; repairs, bunkering, chandlery; such on-shore services as are provided by banks, ships; brokers, and federal government agencies; and fire protection.

PILOTS

There are at present 38 licensed pilots in the State of Rhode Island, most of them members of the Narragansett Bay Pilots' Association or the Rhode Island Pilots' Association. About one-half are actively employed in their profession.

The services of these pilots are engaged through the pilots' associations by representatives of the shipping companies. Vessels are boarded at Brenton Reef Lightship and pilots are responsible for navigation between that point and the dock, inbound and outbound.

Fees charged by pilots are \$4.00 per foot for vessels of 16 feet of draft and under, \$4.50 per foot for vessels of 17 feet draft, and \$5.00 per foot for vessels of 18 feet draft and over. This schedule was adopted in 1952 and compares favorably with schedules in other northeastern ports.

TUGS

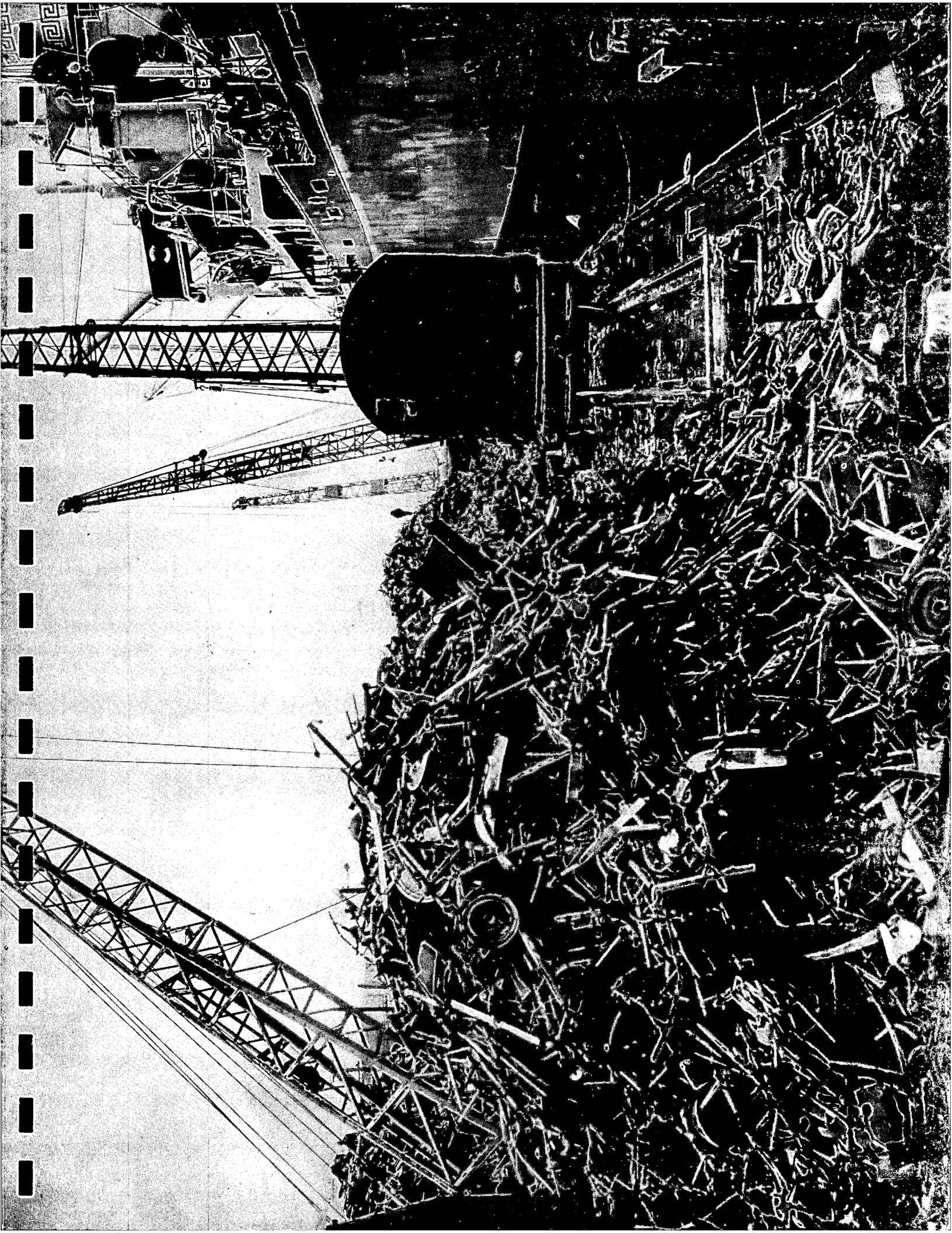
Four tugs, owned by the Providence Steamship Company, operate in the Port and upper Bay area. All have diesel engines, the largest being rated at 1,500 horsepower, the next at 1,200 horsepower, and the two smallest at 700 horsepower.

Tug crews average six men, as required by federal legislation applying uniformly to ports between Portland, Maine and Norfolk, Virginia. Crewmen are members of the Maritime Union and captains are licensed by the Coast Guard.

Most vessels entering or leaving the Port of Providence require the services of two tugs. The rates are \$90.00 for one tug and \$80.00 for an additional tug inbound; the same fees are again charged for an outbound vessel. Before 8 a.m. or after 4 p.m. an overtime fee of \$14.00 per hour is charged, and on Saturdays, Sundays, or Holidays, there is an extra fee of \$75.00 per tug. These rates are generally comparable with those at other northeastern ports. It should be noted, however, that if the amount of cargo discharged or taken on is small - as is usually the case with general cargo vessels at the Port of Providence - tug fees per ton or cargo may appear high.

WHARFAGE AND DOCKAGE

Charges of another type are wharfage and dockage assessed at the Port of Providence against cargo passing over a pier or wharf. Because of the different methods used for calculating these charges, the best method of comparison is to present typical costs at various terminals. The charges shown in the following table are averages for a Victory ship which occupies a berth for 36 hours and discharges 1,000 short tons of general cargo. Charges are based on the usual method of handling cargo at each terminal.



SCRAP IRON - INDIA STREET WHARF

Providence Journal Company Photograph

Typical Terminal Charges

<u>Port</u>	<u>Terminal</u>	<u>Dockage</u>	<u>Wharfage</u>	<u>Total</u>
Providence	Municipal Wharf	\$ 100	\$ 200	\$ 300
	State Pier #1	91	200	291
Boston	B&M RR Wharves at Mystic Terminal	125	*	125
	Castle Island Piers	125	350	475
	Mystic Terminal	125	385	510
	NYC RR Piers	125	872	997
	Commonwealth Pier No. 5 (Port of Boston Authority)	125	390	515
New York	All railroad piers (CRNJ, NYC, PRR, LVRR)	0	*	0
	New York City piers	400	300	700
	Port of New York Authority:			
	Hoboken	456	0	456
	Newark	228	0	228

* No charge for rail cargoes; a charge is levied on truck cargoes

STEVEDORES AND LONGSHOREMEN

Three stevedoring companies are available to undertake the loading and unloading of vessels at the Port of Providence. These companies hire gangs of longshoremen and own or rent cargo handling equipment.

There are about 180 experienced longshoremen in the Providence area. Typical gangs range from 14 to 21 men depending on the commodity:

Lumber	14 men
Pig Iron	16 men
General Cargo	21 men

In general, one gang is needed for each hold that is unloaded. However, on very large ships several gangs may be used at each hold.

Clerks and checkers are supplied in accordance with the size of the vessel. For example, a vessel with two holds may be required to employ a checker for each hold, a chief clerk, an assistant clerk and a runner.

Hourly wages for longshoremen are uniform for New England and New York, union contracts running from October first to the following September thirtieth. Fringe benefits are also generally the same, but vacation time varies somewhat from port to port.

The number of tons of a given cargo which can be handled per hour by a gang of longshoremen varies. Standards of performance are influenced by experience, the practices of the port, and equipment. While it is difficult to make completely reliable comparisons between neighboring ports, it seems clear that stevedoring costs at Providence and at other northeastern ports are substantially higher than at southern ports.

In a recent press interview (Evening Bulletin, February 16, 1955) John T. Sasso, Boston district sales manager of the Luckenbach Steamship Company indicated that recent stevedoring costs at Providence have been high because of a shortage of longshoremen and because of their relative inexperience with general cargo.

These complaints both stem from the fact that general cargo shipping in Providence is at present infrequent and irregular. As more general cargo vessels visit Providence, production rates should increase and more trained longshoremen should become available. Indeed, the longshoremen's union is now considering an increase in membership - a step which could be justified, in part, by the continuance of the Luckenbach service.

PERMANENT CRANES FOR THE MUNICIPAL WHARF

The possible need at the Municipal Wharf for permanently installed cranes has been examined with particular consideration to two specific types - a 20-ton fixed crane and travelling gantry cranes, which had been suggested by private individuals in the past as desirable supplementary equipment for the wharf. It has been found that the costs of purchase, erection, and maintenance

for such cranes could not be justified in the light of the nature and volume of present and foreseeable future commerce at the wharf.

FIXED HEAVY-LIFT CRANE

The simplest type of fixed, heavy-lift crane suitable for use at a general cargo wharf would be an electrically operated stiff-leg derrick. A crane of this type, having a 20-ton capacity at about 40-foot radius, would cost approximately \$35,000 to \$50,000, including the construction of a permanent foundation for it.

Movements of stone block or similar heavy items requiring heavy-lift equipment occur at the Municipal Wharf only a few times each year. These occasional movements are not sufficient to justify such an investment, especially since floating derricks and truck-mounted cranes, with capacities up to 10 and 60 tons, respectively, are available for hire at Providence.

GANTRY WHARF CRANES

In the case of permanent, travelling wharf cranes for miscellaneous general cargo purposes, the most effective type is the high-speed level-luffing gantry crane having a three to five ton capacity. Wharf cranes of this type and capacity cost approximately \$80,000 to \$120,000 each.

Gantry cranes are used extensively at European ports to load and unload miscellaneous general cargo as well as such specialized cargoes as pipe and iron and steel products. The practice at U. S. seaports, however, is to use ship's tackle for the loading and unloading of most cargoes handled at general cargo terminals.

There are few exceptions to this at U. S. ports. These exceptions occur principally in instances where fairly high-volume movements of the heavier and larger types of special cargoes, such as iron and steel products, take place with sufficient frequency to justify the replacement of the locomotive or heavy

truck crane, which would otherwise be required, by permanent gantry-type equipment. Moreover, the few gantries used for these special purposes at American general cargo terminals are frequently of a heavier type (up to ten and fifteen ton capacity at 30 to 40-foot radius) than the lighter high-speed gantries used for miscellaneous general cargo at European ports.

It has been found that, under the conditions and practices prevalent in this country, the use of ship's tackle is usually the more efficient and less expensive method of handling most general cargo items and is generally preferred by steamship companies, terminal operators, and stevedore companies. Among the factors which make the use of a ship's tackle the more desirable method are the experience and efficiency of U. S. longshoremen in this type of operation and the avoidance of the extra terminal charge which would normally be assessed for the use of wharf cranes. In a few instances where standard high-speed general cargo gantries are known to have been installed at East Coast terminals, it has been found that their use, for other than special purposes, has been at best infrequent.

Excluding the coal handled at the upstream berth of the Municipal Wharf, over 95 per cent of the wharf's dry cargo tonnage (including lumber) is handled by ship's tackle. In view of this, expenditures of the magnitude necessary to install high-speed gantries on the wharf cannot now be justified. Moreover, it appears very doubtful that sufficient justification for such expenditures would develop in the foreseeable future.

REPAIRS

At Providence, the range of repair services extends to all work short of drydocking. For example, repairs can be made on generators, engines, reduction gears, and shafts; tools, gears, and other parts can be fabricated; plumbing can be installed. In recent years, the demand for engine work has declined. Modern Diesels and water-jacket-type boilers require little maintenance other than routine replacement of worn parts. Propeller repairs, though normally a drydock operation, have been completed at Providence. The propeller has been raised to or near the surface by ballasting the bow. Temporary underwater repairs have been accomplished by divers.

LACK OF DRYDOCK FACILITIES

The lack of drydock facilities at Providence appears to have had little, if any, effect on the development of the Port or on the volume of its business. Private enterprise has not seen fit to risk capital for this type of development at Providence, since the need or demand for drydock services in the past has apparently been insufficient to make such an investment attractive. Moreover, on the basis of current and foreseeable future shipping requirements at the Port, it is very doubtful that the expenditure of public funds for such a purpose could be justified.

Extensive drydock facilities are available at the nearby ports of Boston and New York, about one-half day or less sailing time from Providence. Further, ship traffic at Providence is relatively small in volume and consists, for the most part, of vessels which can conveniently obtain drydock services at any of several major ports elsewhere on the East Coast. In all of 1952, for example, only 475 entries were made at the Port by vessels having drafts in excess of 18 feet. Most of these entries were accounted for by ships which visited the Port several times each during the year. Moreover, all of the major seagoing vessels calling at Providence are based at other ports and, since almost all are in the coastwise trade, they frequently visit one or more of the major East Coast ports which possess drydock facilities.

In addition, the drydock facilities now existing at Boston, New York, Philadelphia, Baltimore, and other points on the Northeast Coast appear to be more than adequate to meet the normal peacetime demands of shipping in this region. Further, the nation's wartime needs for major ship-building and ship repair facilities during both world wars forced a nation-wide over expansion of drydock facilities, as measured by peacetime requirements.

Finally, it should be noted that either a fixed or a floating drydock, with the appurtenant structures and equipment necessary for a modern facility, would cost several millions of dollars. It is estimated, for example, that a drydock having sufficient capacity to accept vessels of the Liberty and the T-2 tanker classes would cost approximately five to six million dollars. In view of the apparent surplus of drydock facilities on the Northeast Coast and the lack of any pressing need for such at Providence, it must

be concluded that an expenditure of even a much lesser amount for this purpose could not be justified.

BUNKERING

Fueling facilities are abundantly available at Providence but are little used. Ship operators can usually plan to purchase their fuel at ports nearer the sources of supply. Only an emergency could justify the purchase at Providence of oil brought from the Gulf Coast or coal brought from Hampton Roads.

CHANDLERING

Ships' provisions of all sorts can be purchased at Providence. Among the articles regularly supplied are food, beverages, fixtures, rope, and paint. It is a common practice for vessels to restock at the beginning of each round trip. In the case of some articles, however, a full year's supply may be purchased at one time. Frozen food, for example, is usually purchased in large lots.

It is in the nature of ships' chandlery that business facilities can readily be expanded to meet new demands. No large investment is required, nor is there any problem of site location - provided the place of business is reasonably accessible to the port area.

SHIPS' BROKERS

Providence ships' brokers are prepared to attend to all details involved in the shipping or receiving of waterborne cargoes. In the case of shipment to foreign destinations, brokers complete all consular invoices, certificates of origin and other necessary documents. In the case of foreign receipts, brokers see the goods through customs. In all cases, brokers are ready to arrange connecting transportation, warehousing, stevedoring, chandlery, towing and pilotage.



PIG IRON - MUNICIPAL WHARF

Providence Journal Company Photograph

BANKS

Rhode Island banks offer complete financial service to shipping. This includes the extension of credit for inbound or outbound cargoes and the payment or transmission of funds on ships' accounts. Two Rhode Island banks maintain foreign departments, one of these being rated the second largest in New England.

FEDERAL GOVERNMENT SERVICES

Federal agencies most directly concerned with port facilities are the United States Army Corps of Engineers and the United States Coast Guard.

The civil works program of the Corps of Engineers includes, among many other projects, the dredging of channels in navigable waters. The Providence River and Seekonk River projects are administered by the office of the New England Region at Boston, which works closely with the Division of Harbors and Rivers of the Rhode Island Department of Public Works.

Navigational aids in Narragansett Bay and in the navigable rivers of Rhode Island are the responsibility of the Boston Office of the United States Coast Guard. The Coast Guard is also charged with enforcement of maritime laws (including the licensing of Bay pilots for the coastal trade), search and rescue activities, and the promotion of safety and efficiency of the merchant marine. The Providence office is staffed by a shipping commissioner and representatives of the Inspection Bureau.

Several other federal agencies perform routine duties at the Port of Providence. These include the Bureau of Customs, offering full Custom House service; the Public Health Service, enforcing quarantine regulations (other than agricultural) and providing health services for merchant mariners; the Immigration and Naturalization Service; the Bureau of Animal Industry, enforcing agricultural inspection and quarantine regulations; the Weather Bureau; and the Passport Division of the Department of State.

FIREBOAT FOR PORT OF PROVIDENCE

The Port of Providence presently depends exclusively on land-based fire fighting equipment for its fire protection. The question of the possible need for a fireboat to serve that part of the Port lying within the City of Providence has been considered from time to time in the past and was examined in a survey by the National Board of Underwriters in 1949.

At that time the Underwriters concluded that a fireboat was not needed at Providence, giving as their chief reason the fact that the City did not have more than a mile of occupied waterfrontage. In this connection, it should be noted that the fire experience, both within the City proper and along its waterfront, has apparently been relatively good and that insurance rates for Providence are among the lowest in the nation for cities of its size.

