THE PORT OF BALTIMORE

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A RE-SURVEY FOR

THE MARYLAND LEGISLATIVE COUNCIL
PORT COMMITTEE

ON BEHALF OF

THE STATE OF MARYLAND
THE CITY OF BALTIMORE

DECEMBER 1954

KNAPPEN-TIPPETTS-ABBETT-McCARTHY
ENGINEERS NEW YORK

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December 31, 1954

Hon. Thomas F. Dempsey, Chairman
Port Committee
Legislative Council
Annapolis, Maryland

My dear Mr. Dempsey:

We transmit herewith our report of a re-survey of the Port of Baltimore, authorized in September 1954 by the State of Maryland and the City of Baltimore. The re-survey brings up to-date the study completed by this firm in 1949, revising the findings and recommendations of that report, where appropriate, in the light of developments during the last five years.

In line with the recommendations of the 1949 report, various steps have been taken with regard to administration, promotion and the improvement of physical facilities in Baltimore, but in many cases such action was insufficient to achieve the desired results. This is particularly true with regard to port administration and financing. The port situation, as we find it, and the improvements which we now recommend are summarized at the beginning of this report.

Under present conditions a variety of public and semi-public agencies have numerous functions at the Port of Baltimore. These agencies include the Port of Baltimore Commission, various departments of the City of Baltimore, agencies of the State of Maryland, the U. S. Corps of Engineers, the U. S. Coast Guard, and several semi-official and private agencies. Many conflicting port functions and some omissions of services result. Moreover,

none of the agencies is in a favorable position to foster the improvement and development of marine terminal facilities by private enterprise or, if private sponsorship cannot be attracted, to improve or develop essential facilities under its own auspices.

The Port of Baltimore Commission was created in 1951 as an agency of the Mayor and City Council of Baltimore, succeeding the Port Development Commission established in 1921. Its formation was an out-growth of a desire to provide for aggressive development and administration of the Port, but the powers which it was given are wholly inadequate for that objective. The present Commission has little authority. Its functions are limited primarily to negotiations on behalf of the City in connection with financial assistance furnished by the City to private interests for port improvements.

The Port of Baltimore and all other port areas in the State of Maryland should be administered by a central agency similar in jurisdictional area to the State authorities in Virginia, North Carolina, South Carolina and Alabama. The powers of the proposed Authority should be adequate to enable it to function effectively within the scope of operations outlined for it. The recommended powers are listed in Chapter VIII.

It should be an assigned duty and a principal objective of the Authority to encourage private enterprise at the port in every way, leaving the construction and operation of physical facilities to independent private initiative unless private enterprise declines to undertake those improvements despite reasonable inducements.

It is recommended that all City port properties be transferred to the Authority. This would relieve the City of Baltimore completely of any detailed responsibilities for port facilities except fire and police protection, and prevent conflicting responsibilities between the Authority and the City. Being relieved thus of a financial burden approximating $250,000 yearly, the City could justifiably transfer (1) the Pratt Street and Broadway Pier facilities without specific consideration in return, (2) the McComas Street Terminal and the National Gypsum

Company pier in return for payment approximating the unamortized investment in those two facilities, and (3) the National Can Company project, and any others which may be initiated, in return for the assumption of obligations for amortization of the applicable investments which were made by the City.

As unencumbered properties, the McComas Street Terminal and the National Gypsum Company's pier would provide about $560,000 annually to the Authority until 1959. The total income after 1959 would depend upon the negotiated renewal of the lease for the McComas Street Terminal. Subsequently, in 1974, the Authority's income would be affected by adjustments in the rental for the National Gypsum Company pier.

As a supplementary source of income, revenues to be derived either from presently refunded taxes on marine gasoline sales, or from generally exempted State taxes on manufacturers' tools and machinery, should be allocated by the State to the Authority. The estimated potential annual incomes from these sources at current levels are $210,000 and $150,000, respectively. from State sources should also provide for adjustments to meet anticipated changes in other sources of income to the Authority.

In total, the Authority would receive during its first years of operation an annual revenue of $1,000,000, more or less, the exact amount depending on the tax means selected. This income would provide a small but desirable annual surplus.

The State of Maryland presently appropriates an average of about $43,000 yearly for activities at the Port of Baltimore. This consists of funds given to the Baltimore Association of Commerce for port promotion and protection, and funds given to the City for a share of the maintenance costs of the icebreaker "Annapolis". It is proposed that these annual appropriations be discontinued, but that the State appropriate initially a sum which would be adequate to cover the transfer from the City to the Authority of the McComas Street Terminal and the National Gypsum Company pier. The size of this initial appropriation would depend upon the payment agreed to by the City, but it should be sufficient to cover the unamortized investment of the City in the two facili-

ties, estimated at about 2.0 million dollars for the McComas Street Terminal and about 1.5 million dollars for the National Gypsum Company pier. Such a lump-sum appropriation by the State toward establishing the Authority on a self-sufficient basis would be well justified.

We wish to express our appreciation for the helpful co-operation which we received from many individuals who furnished valuable information and assistance throughout our work on this project. Particular appreciation is due to the members of the Maryland Legislative Council Port Committee and to officials and personnel of the State of Maryland, the City of Baltimore, the Baltimore Port Commission, the Baltimore Association of Commerce, and other public and semi-public agencies and private organizations.