In April, 1955, a new study of fire protection along the waterfront within the City of Providence was completed by John B. Dunn, Providence Commissioner of Public Safety. This report indicates that substantial improvements in waterfront fire protection have been achieved since 1949; that the initial costs of a fireboat and land station meeting the standards of the National Board of Fire Underwriters would, today, approximate \$300,000; and that operations would cost \$75,000 per year. The report concludes that purchase of a fireboat by the City would not, at this time, be advisable.

The evidence assembled in the 1949 and 1955 reports relates exclusively to the Providence section of the Port. In the port as a whole, however, including East Providence and Pawtucket, much more than a mile of occupied frontage exists. It is recognized that, if the recently assembled data for Providence could be put together with similar data from East Providence and Pawtucket, the recommendation with regard to a fireboat might still be negative. Until the Port as a whole has been considered, however, the question cannot be regarded as settled.

If it is found that cooperative purchase and maintenance of a fireboat is unnecessary or impractical, consideration should be given to the possibility of progressive development

of waterborne fire fighting equipment. For example, as an initial step in this direction, a small general-purpose utility boat, equipped with some fog and high-pressure fire fighting gear, might be developed to replace the Harbor Master's launch, when that vessel is retired from service.

The possibility of enlisting the assistance of the Town of East Providence and other municipalities adjacent to the port in the financing and operation of a new craft of this type should be examined by City officials. The objective of a new craft of this type would be to hasten this development by proportioning the associated financial burden among all the communities which, with Providence, would benefit.

CONCLUSIONS

Services utilized by vessels calling at the Port of Providence are generally comparable in quality and cost to services offered at competing ports of similar size in the Northeast. The fact that rising costs of port services have imposed a heavy burden on shipping is a problem which is not peculiar to Providence: it is shared by all American ports.

The fact that general ports such as New York and, to a less extent Boston, can offer more complete and, in some cases, more economical port services constitutes a competitive advantage which is a natural consequence of their larger scale of operations.

PHYSICAL SETTING AND TERMINAL FACILITIES

It is the function of a port, as the word itself implies, to serve as the gateway between land and water. In this chapter and the two which follow, attention will be focused on the water approaches to the Port, on terminal facilities, on land transport, and on the use of land in the area immediately surrounding the Port.

PHYSICAL SETTING

The Port of Providence is located at the head of Narragansett Bay, 27 miles north from the Atlantic Ocean. Within the Bay may be found abundant, safe, natural anchorage areas for the deepest draft vessels. Approaches to the wharves are by natural deep water to North Point and by dredged channels through the Providence and Seekonk Rivers.

Tidal currents in the approaches and channels are inconsequential except in the constricted parts of the Seekonk River. At these points, namely India Street Bridge and Red Bridge, the tidal current has an average velocity of 1.5 knots. This velocity is not considered sufficiently high to create navigational problems.

The mean tidal range in the Port is about 4.6 feet, although extreme combinations of wind and other natural causes have upon occasion increased this to eight feet or more. Except for powerful hurricane conditions, tidal action does not create difficulties for shipping. In general, wind is not a problem for commercial vessels at the Port of Providence.

Providence is also fortunate in that hazards resulting from fog are rare.

SHIPS' CHANNELS

The authorized federal project for the Providence River calls for an approach channel 35 feet deep at mean low water and generally 600 feet wide in the lower reaches from the deep water of Narragansett Bay opposite North Point to the turn below Fields Point, a distance of about 8.1 miles. Above Fields Point, the project channel is the same depth, with a width of up to 1,700 feet, for 2.6 miles up to Fox Point, at the confluence of the Providence and Seekonk Rivers. The existing project was completed in 1949. Actual depths in the channel are 33 feet up to Fields Point, and 35 feet from Fields Point to Fox Point.

The authorized federal project for the Seekonk River calls for a channel 16 to 18 feet deep at mean low water and 150 to 250 feet wide extending 3.2 miles from Red Bridge to the wharves in Pawtucket. From the Pawtucket wharves to Division Street Bridge, a distance of 0.2 miles, the project calls for a 16 to 18 foot channel 60 to 100 feet wide. Actual controlling depths of the Seekonk channel are 13 to 14 feet except for areas in the outer quarters of the upper channel, which measure ten feet. There is no federal project in the section of the Seekonk River between Fox Point and Red Bridge, but depths are in excess of 16 feet.

PRIVATE INDUSTRIAL TERMINALS

The Port of Providence, including the waterfrontage of both the City of Providence and the Town of East Providence to Red Bridge, is used primarily for the receipt of industrial bulk cargoes consumed by the manufacturing and distributing industries of Rhode Island and nearby sections of Connecticut and Massachusetts. In consequence, all but three of the port's twenty-seven wharves and piers are privately operated facilities, most of which are used to handle the industrial cargoes of their owners.

As is the case at most of the coastal ports of the nation, the principal commodities handled through the Port of Providence are the bulk petroleum products which are piped across the wharves of the oil companies serving the Rhode Island area. Most of these

products, representing over 85 per cent of the tonnage handled at the Port, move across nine terminals operated by the major oil companies. (Two major oil companies utilize the Municipal Wharf.) The remaining private wharves are used principally for the handling of coal, chemicals, and scrap iron and for the mooring of Block Island steamers.

PUBLIC TERMINAL FACILITIES AT THE PORT

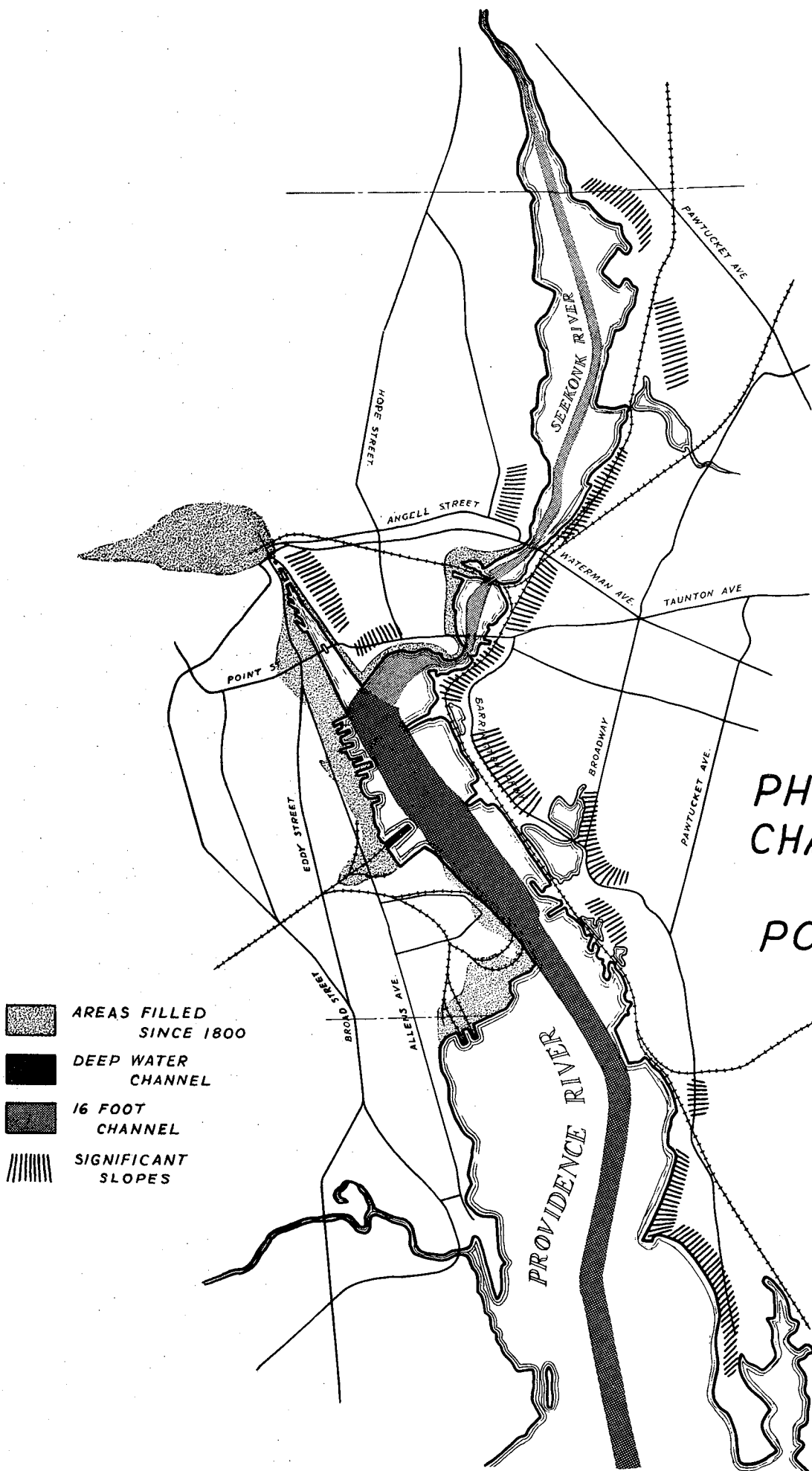
The principal publicly owned and operated terminal facilities at Providence are State Pier #1 at 242 Allens Avenue, and the Municipal Wharf at Fields Point. In addition, there is the small public wharf on the east bank of the Providence River immediately below the Point Street Bridge, which is used normally for the mooring of the Harbor Master's vessel and, occasionally, other small craft.

STATE PIER #1

Land for State Pier #1, Providence, Rhode Island was obtained by condemnation May 1, 1911 by the State Harbor Improvement Commission. Waterfront property on Allens Avenue, Providence, Rhode Island, bordering on the westerly side of the Providence Harbor Line and comprising approximately 748,523 square feet with a water frontage of approximately 700 linear feet was acquired. Cost of land on Allens Avenue was \$255,017.78. Funds for purchase of land and construction of piers were obtained from proceeds of Harbor Improvement Bond Issues of \$500,000.00 in 1910 and \$500,000 in 1913.

A new pier was constructed 120 feet wide by 600 feet long of creosoted piling and yellow pine lumber, having a reinforced concrete floor with a wearing surface of asphalt.

A steel pier shed was designed in 1913 for erection on State Pier #1 equipped with accommodations for passengers including quarters for immigration and customs officials, modern freight handling facilities and storage space for freight and baggage. This steel pier shed was 400 feet long and 110 feet wide.



PHYSICAL CHARACTERISTICS OF THE PORT OF PROVIDENCE

- AREAS FILLED
SINCE 1800
- DEEP WATER
CHANNEL
- 16 FOOT
CHANNEL
- SIGNIFICANT
SLOPES

The January 1916 report of same commission states that the cost of construction of State Pier #1, including engineering and administration expense, was \$470,320.10. This probably included grading of land and construction of a road from Allens Avenue to the pier shed.

In 1913, a wooden detention shed was erected at the rear of the steel shed on Pier #1. This was used by the U. S. Immigration Service until 1915 when the second floor of the steel shed was equipped especially for immigration offices.

In February, 1931 State Pier #1 was destroyed by fire, only the pilings and a wooden shed at the rear being saved. The total cost of reconstruction, as reported by the Harbor Commission in 1934, was \$397,218.13.

In 1939, the John J. Orr Company erected a shed on leased space.

Lack of water traffic in recent years has led to a policy of leasing available space at State Pier #1 to various tenants. The areas leased at present are shown in the table on the following page.

The leases generally contain a clause by which the land or building space can be recovered by the State by giving the tenant reasonable notice. This pier, although somewhat narrow, could be reconverted as an auxiliary general cargo terminal, if and when the commerce demands of the Port necessitate such action. Present water depths are 23 to 24 feet at mean low water.

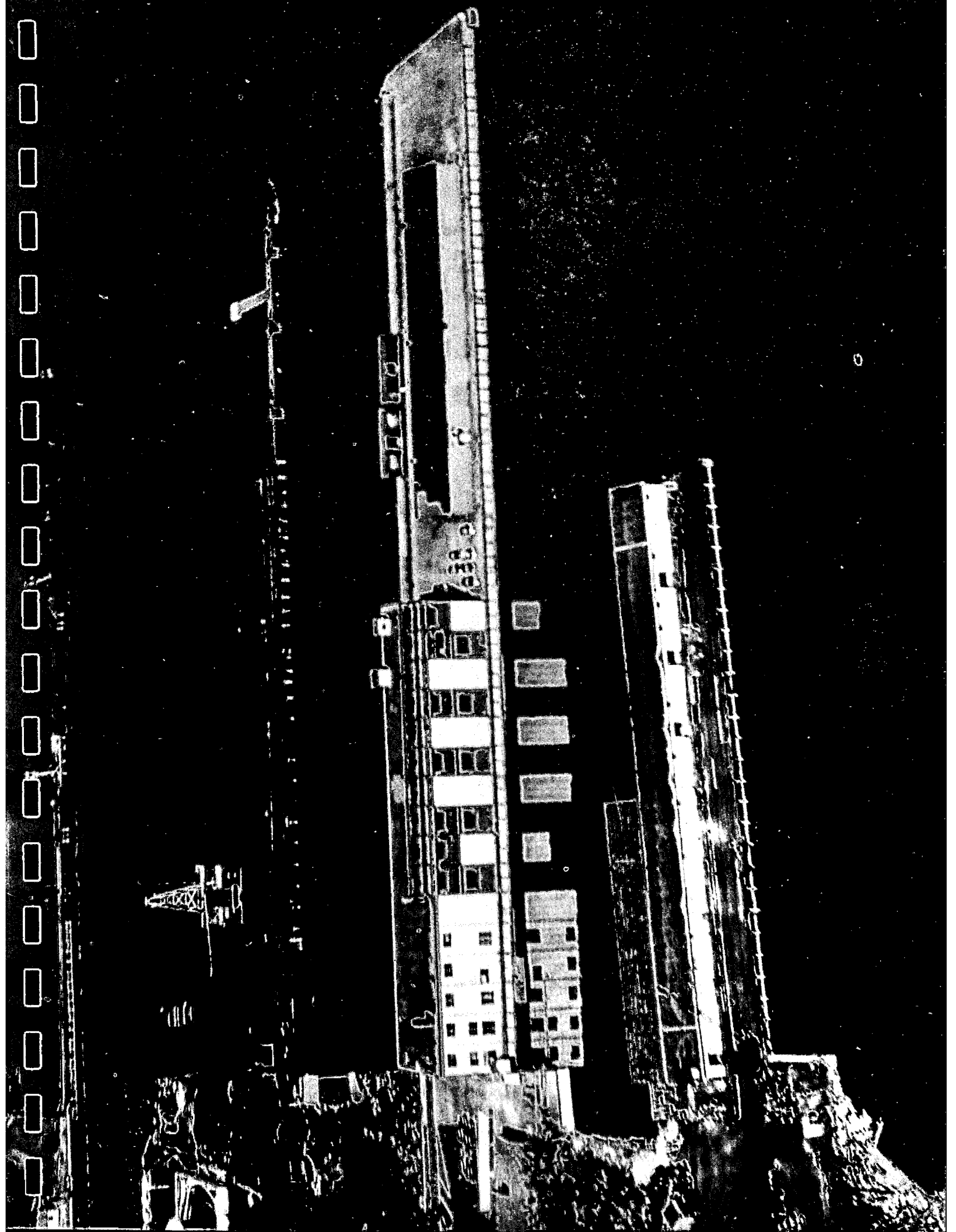
State Pier #1, Providence
1954

<u>Name</u>	<u>Area</u>
American Oil Company	33,188.40 sq. ft.
Old Colony Wharf Company	142,429.04 sq. ft.
Standard Auto Sales	14,522.25 sq. ft.
Providence Pipe & Sprinkler Co.	19,830.00 sq. ft.
1. Front Area (Vacant)	53,527.40 sq. ft.
2. Front Area (Vacant)	24,080.00 sq. ft.
3. Front Area (Vacant)	15,631.00 sq. ft.
Driveway	32,960.00 sq. ft.
Total	336,168.09 Sq. ft.
Seaboard Sales Co.	Part steel shed
J. J. Orr & Son	Ground area for shed

MUNICIPAL WHARF

The Municipal Wharf, which has been owned and operated by the City of Providence since 1916, is located at Fields Point on the west bank of the Providence River. This terminal handles virtually all of the general cargo and lumber commerce of the Port. In addition, large quantities of oil and coal are handled under lease and berthing agreements with private companies.

At the Municipal Wharf, the total area of City property now allocated to marine terminal and related industrial and long-term storage purposes is approximately 125 acres. In addition, adjoining the Municipal Wharf on the south is a shallow-water area of about 50 acres, which provides an excellent site for virtually any expansion of public wharf facilities which might become necessary in the future. Of the existing land area, approximately 55 acres are currently leased for the storage of coal, oil, and lumber and miscellaneous other purposes.



STATE PIER #1 - PROVIDENCE

Rhode Island
Department of Public Works Photograph

The Municipal Wharf is fronted by a masonry bulkhead approximately 4,300 feet in length, providing berthing space for seven ships of the Liberty and Victory types. About 1,000 feet of this bulkhead, at the upstream end of the wharf, is leased to two private companies for the handling of coal and oil. The remaining 3,200 feet of wharf is used primarily for the berthing of lumber and general cargo vessels, although berthing privileges have been granted another oil company for its tankers.

Approximately 143,000 square feet of floor area is provided in two transit sheds at the wharf. The newest of these sheds, providing almost 80,000 square feet of uninterrupted floor space under an arched roof, is one of the most modern facilities of this type in the country. In addition to the areas allocated to the storage of lumber, coal, and oil, the Municipal Wharf has available almost 60 acres of land for miscellaneous open storage and development purposes.

The wharf apron, transit sheds, and a portion of the open storage area are served by a network of terminal tracks which are connected to the New York, New Haven, and Hartford Railroad. Highway access to the wharf area is good, being provided by local roads connecting with Allens Avenue and Narragansett Boulevard.

ADEQUACY OF PRIVATE TERMINAL FACILITIES

In general, existing private industrial terminal facilities are of a size and adequacy commensurate with the needs of the industries concerned. Moreover, private enterprise has demonstrated its willingness and ability to perpetuate, improve, and expand these facilities as the needs of the various industrial users require. It is concluded, therefore, that the adequacy and availability of private industrial terminal facilities in general have not been in the past, nor are likely to become in the foreseeable future, a matter of direct concern or responsibility to the community or to the local public bodies concerned with port matters.

PRIVATE ENTERPRISE OPERATIONS AT THE MUNICIPAL WHARF

It is noted, however, that the City of Providence, through its Department of Public Works and Port Agent, leases portions of its surplus waterfront lands and wharf and warehousing facilities to private companies. This is being done today at the Municipal Wharf on a basis which brings a good financial return to the City. This benefits the community further by providing terminal and storage sites for coal, oil, lumber, and food distributing companies, some of which might be forced to establish elsewhere than at Providence if these facilities were not available. Moreover, the leasing of these facilities has been accomplished without lessening the efficiency and effectiveness of the Municipal Wharf as a public general cargo terminal, as measured by current and foreseeable future commerce requirements.

The City and its Port Agent are currently considering tentative plans to further expand its docking space and terminal facilities to accommodate two additional private companies: one, a food processing and cold storage firm and the other, a transportation company planning the institution of a major coastwise sea-land transport service at the port. Both of these developments would bring appreciable direct and indirect financial benefits to the community. On the basis of the tentative plans being considered, the improvements necessary for the establishment of these two companies at the Port of Providence can be effected without jeopardizing the other functions of public port operations. This type of development, having as its objective the encouragement of private enterprise at the port and being based on a self-liquidating financial program, should receive the continuing support of the community.

PRESENT ADEQUACY OF PUBLIC TERMINALS

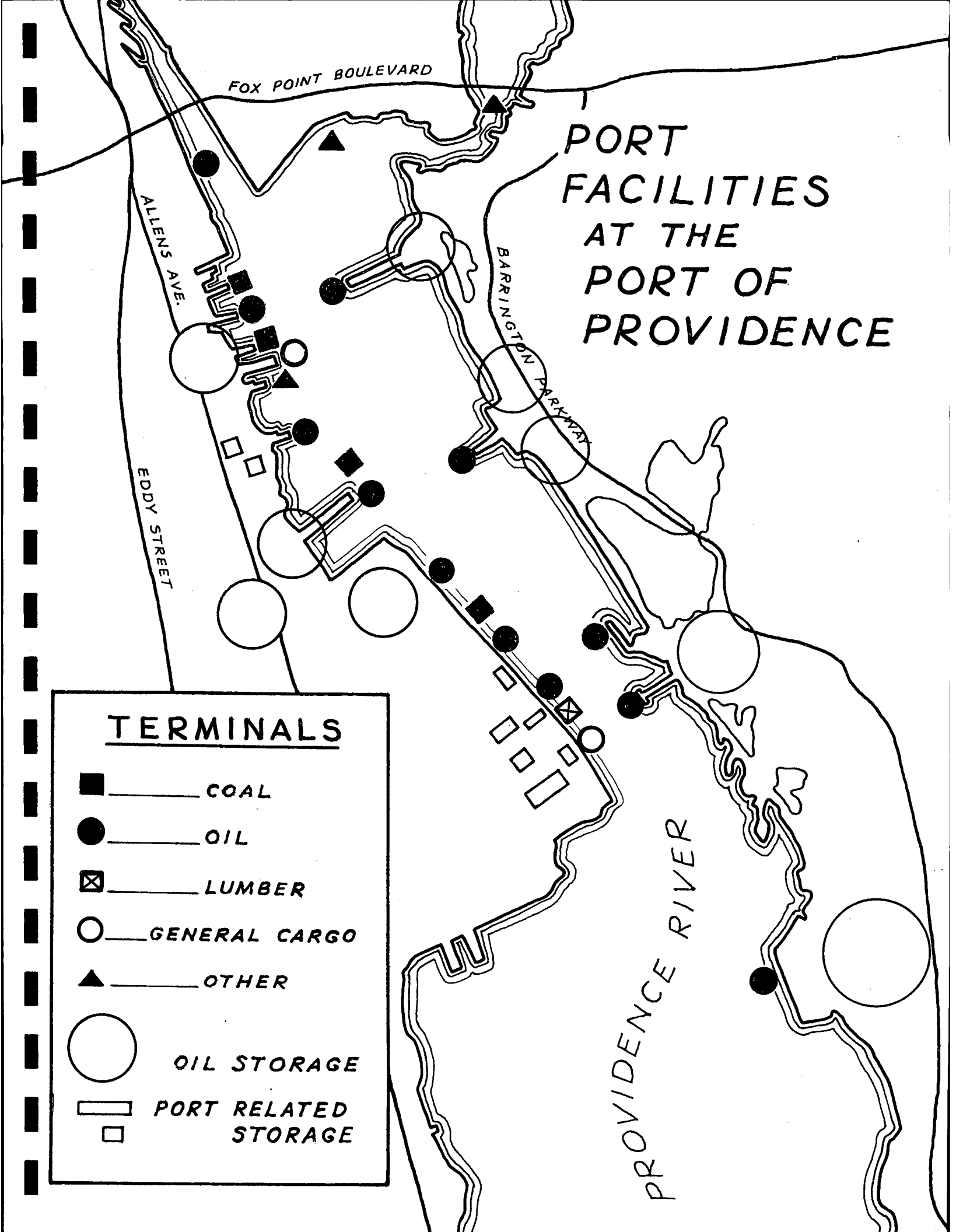
As noted, State Pier #1, with berthing space for two ships, is infrequently used as a marine terminal. However, it could be returned to that use to augment the port's public facilities at the Municipal Wharf, if and when the need arises.

The Municipal Wharf, with seven berths (including those allocated for the use of colliers and tankers) accommodated a

PORT FACILITIES AT THE PORT OF PROVIDENCE

TERMINALS

- — COAL
- — OIL
- ⊠ — LUMBER
- — GENERAL CARGO
- ▲ — OTHER
- — OIL STORAGE
- ▭ — PORT RELATED STORAGE
- —



total of 202 ships in 1953. Of these ships, 108 moored at the two berths leased to oil and coal companies, and the remaining 94, including 22 tankers, 35 lumber ships, and 37 general and special cargo ships, utilized the five "public" berths. At no time was there congestion at any of these berths and there was no occasion when ships could not berth immediately on arrival. This was also the case in 1952 and 1951 when 199 and 176 ships, respectively, berthed at the terminal.

In addition to 470,000 tons of oil and 111,000 tons of coal, 132,000 tons of lumber and general cargo (including pig iron and fish products) were handled at the Municipal Wharf in 1953. Most of the lumber and general cargo was handled at four of the terminal's five public berths, with the fifth being occupied frequently by the tankers of an oil company accorded berthing privileges there.

These berths, supported by 143,000 square feet of covered transit space, about 15 acres for the storage of lumber, and an additional 60 acres for open storage and development purposes, are entirely adequate to meet the current public terminal requirements of the Port of Providence. Indeed, the terminal has the excess capacity in berthing and storage facilities which is usually required by a port of Providence's type, size, and location (near to a major port like New York), if it is to capture any part of the local area's traffic normally served by public terminals.

Moreover, it is estimated that the basic facilities now existing at the Municipal Wharf would be ample to meet normal commerce requirements to at least 1970. Also, there is now available sufficient space to permit further development of private storage and processing facilities, if opportunities to lease some of the open area for these purposes materialize. Additional special berthing and terminal structures would be required prior to 1970, however, if the coastwise sea-land service referred to above is instituted.

Other relatively minor improvements to terminal facilities would be required from time to time. These would consist principally in the repaving of wharf apron and storage areas and in

modifying and extending the terminal's storm drainage system. Municipal officials responsible for port operations are fully cognizant of the improvements necessary. Considerable repaving work has recently been completed and more work of this type is programmed for the near future. This is in addition to a repair program, nearing completion, made necessary by the unusual hurricane damage sustained earlier in the year by some of the terminal structures.

The present depth of water at the Municipal Wharf (about 30 feet below mean low water) is adequate for the ships currently using the terminal. If and when further deepening becomes necessary, the berths along the downstream 1,200 feet of wall apparently could be dredged to about 35 feet without difficulty and without endangering adjoining sections of the bulkhead wall. Available information indicates that the maximum depth attainable along the upper 3,000 feet of wall is approximately 30 feet.

In view of the nature of operations at the Municipal Wharf, the apparent depth limitation of 30 feet at the upstream berths would not affect marine commerce appreciably in the foreseeable future. It is recommended, however, that the design criterion of 35 feet used for the newer, 1,200-foot downstream length of wall be considered the minimum for all future construction, and that study be given to the practicability of increasing this to 38 or 40 feet when further terminal expansion becomes necessary.

AREA FOR FUTURE EXPANSION OF PUBLIC TERMINAL FACILITIES

The terminal's location at Fields Point makes practicable the progressive expansion of wharf and supporting land facilities without the expropriation of valuable private waterfront properties and structures. The method of development used in the past - employing the progressive extension downstream of a bulkhead wall and the reclaiming of submerged land by filling behind the wall - is not only an economical form of construction but also results in the most efficient basic type of marine terminal layout - a marginal wharf. By continuing in the future the same marginal wharf type of development at Fields Point, an additional 50 acres of submerged land could ultimately be reclaimed for terminal, warehouse, and related industrial purposes.

FIELD'S POINT LAND USE AND TERMINAL FACILITIES

TRONDEN RIVER

1900'

35 FT. M.L.W.

4300'

30 FT. M.L.W.

POSSIBLE
SITE
SEA-LAND
SERVICE

FILLING
(PRESENT)

SUNSHINE
ISLAND

WAREHOUSE

LUMBER
AND
GENERAL CARGO

LUMBER
SHED

TRANSIT
SHED

CITY
CARGO
INCINERATOR
AND PLANT

GENERAL INDUSTRIAL PARK

LEASED
FOR INDUSTRIAL
USE

CITY
INSTALLATIONS

RESIDENTIAL AREA

MUNICIPAL WHARF PROPERTIES

ACRES	
AREA LEASED FOR INDUSTRIAL USE	34.5
AREA USED FOR GENERAL CARGO AND LUMBER	88.3
AREA AVAILABLE FOR FUTURE DEVELOPMENT	51.1
TOTAL	173.9

ALLENS AVE.

NEW YORK AVE.

ERNEST STREET

Obviously, those sections of reclaimed land adjacent to the water should be reserved for wharves and sheds; and port-linked industries should be given the preference for adjoining sites. However, since the development of additional terminal facilities is not of immediate concern at the Port of Providence, only the general layout of the area which may become available will be discussed at this time. The principal consideration with respect to the marine terminal is the length of berth required for modern vessels. Other details, such as apron widths, transit storage space, and the like, should be considered at the time when expansion of the Municipal Wharf is imminent.

The berth should be made long enough to accommodate the largest general cargo vessel anticipated in the foreseeable future. Liberty and Victory ships have over-all lengths of 442 feet and 455 feet, respectively. Larger general cargo ships of the Mariner type, with lengths up to 525 feet, have been recently put into service. It is considered that a berth length in the order of at least 575 to 600 feet should be provided wherever possible to permit ample clearances fore and aft of all vessels which are likely to carry general cargo in the next several decades.

The proposed harbor line and future bulkhead line facing the Providence River channel departs at its southern end from the presently established State Harbor line. It is recommended that the line be set as a straight-line extension of the bulkhead presently existing in front of the new transit shed. This would afford 3,100 feet of uninterrupted berthing space from the northern end of the new shed, and would be ample for five large, modern vessels or seven smaller ships. Moreover, the provision of a bulkhead in a straight line for a long distance permits a vessel to berth anywhere along the length, providing the flexibility necessary in berthing arrangements at marine terminals.

The next section of the proposed harbor line and future bulkhead line is 700 feet long, and meets the eastern bulkhead line at an angle of about 100 degrees. This length was chosen to provide a berth where a modern vessel could moor without interfering with vessels berthed at the other bulkheads. Consideration was also given to the problem of providing adequate rail connections at the southern end of the channelward bulkhead and at the eastern

end of the 700-foot bulkhead, and sufficient length was allowed on each of these bulkheads to make such connections possible without requiring a ship to use a berth without apron tracks.

The final section of the proposed harbor line and future bulkhead line is 1,500 feet long, and follows the extension (beyond the present State Harbor line) of the boundary between the cities of Providence and Cranston. This bulkhead would provide adequate berthing space for two large vessels or three small ones. It should be noted, however, that this line has been chosen at this time for convenience only. If it appears in the future that additional area would be needed, this line could be moved further to the south. Similarly, if considerations of political boundaries or other considerations make it advisable, this line could be moved a short distance to the north.

Except for the possible development of special facilities for the projected sea-land service referred to earlier, there would probably be little or no need for the expansion of berthing facilities at the Municipal Wharf prior to 1970. Thus the additional space available for future expansion should be ample to meet virtually all foreseeable requirements for public terminal facilities at the Port for many years beyond that date.

HURRICANES AND PORT DEVELOPMENT

Coastal storms of Hurricane intensity present a recurrent problem to north Atlantic ports. Four such storms have struck the Narragansett Bay area in the past 16 years, two of them (Hurricanes Carol and Edna) arriving within a period of twelve days in August and September 1954.

In the course of these storms, port terminal installations and commodities stored at or near the waterfronts suffered severe damage or destruction by wind, wave action, and flooding. Cargo vessels in Port were, in general, not seriously affected.

The geographical and meteorological factors involved, and the extent of losses suffered in Rhode Island in 1954 have been reviewed, in some detail, in the Rhode Island Development Council's "Hurricane Rehabilitation Study," October 1954.

To meet the hurricane challenge, the people and the government of Rhode Island have proposed a number of alternative protection measures (Rhode Island Development Council, "Hurricane Tidal Protection in Narragansett Bay," January 1955). Through the Rhode Island Congressional delegation, the assistance of the U. S. Army Corps of Engineers in evaluating these proposals is being actively sought.

Several of the structures under consideration would, if built, provide effective protection against flooding and wave damage for the entire port area. It is assumed that this would be accomplished with minimum effect on navigation.

Until such time as protection can be assured, several measures of caution may serve to reduce losses. First, the U. S. Weather Bureau has announced a reorganization of its east coast hurricane warning services. This should, in the event of another hurricane's striking, facilitate the proper deployment of vessels in Port, the removal of valuable goods from low lying areas, and the erection of temporary protective structures. Second, new buildings in the low lying areas should - to the extent economically practical - take advantage of modern wind-proof and waterproof construction techniques. Third, to the extent practical, inventories of lumber and perishable goods in transit should be kept to a minimum during the height of the hurricane season.

The danger is not one to be minimized: the experiences of 1954 have made this clear. But neither should the spectre of hurricanes be allowed to assume undue proportions. The means of reducing losses are at hand, and complete protection may, by vigorous action, be achieved within the next few years.

LAND TRANSPORT

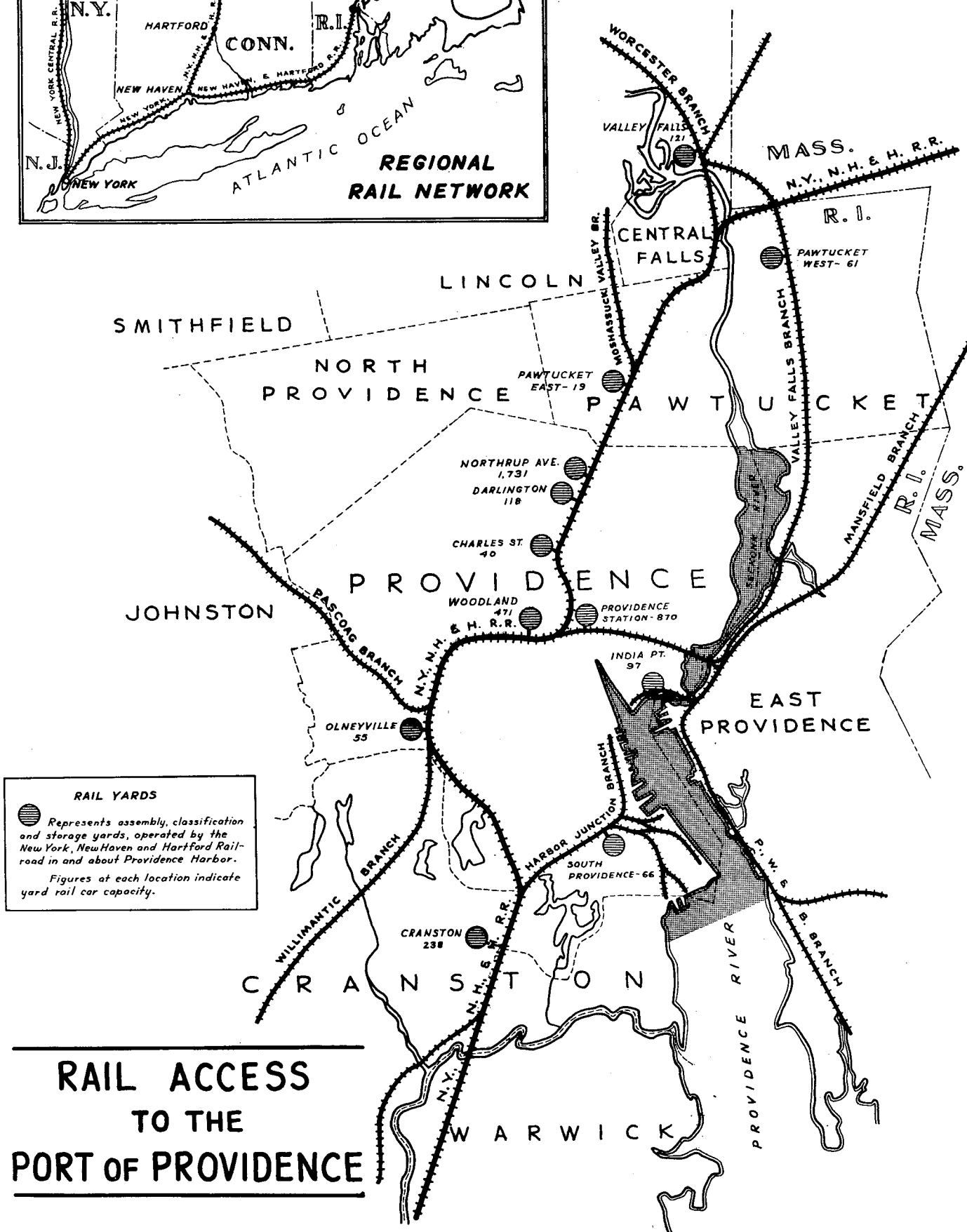
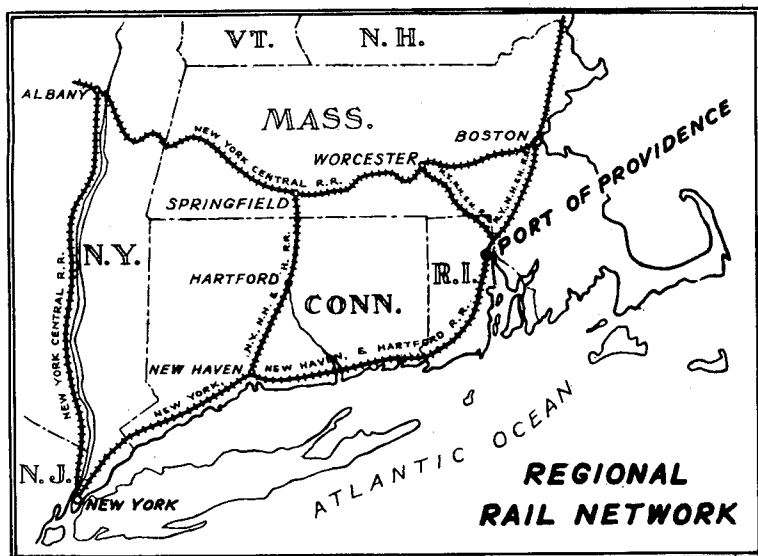
Port activity is inseparable from the connecting land transport system by which incoming cargoes are distributed and outgoing cargoes assembled. At Providence the principal port-linked land transport facilities are rail and highway. There is also a privately owned pipeline, used for distributing petroleum products to Worcester, Springfield, and Hartford.

RAILROAD CONNECTIONS

The State of Rhode Island and the Port of Providence are served by the New York, New Haven, and Hartford Railroad, which operates about 400 miles of trackage, 30 freight yards, and 70 freight stations in the State. The main lines of this system connect Providence and East Providence with Boston, Worcester, New London, New Haven, Hartford, and New York. The New Haven Railroad connects with 23 other railroads through some 50 freight connections, thus linking the port with the major rail lines serving the United States and Canada.

Industries and piers along the City of Providence's waterfront on the west bank of the Providence River are served by short branch lines and spurs from the New Haven's main line tracks and yards in the City. One of the main switching tracks for this part of the Port is on Allens Avenue, with switching leads to State Pier #1 and the various industrial terminals and plants in this area. Operations along this line are controlled so as to minimize interference with highway traffic during rush hours.

The City's Municipal Wharf on the west bank and the industries in the vicinity are served by the New Haven via an extensive



system of city owned lead tracks, spurs and sidings. These extend along the length of the wharf apron, serve the two transit sheds and the warehouse at this terminal, and loop through the terminal's open storage area. The basic track network at the Municipal Wharf appears adequate for the terminal's present rail service requirements and is so arranged that it can be extended readily to meet future needs as the terminal area is expanded and new facilities added. Current improvements include the re-laying of apron tracks, the elimination of a switch located at the junction of the wharf apron and the main terminal roadway (New York Avenue), and the replacement of some of the older type hand switches.

The port's East Providence waterfront is served by branch lines of the New York, New Haven and Hartford Railroad. The tracks are located near and approximately parallel to the river - an advantage which should contribute considerably to the attractiveness for industry of the waterfront sites which are available for development in the East Providence area.

ADDITIONAL RAIL SERVICE

Only one railroad, the New Haven, provides direct service to Providence and Rhode Island. This fact has given rise in the past to suggestions from various sources that an additional line, entering the region from the west or northwest, should be developed. It is clear that such a line, terminating at Providence, would benefit the Port of Providence by providing an alternative system which would afford a direct rail link to the Great Lakes.

The economic feasibility of developing a new rail line at this time, is, however, subject to question. The thorough examination and resolution of this question would require a detailed study of current land transport trends, requirements, and costs, etc., beyond the scope of this report. Nevertheless, a few of the points which would be influential in determining the practicability of such an undertaking are apparent and should be noted.

In 1910, the New England Southern was chartered. Its purpose was to provide direct service from Providence to Palmer, Massachusetts, and from Palmer, via the Central Vermont to the Canadian Grand Trunk Railway. If this line had been completed,

Providence would have been given direct service, via the Central Vermont and Grand Trunk Systems, to Chicago. Although almost all of the right-of-way had been secured and most of the grading completed, work on this line was suspended in 1914 and was never resumed.

It appears that the advent of World War I and the death of one of the principal promoters forced a diversion of the capital needed to complete this line during that period. The reasons behind the failure to resume construction after the war, however, may throw considerable light on the current economic feasibility of this enterprise and should be examined in any future study of this subject. It seems likely that the improvement and expansion of the Canadian ports and the extensive development of competing truck lines during the post-World War I period influenced, at least in part, the decision of the rail interests concerned to refrain from further investment in this line and to abandon much of the capital already invested there. It should be noted that competition from these two sources for the freight revenues which the Southern New England Road might engender, has continued to increase since that time.

Railroad interests, in appraising any opportunity for investment in a new line in New England, would presumably consider these and other factors directly affecting the competitive position of such a line. It is probable that consideration would also be given to the position which New England's existing railroads hold in the economy of the region and the related questions of operating revenues and operating costs in this area. On this general subject, the Committee of New England of the National Planning Association, in its Report No. 13 (The New England Transportation System and Its Uses, Yale University Press, 1954), stated as follows:

Railroads constitute a smaller segment of the New England economy than is the case for railroads in the country as a whole. Statistics reveal that while New England has 6.1 per cent of the population and contributes 8.3 per cent of the value added by manufacture of United States production, New England railroad percentages are noticeably smaller. Operating revenues of New England carriers have averaged slightly over three per cent of

the total railroad operating revenues in the United States. New England's compact area, only 2.1 per cent of the United States, affects operating revenue by reducing the average length of haul and also stimulates more competition from alternate carriers.

and further:

It has long been maintained that the operational costs of New England railroads have been higher than average for the country. The Interstate Commerce Commission has given recognition to that fact on several occasions, viz., in approving zone rate levels higher than the Official Territory class-rate level, and in granting a larger share in the division of joint rates. Insofar as the New England roads are concerned, there is little doubt that New England shippers pay a higher level of charges than do shippers in most of the rest of the country.

In the past, higher costs and higher charges have been attributed to unfavorable operating conditions. Cited as being unfavorable are the shorter average haul possible in New England, the low density of traffic, the unbalance of traffic, and the cost of fuel. These conditions, of course, vary from one road to another. Unquestionably they play a significant part in the higher costs of New England roads.

While it was not within the province of this report to evaluate the potentialities of a new competing rail line terminating at Providence and the practicability, economic or otherwise, of such a venture, two general conclusions can be reached on the basis of the limited examination made during this study:

1. The development of a new railroad, entering Rhode Island from the west or northwest and providing a direct connection between this area and the Great Lakes and Chicago, would undoubtedly benefit Providence and its port; however, certain

relatively recent changes in the national transportation structure (principal of which would be the St. Lawrence Seaway, the emergence and strong development of the Canadian and the Gulf ports, and the evolutionary changes taking place in interregional freight tariffs) may act to lessen considerably the direct benefits envisioned for the port in former years by proponents of the new line.

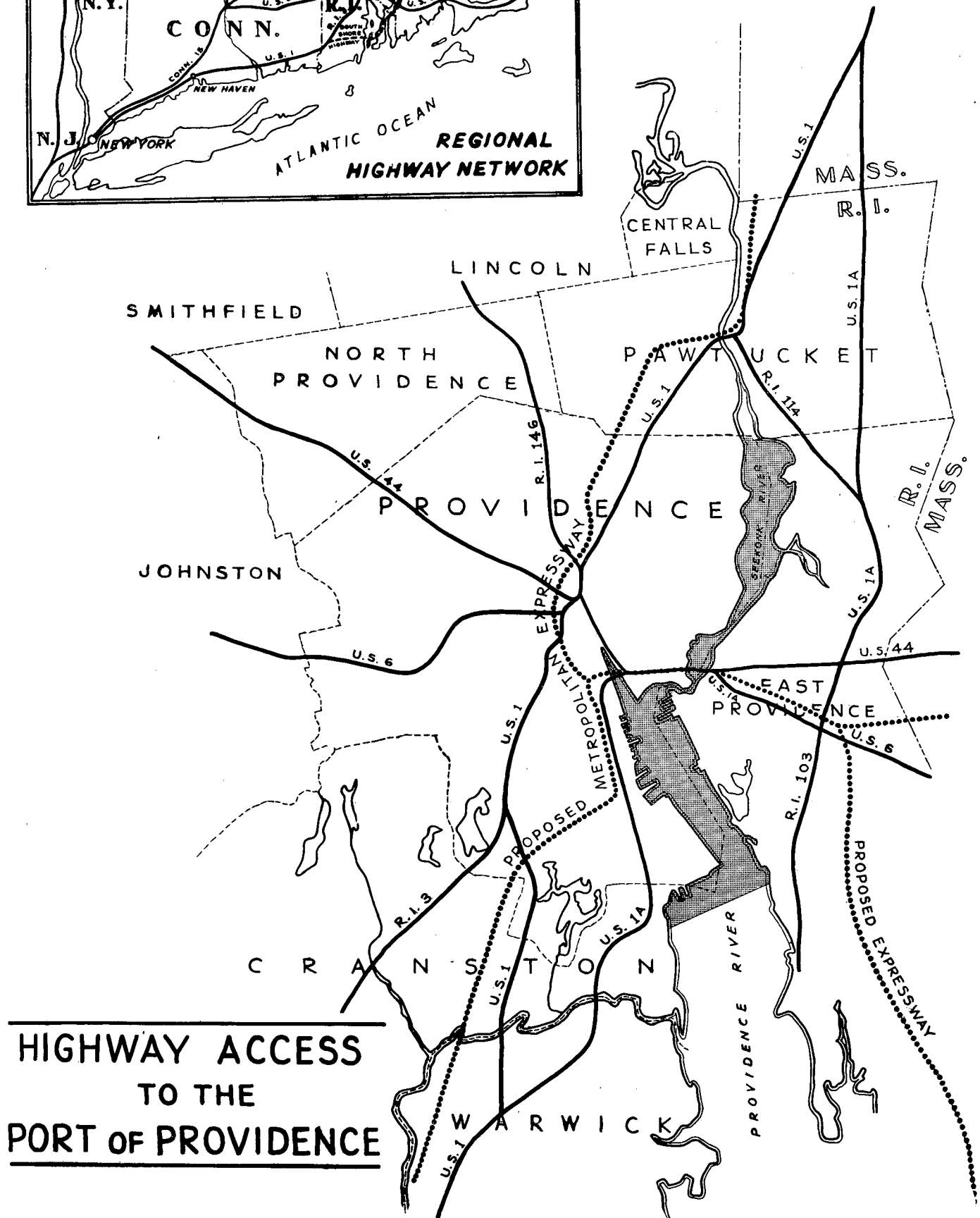
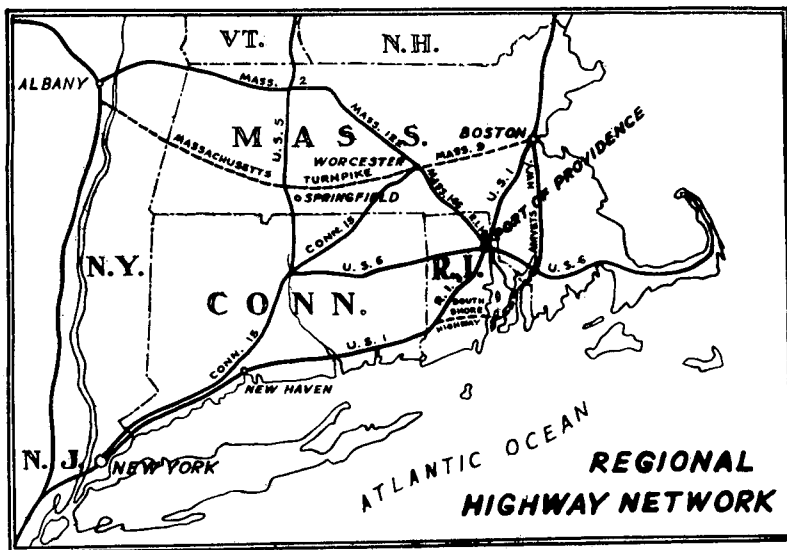
2. Considering the factors which affect the development and operation of transport facilities in New England, the trends in transport development in recent decades, and the physical problems which would be encountered today in an improvement of this type, the outlook for attracting investment capital at this time for an enterprise such as the Southern New England Road is at best poor.

Recently a new approach was made to the problem of railroad competition for Providence. The Boston and Providence Railroad Company has for 58 years served as a main line in the New York, New Haven, and Hartford system. In May 1955 a group of Boston and Providence Railroad Company stockholders began action in the federal courts to obtain recognition of separate existence. At the present time it is impossible to predict the course of this litigation or to evaluate accurately the economic effects which would result from a decision favorable to the plaintiffs.

TRUCK TRANSPORTATION

Over 750 common or contract truckers are registered in Rhode Island. Regular scheduled service is offered to Boston, New York, Philadelphia and the South. Line haul service connecting with all points is available.

The Providence metropolitan area is served by four major national highways and by a number of important local routes. The primary movement of truck traffic is between New York and Boston on U. S. Route #1 and Rhode Island Route #3. A considerable amount of truck traffic also passes over U. S. Route #6 linking Hartford and Cape Cod. Rhode Island Route #146 is a



major highway from Providence through Worcester connecting with the proposed Massachusetts Turnpike to Albany and points West. At the present time, there are no designated truck routes through the metropolitan area.

ACCESS TO THE PORT - PROVIDENCE

The Providence side of the Port from the Municipal Wharf to the Point Street Bridge is served primarily by Allens Avenue, a six lane artery permitting four lanes of moving traffic. While the traffic capacity of Allens Avenue is generally adequate for Port and Industrial needs, the artery also carries a considerable volume of non-local passenger car traffic. This causes congestion during morning and evening rush hours. A further complication arises from the presence of railroad tracks in the center of the street right-of-way although the railroad has been cooperative in scheduling the use of these tracks to minimize traffic conflicts.

Fortunately, the North-South Freeway, when completed, will relieve Allens Avenue of much of its through traffic and reduce it to its proper function as a local industrial highway. Ramps are proposed to connect Allens Avenue with the Freeway at Public Street and near Thurbers Avenue. These facilities should provide good access to Fields Point and adjacent waterfront areas.

The Municipal Wharf is served from Allens Avenue via Terminal Road, Ernest Street, and New York Avenue. Ernest Street provides access from Allens Avenue while New York Avenue is the principal east-west roadway within the terminal area. These streets are apparently adequate to meet all current needs of the Municipal Wharf and adjoining industries. However, some minor improvements would be desirable in the near future (for example, the easing of curves on Ernest Street, especially where it joins New York Avenue) to facilitate the movement of large trucks entering and leaving the terminal area.

The use of the waterfront north of Point Street for port purposes is relatively limited. Access to this area is related to the general traffic requirements in the city and the potential use of the waterfront for scenic and recreational purposes.

The highway plan adopted in July, 1946 by the Providence City Plan Commission contemplates the extension of the existing river-front drive south from Red Bridge to India Point. Completion of this link will increase the attractiveness of this area as well as help to distribute the land traffic between the two bridges.

ACCESS TO THE PORT - EAST PROVIDENCE

Access to the East Providence side of the port from Washington Bridge south to Riverside is provided by the Veterans' Memorial Parkway. This parkway, however, is closed to all but local trucking. The construction of a new expressway to the south, joining Washington Bridge and Mount Hope Bridge, will relieve this highway of much of its present through traffic. If the East Providence waterfront is to be more intensively developed, however, an expansion of controlled trucking on the Veterans' Memorial Parkway and the provision of local access streets will become a necessity.

A narrow road is presently in existence extending from under the Washington Bridge to Waterman Avenue just east of the Red Bridge. Since much of this area is in a run-down condition, it might eventually be possible to improve the road and make it an extension of the Veterans' Memorial Parkway. This might be done as part of an urban renewal project, the general character of the area being improved in the process.

North of Red Bridge, the primary means of access to the waterfront area is Massasoit Avenue and a portion of Roger Williams Avenue. The Waterman and Massasoit Avenues intersection is congested primarily because of heavy turning movements and the limited capacity of Red Bridge. Immediate access to the industries located on this section of the waterfront is provided by Dexter and Dunellen Roads and Bourne Avenue. These are inadequate at the present time and would be increasingly so in case of additional industrial development.

The general traffic situation in East Providence should be materially improved by the projected Eastern Rhode Island Expressway. This expressway will provide facilities adequate for local and through traffic and, at the same time, access to the waterfront areas

through interchanges connecting with the Veterans' Memorial Parkway. Key intersections will have to be studied and controlled to reduce local traffic congestion, particularly in the vicinity of Red Bridge. If any considerable industrial expansion takes place along the waterfront north of Red Bridge, undeveloped local access streets will have to be opened up and improved.

LAND USE PLANNING

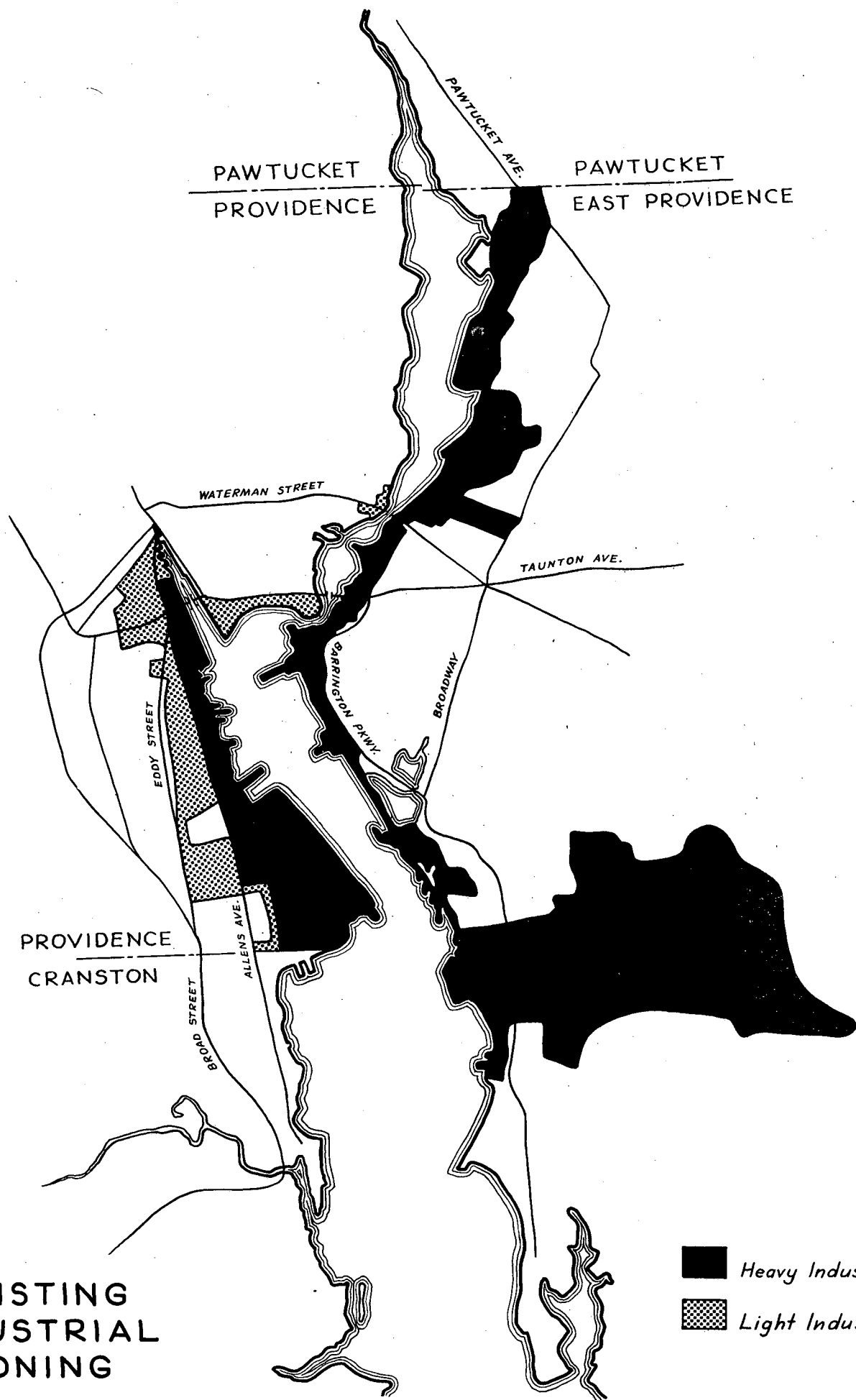
Throughout the country, port cities are taking renewed interest in the development of their waterfronts - partly in recognition of the importance of terminal facilities for waterborne commerce, but also because a well planned waterfront may serve to attract port-linked industry, increase a community's tax base, facilitate the flow of traffic, and contribute to municipal recreational development.

LAND USE PATTERNS AND ZONING

The area included in the following land use study of the Port of Providence differs slightly from that previously defined for purposes of commercial statistics. As indicated by the maps, port-oriented land will be considered as extending on both sides of the Providence and Seekonk Rivers, from about one-half mile south of Fields Point to the head of navigation at Pawtucket.

On the Providence side of the port, the waterfront from Fields Point to India Point is zoned for industrial use. North of India Point, the waterfront is zoned for residential use, which, in accordance with the Providence ordinance, includes parks and institutions. The "Master Plan for Land Use and Population Distribution," adopted by the Providence City Plan Commission in 1946, confirms, with some important modifications, the general outlines of present land use.

Most of the waterfront area in East Providence is zoned industrially - and most of the industrial land in East Providence is on or near the waterfront. While there are available sites of high industrial potential, it must be observed that much of the East Providence off-shore area is shallow; and that at some points the river banks are steep, the industrial zone narrow.



EXISTING
INDUSTRIAL
ZONING

PORT OF PROVIDENCE

- Heavy Industry
- Light Industry

The industries which occupy waterfront sites in Providence or East Providence were, in most instances, originally port-oriented. Some, however, no longer fully utilize their waterfront locations. The Providence Gas Company, for example, formerly imported large quantities of coal for the manufacture of gas; but in 1953, the Company introduced natural gas and discontinued coking operations. (Oil is still used for stand-by production.) Petroleum, coal, lumber and chemical companies, in contrast, continue to import large quantities of commodities for distribution, while the Narragansett Electric Company and a few other waterfront industries import fuel or raw material.

The acreage and value of waterfront land occupied by port-oriented industries is shown in the table on the following page. Figures are also shown for the acreages of potential development sites not now in use.

DETAILED LAND USE - PROVIDENCE WATERFRONT

Fields Point is located at the southern end of the Providence side of the port. During World War II, a large tract was developed as a wartime shipyard. This has since been converted to Harbor-side Park (a private industrial park). The Providence Municipal Wharf, the Providence sewage treatment plant, and several warehouses and industries now occupy portions of the low-lying Fields Point area. The City of Providence is presently reclaiming the shallow area between Fields Point and Sunshine Island by systematic sanitary fill measures. The additional 40 to 50 acres thus created will provide a significant area for the future expansion of port activities.

The waterfront north of Fields Point to the Point Street Bridge is largely taken up by facilities for the handling and storage of bulk commodities such as oil, coal and lumber and by two public utilities, the Providence Gas Company and the Narragansett Electric Company. State Pier #1 and a number of private piers are located in this area. The existing shoreline is, in general, well back from the official harborline, and with the exception of a few slips, the intervening water area is shallow.

AREA AND VALUE OF PORT-LINKED INDUSTRY

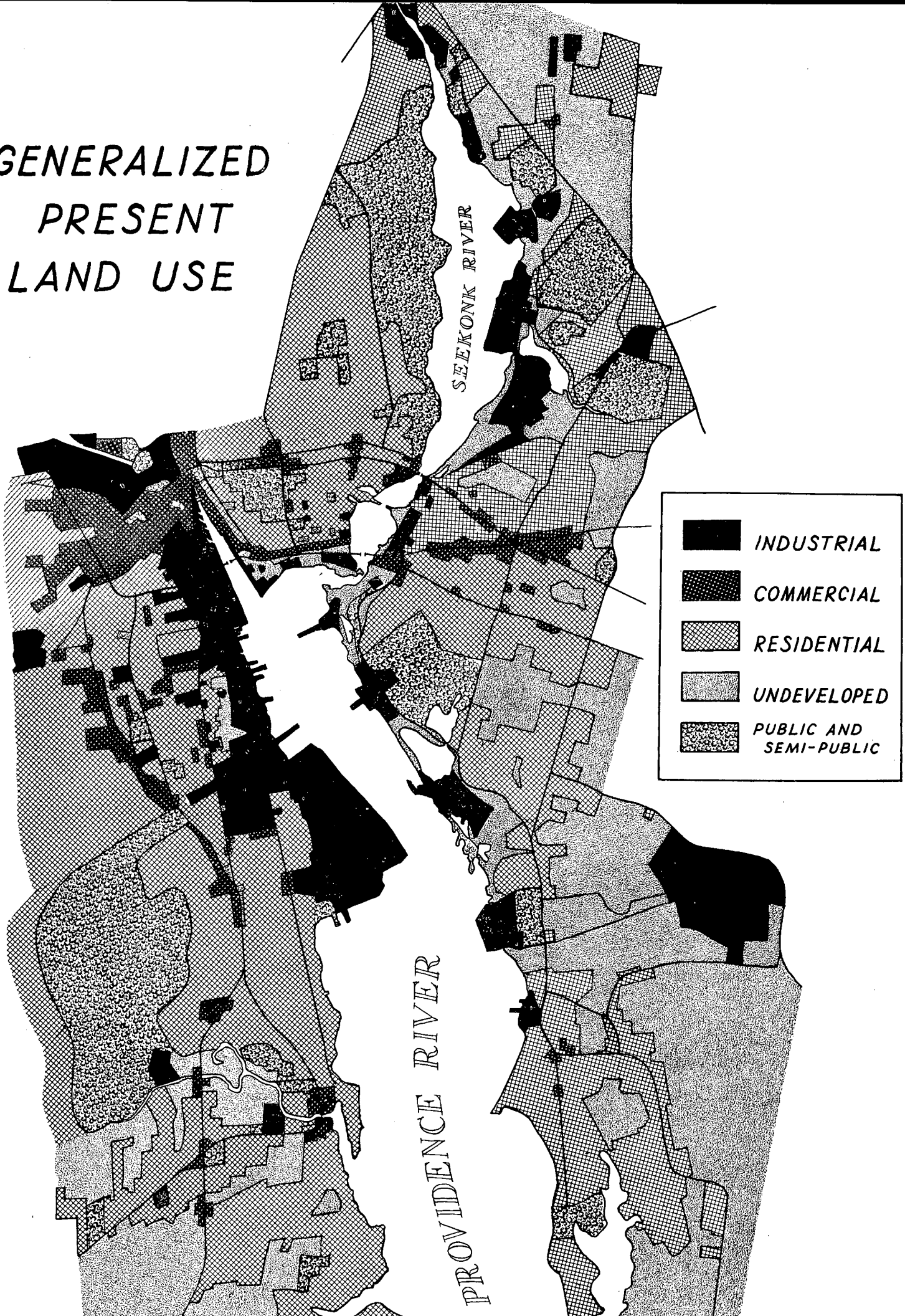
INDUSTRY	PROVIDENCE			EAST PROVIDENCE		
	ACRES	FRONTAGE (lineal feet)	ASSESSED VALUE *	ACRES	FRONTAGE (lineal feet)	ASSESSED VALUE *
Petroleum	38	1,600	\$ 1,782,000	982	7,200	\$10,839,000
Coal and Coke	26	2,400	1,243,000	-	-	-
Lumber	50	1,600	1,206,000	-	-	-
Chemicals	8	800	573,000	49	300	858,000
Utilities	67	2,500	32,533,000	-	-	-
Transportation Terminal Facilities	4	3,200	195,000	-	-	-
Distributors	2	-	118,000	-	-	-
Wire and Scrap Iron	5	800	62,560	40	2,400	2,080,000
Fish	-	-	-	1	100	44,000
TOTAL	200	12,900	\$37,713,000	1,072	10,000	\$13,821,000

POTENTIAL DEVELOPMENT AREA:

150 to 190 acres in Providence. 740 to 840 acres in East Providence.

* Assessed Value of Land and Structures for 1954 as determined by local tax assessors.

*GENERALIZED
PRESENT
LAND USE*



North of the Point Street Bridge is located the commercial center of Providence. A large portion of the land now occupied by public and commercial structures was at one time a navigable cove. Since the filling of the area, Point Street Bridge is, for all practical purposes, the head of navigation of the Providence River.

Historically, the waterfront between the Providence and Seekonk Rivers and including both Fox Point and India Point is of particular interest. Deep water runs almost to the shoreline here, and in former times this was a center of trade with the East Indies and other foreign points. At present, the area is used for a mixture of purposes including a wharf for the handling of scrap metal, some mercantile and industrial activities, and a small run-down residential district.

From India Point to Red Bridge, the narrow strip of waterfront is occupied by spot industrial, commercial and recreational uses separated by stretches of vacant land. Additional land is now being created by means of sanitary fill on either side of the New Haven Railroad branch line just south of Red Bridge. Immediately behind the shore is a blighted residential area which is being considered by the City for urban redevelopment.

Almost all of the shoreline from just north of Red Bridge to the Pawtucket city line is in public or semi-public ownership. The southern portion of this area is skirted by a scenic riverfront drive, the site of a pleasure craft anchorage and two private boathouses. The remaining area to the north is taken up by the Butler Hospital grounds and Swan Point Cemetery.

DETAILED LAND USE - EAST PROVIDENCE

Just south of the Pawtucket city line is Mount St. Mary's Cemetery, and just south of the cemetery is the Blackstone Valley Sewer District Commission's treatment plant. Between the treatment plant and Omega Pond is an industrial concentration consisting of finishing and dyeing plants and two wire and cable companies, located immediately adjacent to the waterfront.

The India Point Branch of the New York, New Haven and Hartford Railroad runs along the waterfront from Omega Pond

to the Washington Bridge. An industrial concentration of petroleum storage and processing facilities and diversified manufacturing plants is located inland from the railroad between Omega Pond and the Washington Bridge. The terrain of the vacant area between the shore and this industrial concentration is rough. The coastline in this stretch is separated from the Seekonk River channel by shallow water.

The area from Washington Bridge to Bold Point is occupied by scattered industrial, commercial, and residential districts with considerable vacant land. The Bristol Branch of the railroad runs along the waterfront south almost to Sabin Point. For a distance of almost three miles the major land uses are four large oil terminals and their related storage facilities separated by stretches of vacant land and shallow water. In addition, the Squantum Club is just north of the last oil terminal, which is owned by the Socony Vacuum Company. Along this part of the shoreline, the water from shore to harborline is quite shallow and the ground rises quite steeply inland from the railroad. Residential development in this area is on the higher ground away from the shore.

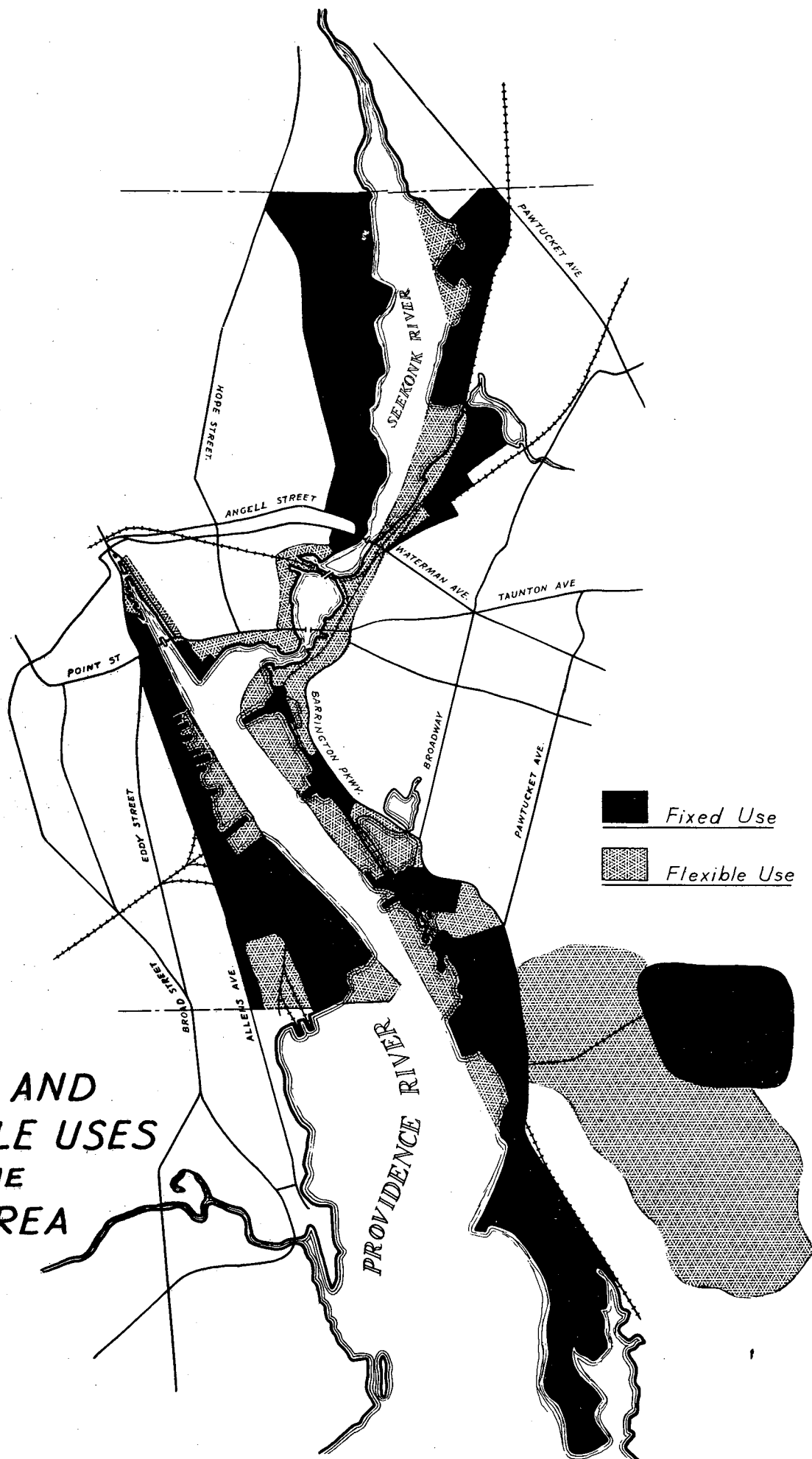
The East Providence sewage treatment plant is located just south of the Socony Vacuum terminal, and from here south to the Barrington line, waterfront use is predominantly residential. Much of the shoreline in this area is steep and subject to erosion.

FLEXIBLE AND FIXED LAND USES

The land uses along the waterfront of Providence and East Providence can be classified as "fixed" or "flexible" in accordance with their availability and the relative ease with which the present use could be changed or modified.

Most of the industrial, residential, and institutional land uses reviewed in the preceding sections must be classified as "fixed." The Municipal Wharf, the main plant of the Narragansett Electric Company, the major petroleum storage plants of East Providence, for example, are obviously permanent installations. "Flexible" areas, in contrast, may be considered as relatively, if not immediately, available. Examples are vacant

**FIXED AND
FLEXIBLE USES
IN THE
PORT AREA**



land, shallow underwater areas which might economically be filled, and such occupied areas as might become subject to redevelopment.

Several "flexible" areas are indicated on the map which follows.

WATERCOURSE LEGISLATION AND REGULATIONS

Much of the legislation affecting watercourses, particularly in regard to offshore land and improvements, is found in the common law rather than in written statutes. State ownership of tidewater inlets and bays from mean high water on one side to mean high water on the other is embodied in the common law. The power to regulate tidewaters is given to the Division of Harbors and Rivers of the State Department of Public Works by written statute, in the Shipping and Navigation Act, Title XIV of the General Laws of Rhode Island.

The Division of Harbors and Rivers is responsible for establishing harbor lines after full public hearings with the approval of the legislature and in practice, after consultation with the Corps of Engineers. Harbor lines set the limits of navigability and establish the limits of private fill offshore. Harbor lines can also be established by the Corps of Engineers. Normally the Corps would consult with the Division of Harbors and Rivers beforehand. This is not a duty which is performed frequently. Most of the State harbor lines in the port were established at least 20 years ago.

Of special significance to port development is the question of ownership of filled-in offshore land. The Division of Harbors and Rivers is empowered by the Shipping and Navigation Act to regulate the filling in of offshore land and the construction of offshore improvements. A private property owner whose holdings face on the shore must apply for and receive permits from the Division of Harbors and Rivers and the Corps of Engineers before he can fill beyond the mean high tide mark. In most cases the property owner would be permitted to fill perpendicularly out from his property to the State or Federal harbor line. Special problems requiring individual adjustment would arise, however, in the case of a curving shoreline. The property owner is not required to compensate the State for the often valuable

privilege of filling in offshore land.

According to the city assessor's office, the City has the power to tax offshore property out to the harbor line whether or not it has been filled. In practice, filled in land is always taxed but land still under water is taxed only if it is used as, for example, in the case of a ferry slip.

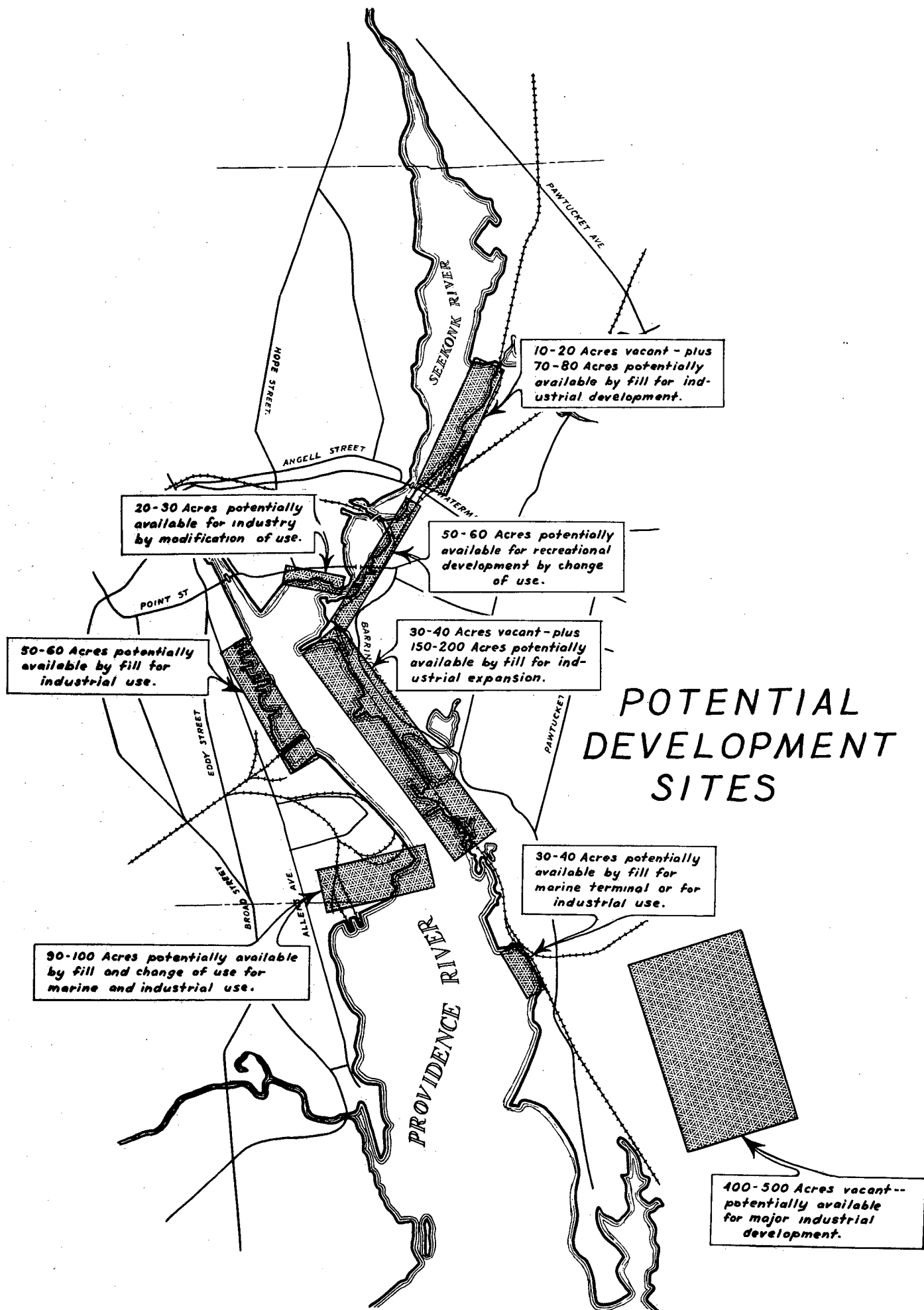
Underwater offshore property which is not filled and which is not being used is not taxed although the communities do have the power to tax such property.

DEVELOPMENT OPPORTUNITIES

In an earlier section of this report (Terminal Facilities) it was recommended that land now being filled in immediately south of Fields Point be reserved for port-linked industries and for the expansion of terminals and warehouses when and as needed. In this instance, a positive recommendation was justified by the fact that Fields Point is obviously the center of the port's general cargo shipping and by the fact that the newly created land will be in public ownership.

The advantages of introducing port-linked industries and their associated private terminal facilities at other points on the waterfront now classified as "flexible" are equally clear. An outstanding example is the site in East Providence just south of the Socony Vacuum plant and including some of the vacant land now owned by Socony - one of three or four large tracts in the State which have access to deep water and are suitable for industrial development. This area represents by far the largest potential industrial site in the port area, and in addition to its deep channel access is well-served by existing railroads and will be served by the proposed expressway. Waterfront land of this character is a limited resource which can render its full value only when used as such.

It must be recognized, however, that conflicting claims may be made, that it may not in every instance be practical to reserve prime areas for the future use of port-linked industries when non-



POTENTIAL DEVELOPMENT SITES

port-linked industrial prospects may be actually in sight. This much is clear: further expansion of residential areas along the port's waterfront should be discouraged - and new acreage created by filling should be reserved for public or industrial use.

Although industry constitutes by far the most important economic potential for development in the port area, it is by no means the only justifiable land use. Transportation and recreation, for example, may claim important areas. The development potentials briefly listed in the following paragraphs are intended as examples of such alternative development. They are offered not as recommendations, but as suggestions for study at the local level.

The role of rail and highway connections in the port area have been discussed in a previous section (Land Transport). Surprisingly, air transport may, within a few years, be in need of a waterfront location. With the growing importance of helicopter traffic as a supplement to longer distance conventional means of air travel, it is essential to provide a suitable in-town terminal. Ideally, such a facility should be located close to the central hotel and office area. A space several hundred feet square with clear approaches is desirable: a shore location often has such clear approaches, at least on the waterside. One potential site for a helicopter port is at India Point. If the electric transmission tower now standing in the area could be relocated, the water approach over the harbor would be relatively unobstructed. It is possible, however, that other sites, closer to down-town Providence may be found.

A third alternative land use is recreation. In part because of scenic values, municipal waterfronts have great, if unrecognized potential as park and recreation areas. Provisions are made in the Providence "Master Plan for Land Use and Population Distribution" for expansion of the park area north of India Point and for extension of the riverfront drive. East Providence lacks waterfront recreation: A possible study area lies between Red Bridge and Bold Point. Feasibility of the site, however, depends upon abandonment of the railroad line crossing the river at this point. The area is now devoted to a mixture of uses including the railroad, a commercial center, and a run-down residential district.

Few American port cities have a longer or more varied maritime history than Providence. Many, however, have gone further in recognizing the economic and cultural advantages of dramatizing their heritage. In southern New England, marine museums are

maintained at Mystic, Dartmouth and Salem. At Philadelphia and Baltimore historic naval vessels are maintained as floating museums. At the Port of San Francisco, eleven labor unions recently contributed their time, without pay, to recondition the Pacific Queen, a 68 year-old square rigger as a "Floating Museum of California Maritime History." The people of Texas have purchased a battleship for a similar purpose. Providence, as a part of its tourist promotion activities, might well consider these examples.

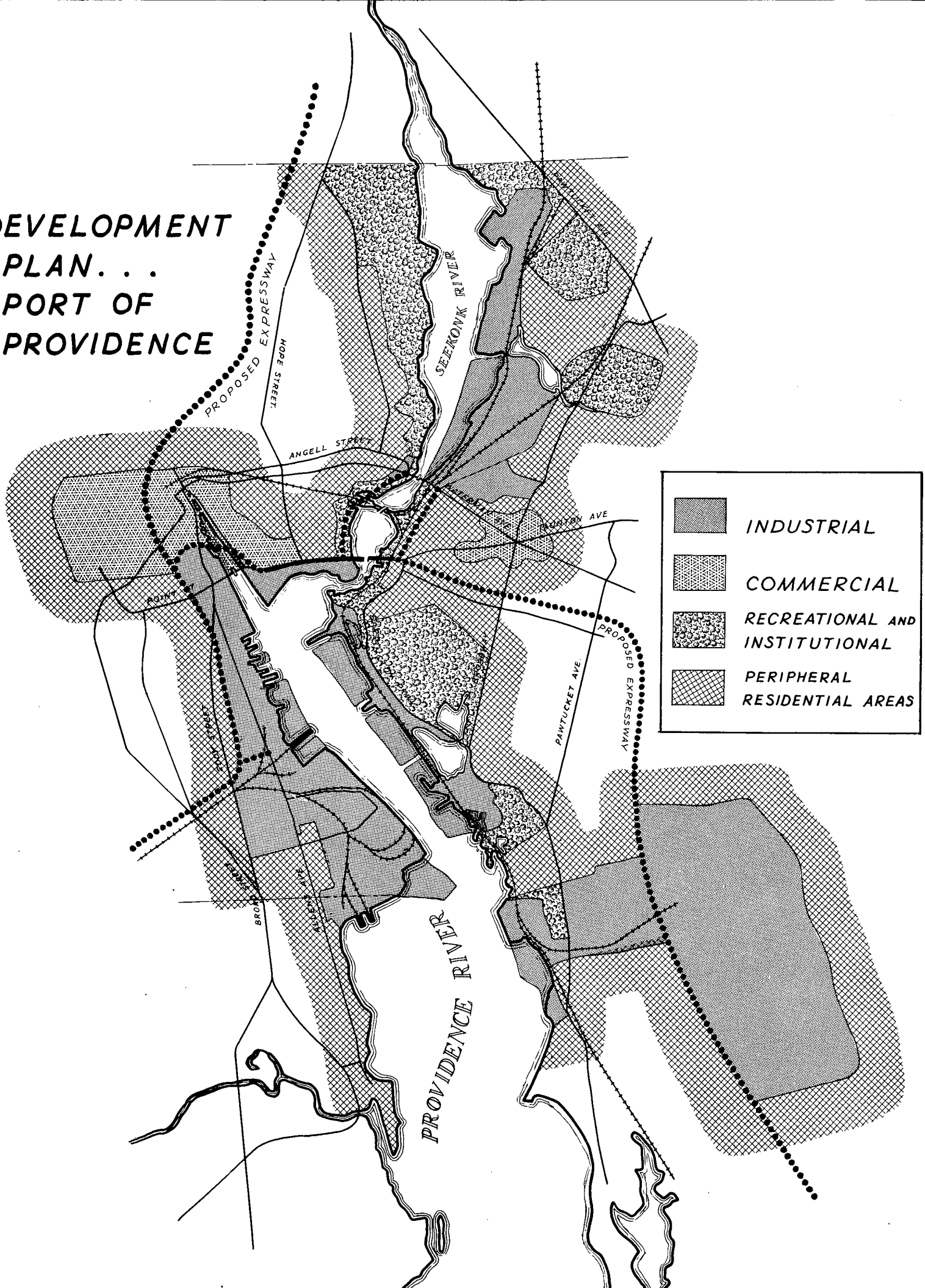
Fifty years ago, a fleet of excursion steamers were actively engaged in carrying passengers to points of interest about Narragansett Bay. At the turn of the century, bay steamers of the Providence, Fall River, and Newport Steamboat Company carried almost a million and a quarter passengers. In the following years, excursion steamers were replaced by interurban trolleys, which, in turn gave way to automobiles. In 1954, less than a dozen vessels operated in local service, most of them serving as ferries to Prudence Island, Block Island and Jamestown. While the Block Island steamers provide all day excursions during the summer, it is believed that shorter port and bay tours, as well as longer coastal cruises, might prove profitable. Rhode Island's desire to attract tourists suggests the possibility of renovating one of the little used private wharves and its immediately surrounding area as an excursion center.

Another recreational possibility is the development of one or more additional marinas (recreational small boat harbors). A potential site for a private or public marina lies on the northern shore of Bold Point in East Providence. This sheltered location, very close to the center of the metropolitan area, might prove ideal. Further study, however, would be necessary to determine if the conflict between boats using the marina and commercial shipping would give rise to serious difficulties. A second marina site lies just outside the port area in Bullock Cove. This site will be considerably improved by an Army Engineers authorized project if Congress makes the necessary federal appropriation.

CONCLUSION

The map entitled "Development Plan" brings together several of the recommendations and suggestions for study which have been outlined above. It is not intended as a plan for action, but as a basis for further long-range studies at the local level and as an

**DEVELOPMENT
PLAN...
PORT OF
PROVIDENCE**



indication that port planning is an integral part of the broader field of municipal planning.

The basic tools for planning exist in differing measure in Providence and East Providence. Both communities have zoning ordinances covering the waterfront areas, and the Providence City Plan Commission has studied the waterfront as part of its general municipal planning. Both municipalities have interested and informed citizens ready to aid in developing and carrying out programs for their communities.

It is clear, however, that Providence leads in having recognized the need for a professionally staffed municipal planning agency. It is recommended that the City of East Providence, under its new charter, establish a planning board with technical staff equipped to play its part in planning the port as an integral part of the future municipality.

PORT ADMINISTRATION AND PROMOTION

The properties known as the Municipal Wharf are owned, administered and maintained by the City of Providence through its Department of Public Works. These properties and all related matters are the direct responsibility of the City's Port Agent, who is a member of the staff of the Director of Public Works. The Offices of Port Agent and Harbor Master (held jointly by the same individual) are attached at present to the Public Service Division of this department.

ADMINISTRATION OF MUNICIPAL PORT FACILITY

The Port Agent is responsible for administering and promoting the Municipal Wharf. He represents the interests of the City of Providence in dealing with steamship, stevedore, railroad, and other companies and individuals using the Wharf (including the tenants who lease parts of the area). He solicits business, supervises the development, maintenance and repair of City-owned facilities and, in general, is responsible for all municipal properties, activities and interests at the Wharf. The Port Agent's office does not engage in actual cargo handling operations, these being performed by stevedore companies (ship loading and unloading), the New Haven Railroad (car loading and unloading), and the private owners of freight or their agents (truckers and such local tenants as oil, coal, lumber and warehouse companies). Accordingly, the Port Agent's staff at the Municipal Wharf is limited to nine persons, including one wharf superintendent, one foreman of maintenance, one clerk, two watchmen and four laborers.

The duties of Harbor Master, which have been assigned to the Port Agent in recent years, include the reporting of ship arrivals and departures, enforcement of port regulations as enumerated in Sections 1 through 18 of Chapter 16, Revised Ordinance of the City of Providence, 1946. For these purposes and for the operation and maintenance of the Harbor Master's boat, the Port Agent is assigned one additional man who serves both in the capacity of marine engineer and record clerk.

Several of the ordinances relating to duties of the Harbor Master are obsolete. For example, Section 9 requires vessels drawing more than 20 feet to anchor below "The Crook" if approaching at any time other than high tide. Section 12 requires the Harbor Master to provide himself, at his own expense, with a uniform including dark blue double breasted sack coat with brass buttons and shoulder straps inscribed with the words "Harbor Master." The entire chapter might well be reviewed for elimination of obsolete clauses.

Major repairs and improvements at the Municipal Wharf are under the supervision of the Port Agent but are generally carried out by engineers and contractors retained by the Department of Public Works for these purposes. Similarly, while all legal, financial and budgetary matters relating to the Municipal Wharf come under his cognizance, the details of this work are handled by other appropriate municipal divisions and departments. Clerical work on requisitions and payrolls are handled for the Port Agent's office by the Public Service Division, and billing and budgetary work is performed for the Port Agent's office by the Business Management Office of the Department of Public Works.

It can be seen from the foregoing that the "overhead" or fixed operating costs of the Port Agent's office are kept to a minimum under the present method of operation. Those specialized functions (such as purchasing, budgetary and legal work), which are necessary but incidental to the primary operation of the Port Agent's office, are handled by the several municipal agencies established and equipped to handle such work for all departments. This arrangement appears to have been

successful and, in view of the nature and extent of the Port Agent's operations, relatively efficient over the past decade.

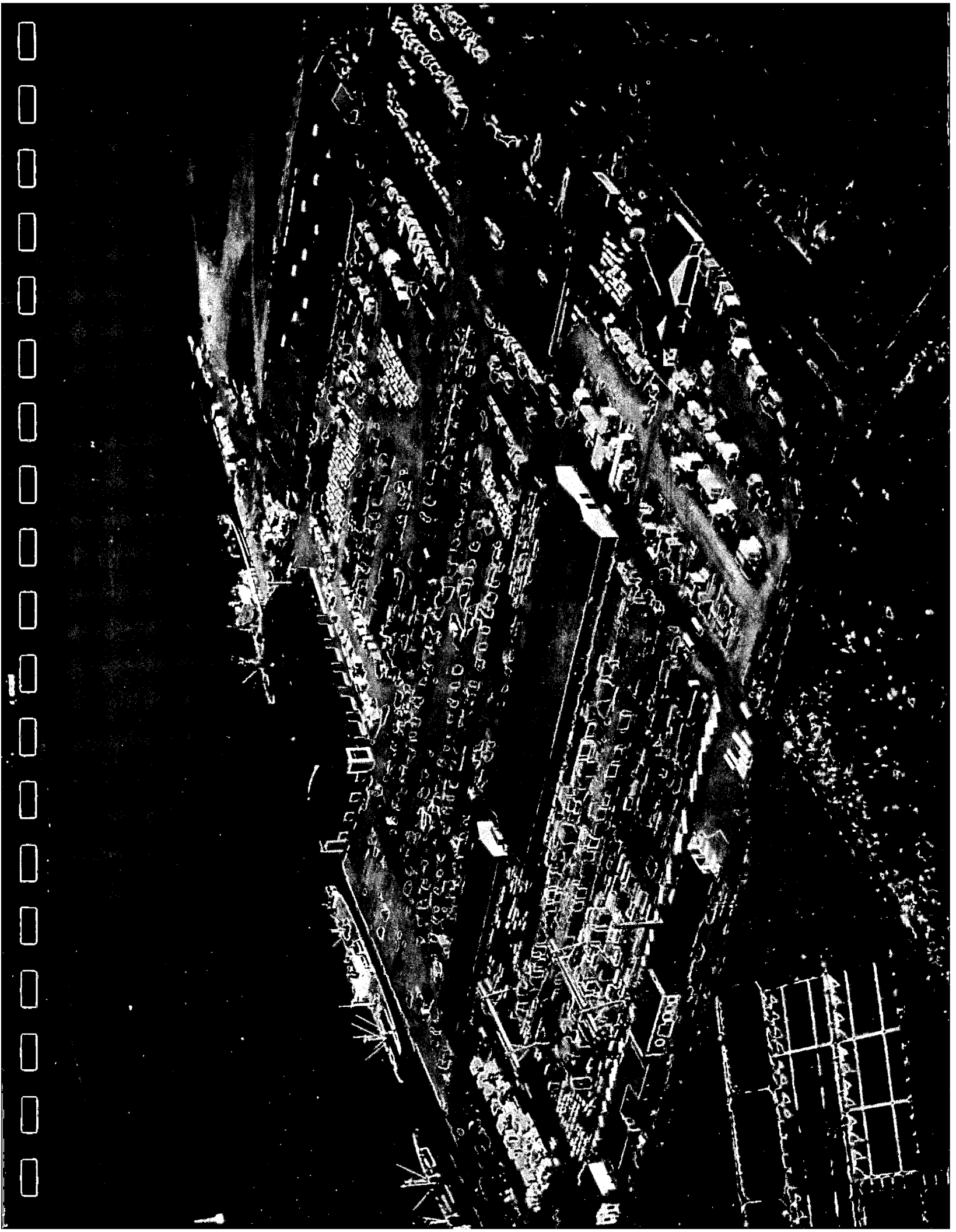
FINANCIAL STATUS OF MUNICIPAL WHARF OPERATIONS

During the World War II period (1941-1946), revenues from Municipal Wharf operations were generally high and covered all operating expenses and debt charges. The total revenues, operating expenses, and debt service costs during this period are summarized in the following table (all figures are given to nearest \$100). It is notable that much of the wharf's bonded indebtedness current during the 1941 -1946 period was paid at that time.

Municipal Wharf Financial Summary for Period 1941 through 1946	
Gross Revenues	\$ 903,300
Operating Expenses	110,800
Net after Operating Expenses	\$ 792,500
Interest and Amortization on Debt	<u>787,700</u>
Net after Operating Expenses and Debt Service Costs	\$ 4,800

During much of the war period, however, wharf revenues were dominated by defense-related expenditures of the U. S. Government, arising principally from leases on wharf properties and from wharfage charges. While the revenues derived from the Federal Government (especially during the 1943-1946 period) emphasize the valuable contribution the Municipal Wharf is prepared to make during periods of national emergency, they tend to distort the more normal expense-revenue picture established in the post-war period.

Accordingly, a more detailed review is given on pages 100 and 101 of the revenues, expenses, and debt service costs arising directly



MUNICIPAL WHARF - PROVIDENCE

Rhode Island Development Council Photograph

from the Municipal Wharf and its operations during the post-war years. This review establishes both the current financial status and the apparent current trends in revenues and expenses of the port's primary public terminal facility under the present form of management and administration. As will be seen from the following, both the status and apparent trends of Municipal Wharf finances are favorable. In many port communities, facilities of this type must be subsidized directly or indirectly by the public, while the Municipal Wharf is now and has been for many years a self-sustaining facility which, during the post-war period, has not only paid its operating and debt service costs, but has returned appreciable income to the City.

THE MUNICIPAL WHARF - GROSS REVENUES AND OPERATING EXPENSES

Municipal Wharf revenues are derived principally from the lease of wharf properties and facilities, wharfage and dockage fees, storage charges, and charges for the use of trackage within the terminal. As shown in the attached table, gross revenues have increased progressively throughout the post-war period, from \$111,600 in 1947 to \$212,900 in 1953.

Operating expenses consist principally of salary and payroll costs, payments for materials and supplies for operational and general maintenance purposes, and charges for services (telephone and telegraph, utilities, water, advertising). While these expenses, because of their nature, fluctuate somewhat from year to year, they have been held to a generally low level and have shown relatively little increase since the war, in comparison with the increases realized in Wharf revenues. Although revenues for 1953 were 91 per cent higher than those for 1947, operating expenses for 1953 (\$37,900) were only 31 per cent higher than those of 1947 (\$28,900).

THE MUNICIPAL WHARF - BOND FINANCING OF TERMINAL IMPROVEMENTS

The acquisition of land for the Municipal Wharf and virtually all subsequent capital improvements thereon were financed by municipal bond issues. A series of four relatively small bond

**MUNICIPAL WHARF
REVENUES AND EXPENDITURES, 1947-1953**
(all figures rounded to nearest \$100)

	<u>1947</u>	<u>1948</u>	<u>1949</u>	<u>1950</u>
REVENUES				
Lease of Land	\$ 49,200	\$ 71,200	\$ 69,300	\$ 52,800
Wharfage and Dockage	48,900	51,900	54,100	57,200
Storage	8,000	10,200	34,600	47,600
Trackage	3,100	4,200	5,700	6,900
Miscellaneous	<u>2,400</u>	<u>1,500</u>	<u>700</u>	<u>700</u>
SUB-TOTAL	\$ 111,600	\$139,000	\$164,400	\$165,200
OPERATING EXPENSES				
Salaries and Payroll	\$ 20,800	\$ 20,500	\$ 24,200	\$ 26,800
Other Services	6,000	12,500	3,200	13,500
Materials and Supplies	<u>2,100</u>	<u>1,100</u>	<u>1,800</u>	<u>2,100</u>
SUB-TOTAL	\$ 28,900	\$ 34,100	\$ 29,200	\$ 42,400
NET REVENUE, AFTER OPERATING EXPENSES	\$ 82,700	\$104,900	\$135,200	\$122,800
DEBT SERVICE				
Serial Bond (1939) Payments *	55,000	\$ 55,000	\$ 55,000	\$ 55,000
Interest on 1939 Serial Bonds*	11,500	10,600	9,600	8,700
Sinking Fund on "Harbor" Bonds **	12,300	12,300	4,800	4,800
Interest on "Harbor" Bonds**	17,600	13,600	9,600	9,600
Interest on Floating "Harbor" Debt	400	400	400	400
Interest on 1952 Serial Bonds***	<u>--</u>	<u>--</u>	<u>--</u>	<u>--</u>
SUB-TOTAL	\$ 96,800	\$ 91,900	\$ 79,400	\$ 78,500
NET REVENUE, AFTER OPERATING EXPENSES AND DEBT SERVICE	\$(-14,100)	\$ 13,000	\$ 55,800	\$ 44,300
NON-RECURRENT CAPITAL OUTLAYS (FINANCED FROM CURRENT NET REVENUES) \$				
	--	\$ --	\$ --	\$ --

* On \$1,100,000, 1 3/4% issue of 1939, for warehouse and bulkhead construction; final payments. 1958.

** On \$240,000, 4% issue of 1920 (matured June 1, 1950), and \$200,000, 4% issue of 1928 (matured January 3, 1948), for various capital improvements at Municipal Wharf.

*** On \$1,250,000, 2.3% issue of July 1, 1952, for new transit shed; payment of interest only, 1953-1957; bonds begin to mature in 1958; final payment of principal and interest, due 1977.

MUNICIPAL WHARF
REVENUES AND EXPENDITURES, 1947-1953
(all figures rounded to nearest \$100)

-101-

	<u>1951</u>	<u>1952</u>	<u>1953</u>	<u>Totals 1947-1953</u>
REVENUES				
Lease of Land	\$ 52,900	\$ 54,200	\$ 55,300	\$ 404,900
Wharfage and Dockage	64,000	79,600	89,400	445,100
Storage	56,800	51,000	58,700	266,900
Trackage	7,300	7,600	6,100	40,900
Miscellaneous	<u>3,000</u>	<u>2,600</u>	<u>3,400</u>	<u>14,300</u>
SUB-TOTAL	\$184,000	\$195,000	\$212,900	\$ 1,172,100
OPERATING EXPENSES				
Salaries and Payroll	\$ 26,500	\$ 31,000	\$ 31,000	\$ 180,800
Other Services	3,200	3,700	5,900	48,000
Materials and Supplies	<u>1,200</u>	<u>1,600</u>	<u>1,000</u>	<u>10,900</u>
SUB-TOTAL	\$ 30,900	\$ 36,300	\$ 37,900	\$ 239,700
NET REVENUE, AFTER OPERATING EXPENSES	\$153,100	\$158,700	\$175,000	\$ 932,400
DEBT SERVICE				
Serial Bond (1939) Payments*	55,000	\$ 55,000	\$ 55,000	\$ 385,000
Interest on 1939 Serial Bonds*	7,700	6,700	5,800	60,600
Sinking Fund on "Harbor" Bonds **	--	--	--	34,200
Interest on "Harbor" Bonds**	--	--	--	50,400
Interest on Floating "Harbor" Debt	400	--	--	2,000
Interest on 1952 Serial Bonds***	<u>--</u>	<u>--</u>	<u>28,800</u>	<u>28,800</u>
SUB-TOTAL	\$ 63,100	\$ 61,700	\$ 89,600	\$ 561,000
NET REVENUE, AFTER OPERATING EXPENSES AND DEBT SERVICE	\$ 90,000	\$ 97,000	\$ 85,400	\$ 371,400
NON-RECURRENT CAPITAL OUTLAYS (FINANCED FROM CURRENT NET REVENUES)				
	\$ 86,000	\$ 15,200	\$ 46,100	\$ 147,300

* On \$1,100,000, 1 3/4% issue of 1939, for warehouse and bulkhead construction; final payments, 1953.

** On \$240,000, 4% issue of 1920 (matured June 1, 1950), and \$200,000, 4% issue of 1928 (matured January 3, 1948), for various capital improvements at Municipal Wharf.

*** On \$1,250,000, 2.3% issue of July 1, 1952, for new transit shed; payment of interest only, 1953-1957; bonds begin to mature in 1958; final payment of principal and interest, due 1977.

issues were floated between 1915 and 1928 to defray the costs of land acquisition, construction of the first 3,000 feet of wharf bulkhead, construction of the wharf's first transit shed, paving of apron and roadway areas, laying of tracks and similar related improvements.

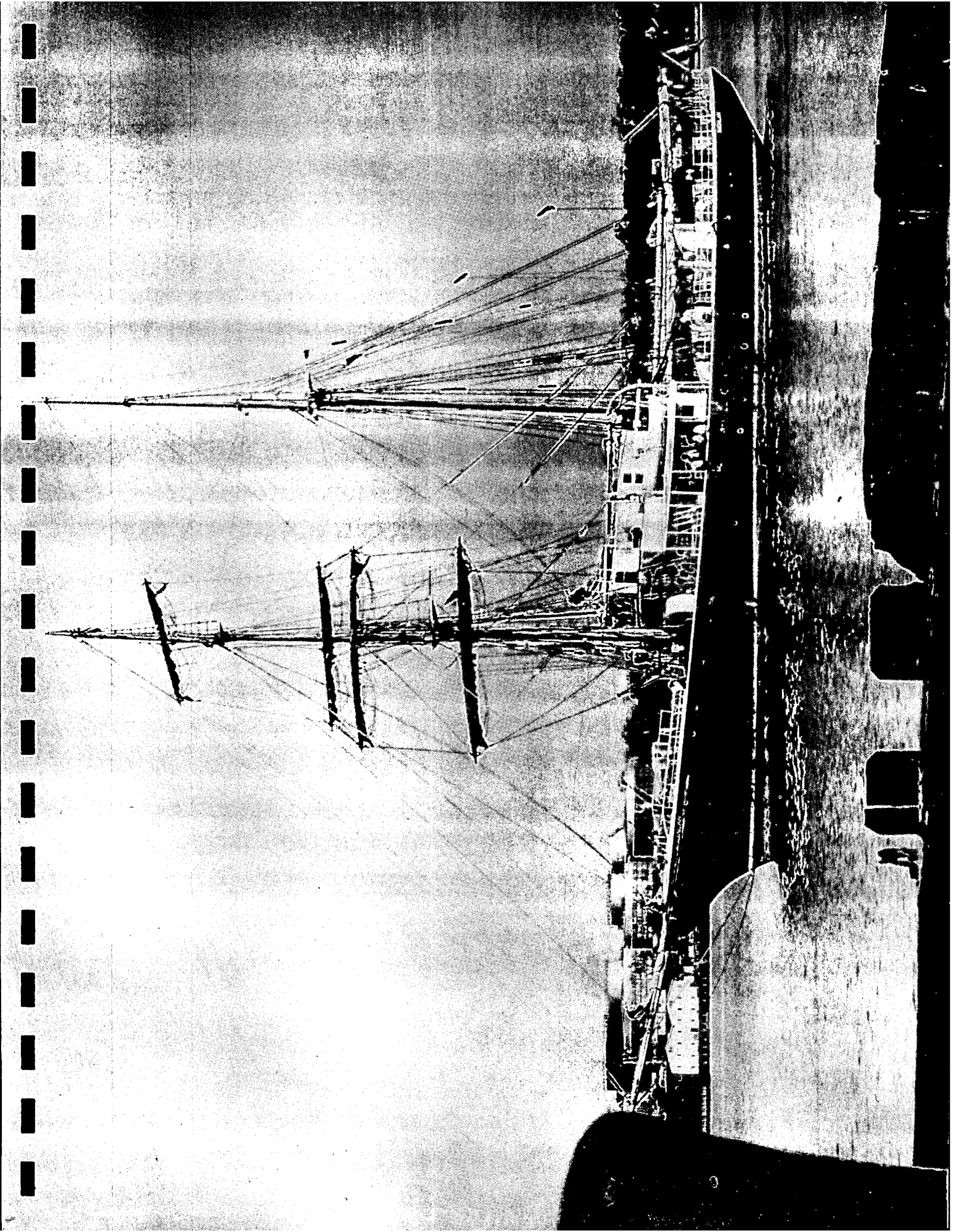
These initial "Harbor" bond issues which have been retired, were as follows:

<u>Year of Issue</u>	<u>Amount</u>	<u>Rate of Interest</u>	<u>Year of Maturity</u>
1915	\$500,000	4%	1945
1916	250,000	4%	1946
1920	240,000	4%	1950
1928	200,000	4%	1948

In 1939, the City floated an additional issue in the amount of \$1,100,000 to cover the City's share of the cost of the \$2,000,000 warehouse at the wharf. (The balance of \$900,000 was paid by a PWA grant.) These were serial bonds carrying a 1 3/4 per cent rate of interest. Payments of principal and interest have been made regularly and it is anticipated that these bonds will be retired, as scheduled, in 1958.

The remaining bond issue which has been floated to date for Municipal Wharf purposes, was a \$1,250,000 issue of 2.3 per cent serial bonds used to finance an improvement program, the major project being the terminal's new transit shed. Interest payments began in 1953, but payments of principal were deferred until 1958. These bonds are scheduled to be completely paid off by 1977. Annual interest payments in the years 1953-1957 will amount to \$28,750. The total annual payments (principal and interest) during the years 1958-1977 will range from about \$77,000 to \$80,000.

Municipal Wharf revenues have generally been ample to meet all debt service costs. As shown in the attached table of revenues and expenditures for 1947-53, the wharf's net revenue after payment of operating expenses exceeded annual debt service



BRIGANTINE MADALAN - PROVIDENCE

Providence Journal Company Photograph

costs by amounts varying from \$13,000 to \$97,000, in all post-war years except 1947, when a deficit of \$14,100 was shown. Similarly, as shown earlier, the aggregate net revenues for the war years, 1941-1946, was sufficient to cover the higher annual debt charges current in that period.

THE MUNICIPAL WHARF - NET REVENUES AFTER DEBT SERVICE COSTS

The ratio of revenues to expenses, both war-time and post-war, indicates that the Municipal Wharf is a self-sustaining facility. It is expected that wharf operations will eventually provide the port with fully paid-up terminal facilities without adding to the local tax burden. Net revenues after operating expenses and debt service costs aggregated \$371,700 in the post-war period. The net revenue position of the Municipal Wharf has been so favorable in recent years that it was found feasible, during the three-year period 1951-1953, to finance a total of \$147,300 of capital improvements (pavement of storage area, waterproofing of warehouse, track construction plus office equipment and furniture) directly from current net revenues, thereby avoiding the need for additional bond or loan financing for these purposes. Even with this unusual application of direct operating income, the wharf returned approximately \$225,000 to the City's general fund during the period 1947-1953.

THE MUNICIPAL WHARF - SUMMARY OF CONCLUSIONS ON FINANCIAL STATUS

The strong financial position of the Municipal Wharf gives evidence that the City of Providence has developed a sound investment and an effectively operated public facility, the like of which, in terms of financial success, is found in very few public port enterprises in the country.

PORT AUTHORITY

In recent years, there has been considerable public interest in the administrative aspects of port development.

Discussion has centered around proposals for the establishment of an independent port agency or port authority. The proposed port authority may now be judged in the light of commerce potentials as indicated by the present report, and with respect to what it might be expected to accomplish - in the fields of port operations, port promotion and development.

The first and most obvious conclusion is that the present level of port activity does not require an elaborate administration to manage port traffic or the movement of cargoes. Indeed it is one of the virtues of the present organization that day-to-day port operations are carried on simply and with low overhead expense.

A second conclusion is based on one of the principal findings of this report: that the industry now located in the port hinterland (as defined by land transportation economics) does not generate sufficient cargo to sustain frequent scheduled conventional-type shipping services. It follows that neither a port authority nor any other agency could bring about a large scale shipping boom at the Port of Providence through solicitation of freight for conventional type vessels from existing industry. (It is obvious that sea-land service, important as it may become, would not require the services of a port authority.)

It appears, then, that a port authority, if established at this time, would have to find its primary justification in the promotion of new port-linked industries which could help to provide the cargoes necessary to attract frequent, scheduled shipping service.

The creation of a new agency primarily for this purpose, however, would result in duplication. Already active in the field of industrial promotion are the East Providence Citizens' Economic Board, the Providence Industrial Council, the Rhode Island Development Council, the Business Development Company of Rhode Island, the Providence Chamber of Commerce, and the Providence Junior Chamber of Commerce.

From these considerations, it is concluded that the creation of a port authority or other independent port agency at

this time would impose a new burden of overhead without promise of material benefits.

REORGANIZATION OF MUNICIPAL PORT ADMINISTRATION

Although no fundamental modification of the present administrative organization is recommended, it is felt that the goal of economy has been pursued too far in assigning the Port Agent and Harbor Master to section status within the Public Service Division of the Providence Department of Public Works - and in limiting the Port Agent and Harbor Master's staff to ten persons including Municipal Wharf laborers.

The nature of Municipal Wharf operations is such that a responsible city official must be available at all times to make decisions and answer inquiries; but the duties of port promotion and freight solicitation require travel, and are time consuming. To permit a modest increase in promotional activity, and to insure staff continuity through training and experience, it is recommended that an appropriate City official be designated by the Director of the Department of Public Works to serve as Deputy in the absence of the Port Agent and Harbor Master.

At the same time, it is recommended that the port function be given division status within the Department of Public Works and that necessary adjustments be made in the titles and functions of personnel now assigned to the Port Agent and Harbor Master. In particular, it is recommended that full time secretarial help be provided. In addition to assuming the duties of correspondence and filing, the division secretary should assist in maintaining complete formal records of Municipal Wharf activity and of port commerce, both incoming and outgoing. The latter function (compilation of outgoing port statistics) is at present not being performed by municipal authorities.

PORT-LINKED INDUSTRY

As indicated in an earlier section, port promotion takes two distinct forms: solicitation of freight from existing industries and the promotion of new port-linked industries. This latter function, while it is primarily the responsibility of industrial development organizations, can, if successful, have important effects on port administration.

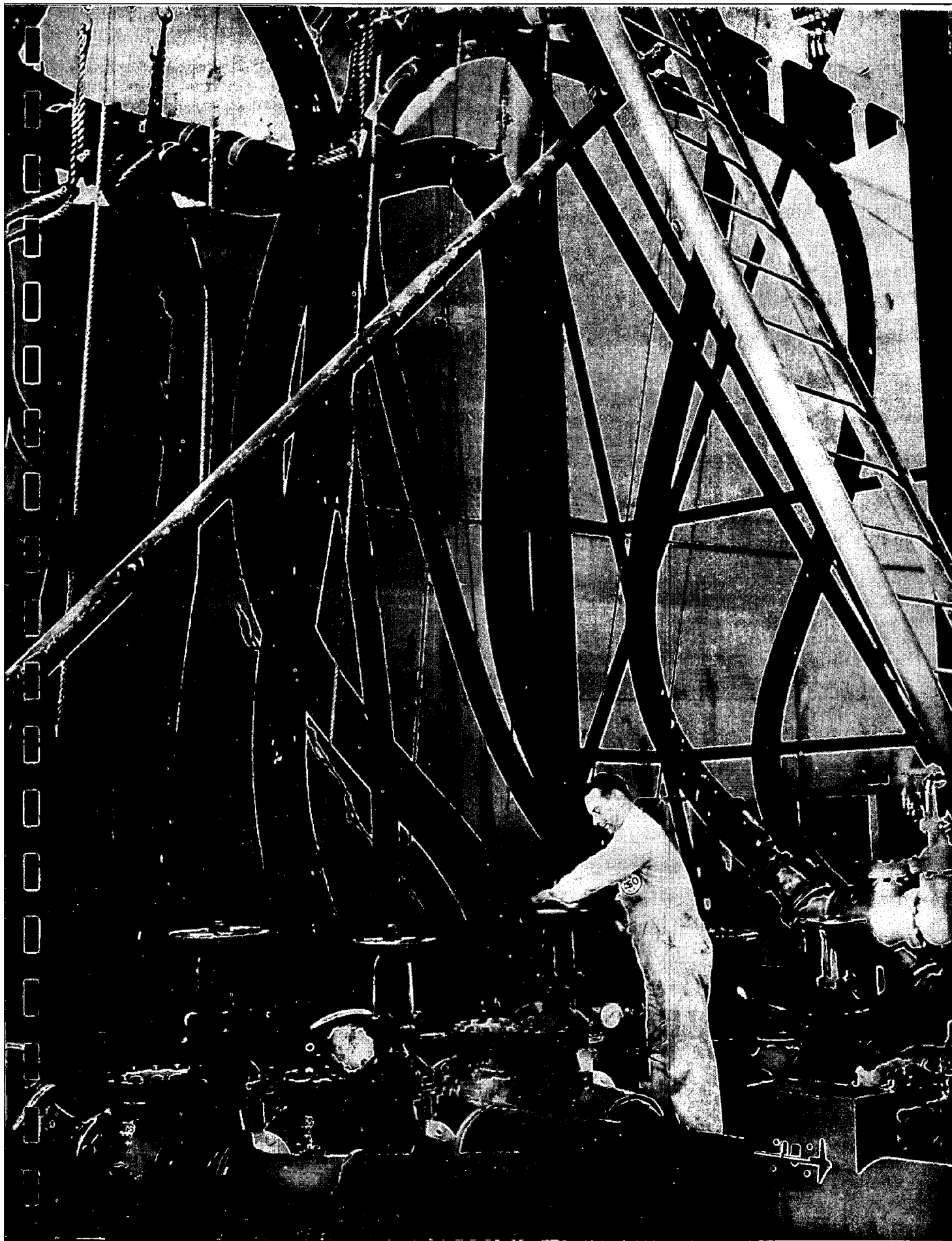
A promotional program planned to attract port-linked industries must take into consideration many factors: sources of raw materials, markets, labor, power, and location of competing producers, to name but a few. The requirements of port-linked industry must be carefully checked with the advantages and limitations of the area to be promoted.

A detailed analysis of this complex subject lies outside the scope of this report. However, attention is invited to a report recently completed by the Maryland State Planning Commission ("The Economic Importance of Port-Linked Manufacturing Industries in the Baltimore Area," May, 1953). This study indicates that one or more of the following characteristics are typical of industries classified as "Completely Port-Dependent" in the Baltimore area:

1. Raw materials - bulky.
2. Raw materials - obtained exclusively or substantially from foreign or distant sources.
3. Finished products - bulky.
4. Markets - accessible by water transport.
5. Transportation costs - important in the industries cost structure.
6. Water requirements - large.
7. Tidewater location required by nature of manufacturing process - shipbuilding and repairing.

Baltimore industries having one or more of these characteristics are: primary metals, chemicals and allied products, products of petroleum and coal, transportation equipment, sugar refining, and gypsum products.

While allowance must be made for some differences between the Ports of Providence and Baltimore, the Maryland State Planning Commission study, taken in conjunction with the present report and with recent New England and Rhode Island industrial location studies



PETROLEUM LINES - EAST PROVIDENCE

Providence Journal Company Photograph

can provide the factual basis for a program to promote port-linked industry at the Port of Providence - and throughout its hinterland. The following publications, in addition to the Maryland study cited, are recommended:

Arthur D. Little, Inc., Report on a Survey
of Industrial Opportunities in New
England, Cambridge, 1952.

Arthur D. Little, Inc., "Industrial
Opportunities in Rhode Island."
Cambridge, 1953.

FREIGHT SOLICITATION

Freight solicitation, in contrast to industrial promotion, should be considered primarily the responsibility of the Port Agent. (Of course, every opportunity for cooperation between the Port Agent and the industrial development agencies should be seized.)

The analysis of potential commerce presented in this report indicates no basis for immediate increase in frequently scheduled service by conventional type vessel. It was concluded, however, that the tonnage of inter-coastal traffic as now carried by the Luckenbach Steamship Company might be substantially increased and that other infrequent or unscheduled service might be secured through solicitation.

The budget allowed to the Port Agent for promotional purposes has gradually been increased in recent years, and in 1954 amounted to approximately \$3,000. About two-thirds of this amount was used for advertising and the remainder for other forms of solicitation and promotion.

This distribution of expenses has, perhaps, represented the only possible approach to port promotion in the past. It is believed, however, that if a Deputy Port Agent and Harbor Master is appointed as recommended in this report, better results could be obtained by greater emphasis on systematic, continuing personal solicitation of shippers and receivers in the Providence port hinterland including parts of Massachusetts and Connecticut. As an aid in personal solicitation, the Port Agent should be provided with a

brochure aimed primarily at shippers. (For the design of such a brochure, the services of the Rhode Island Development Council are freely available if desired.) Magazine advertising, which tends to reach shipping companies and brokers in distant cities should be de-emphasized without being discontinued.

These are some of the advantages which might be stressed in an intensified program of port promotion: savings in coastwise shipping time - in the order of \$800 to \$1,600 per round trip as compared with Boston for modern American ships; clear approaches to the port, principally by natural deep water; mean tidal range limited to 4.3 feet; ample berthing space; modern transit shed, free of columns; relative freedom from traffic for truckers using the port; convenience and savings in the cost of land transport for shippers and receivers of goods in the Providence port hinterland; space for expansion.

While it would not be realistic to anticipate a spectacular increase in shipping in the near future, there is sound basis for a program of freight solicitation and for the continuing effort to promote port-linked industries - industries of the type which will generate cargoes and bring in ships.

PHOTOGRAPH - BACK COVER

PORT OF PROVIDENCE - AERIAL VIEW

LOOKING SOUTH