Very truly yours,

KNAPPEN-TIPPETTS-ABBETT-McCARTHY

James H. Stratton

James H. Stratton
Partner

THE PORT OF BALTIMORE

A RE-SURVEY FOR

THE MARYLAND LEGISLATIVE COUNCIL

PORT COMMITTEE

SUMMARY OF FINDINGS AND RECOMMENDATIONS

SUMMARY

THE PORT OF BALTIMORE

A Re-survey for the Maryland Legislative Council Port Committee

SCOPE

The purpose of this re-survey and report is to bring up to date the study completed by this firm in 1949, revising the findings and recommendations of that report where appropriate in light of developments during the last five years. The 1949 study covered the entire range of activities related to the Port of Baltimore and its administration. Various steps have been taken to implement the recommendations of that report, but in many cases such actions were insufficient to meet the stated objectives. This is particularly true with regard to port administration and financing. The purpose of the present study is to investigate and report on the changes which have occurred since 1949, and to determine the courses of action now necessary to achieve the desired goals.

THE PORT AREA

Baltimore is the third largest city on the Atlantic Seaboard and one of the outstanding ports of the United States. It is noted for its efficient bulk cargo-handling facilities and extensive tidewater industries.

STEAMSHIP SERVICE. The Port is served by 83 steamship lines in foreign trade, six in intercoastal trade and five in coastal trade. In addition, there are numerous chartered ships and many vessels which are owned by Baltimore's industrial firms. There are at present no direct sailings scheduled between Baltimore and Europe or South America. Three lines serve Cuba directly and one has regular direct sailings to Puerto Rico. Most ships in Baltimore's foreign trade also call at Philadelphia and New York before leaving the United States. Shippers of high-value commodities prefer to ship through the ports which offer frequent and direct service even if a somewhat greater expense is incurred. Consequently, considerable general cargo commerce which is generated within the area tributary to Baltimore is handled via the Port of New York, where more frequent services are available, thereby compounding the difficulty of initiating direct service out of Baltimore.

POPULATION AND LABOR FORCE. The population of the Baltimore Metropolitan Area was 1,337,000 in 1950, and is expected to increase to more than 1,900,000 by 1970. In 1950 the labor force in Baltimore City was 418,000, and in the entire Metropolitan Area totaled 572,000 persons.

INDUSTRY. As previously stated, Baltimore is one of the leading industrial cities of the country and is noted for the extent and diversity of its waterfront factories. The Baltimore Metropolitan Area now employs over 200,000 persons in manufacturing industries. These employees earned $826,000,000 in wages and salaries in 1953. Investments in new plants and expansions in Baltimore amounted to $99,000,000 in 1954 and have totaled $705,000,000 since World War II. The establishment of 33 new industries and many additions in 1954 created new employment for about 5,000 workers.

It is expected that the waterfront areas of Baltimore and Anne Arundel Counties will experience extensive industrial expansion in the next 20 years. Numerous waterfront sites in the Baltimore Metropolitan Area either are zoned for industry at present or are suitable for such zoning in the future.

ECONOMIC IMPORTANCE OF PORTS TO MARYLAND. The benefits resulting from port operations extend beyond the local economy into the adjacent hinterland and to the more remote areas where the port communities transact business. These benefits include (1) transportation savings resulting directly from the use of water transport or indirectly from the effects of water competition on rail and truck rates, (2) direct and indirect community benefits from port activities, and (3) direct and indirect community benefits from port-oriented industries. Every citizen in the State of Maryland directly or indirectly derives economic benefits in some degree from port activity. Stimulation of that activity by investment of public funds is in the public interest and is a matter of state-wide concern.

FREIGHT RATES AND PORT CHARGES

FREIGHT RATE TRIBUTARY AREA. The Port of Baltimore has preferential rail export-import class rates in Maryland (except for the Eastern Shore), northern Virginia, most of West Virginia, western and central Pennsylvania, and eastern Ohio. The Port also enjoys an advantage in export-import rail rates over New York and Philadelphia in the large region bounded roughly by the Ohio River on the south, the Missouri River on the west, and a line through Sandusky and Columbus on the east. Norfolk has equality with Baltimore in this entire territory. New Orleans has lower rates than Norfolk and Baltimore in the portion of the territory which lies west of lower Lake Michigan, Indianapolis, and Cincinnati. Baltimore also has rate equality with New York and Philadelphia in western New York State and in a small area of Northwestern Pennsylvania.

RAIL AND TRUCK RATES. About 16% of the total cargo moved to and from Baltimore's general cargo piers is transported by truck, and this proportion appears to be increasing gradually. Although the major portion of truck cargo is moved by private and contract carriers, there is a trend toward equalization of common carrier truck freight rates with rail rates, particularly on long-haul traffic between the East and Middle West.

OCEAN RATES. The tariffs established by the water carrier rate conferences provide equality in ocean shipping rates for the principal North Atlantic ports, but the rates of non-conference lines and tramp steamers vary from port to port and are negotiated between the shippers and the carriers. A large part of Baltimore's bulk cargo is shipped on such non-conference vessels.

PORT DIFFERENTIALS IN RAIL RATES. The traditional rail class-rate differentials applying to export-import freight between North Atlantic ports and the Central Freight Association Territory have had a favorable influence on Baltimore's commercial development for many years. Baltimore has also enjoyed an all-rail export grain rate differential of 1/2¢ per 100 pounds under Philadelphia and 1-1/2¢ under New York and Boston. Since early in 1952, however, export rates on ex-lake grain from Buffalo have been equalized to Portland, Boston, New York, Albany, Philadelphia, and Baltimore. The rate through Norfolk remains 1/2¢ higher. An equalization of rates on iron ore imports via Baltimore and Philadelphia to the Pittsburgh district has existed since 1903, contrary to the normal differential pattern. During the recent construction of a new ore-unloading facility in Philadelphia, equalization of these rates was extended to include steel mills in Youngstown, Steubenville, and Wheeling. In February 1954 the I.C.C. approved this broadening of the area of equalization, but it rejected New York's and Boston's attempts to gain similar rates. The I.C.C. is now re-hearing the entire iron ore rate case.

Favorable rail rate differentials at Baltimore undoubtedly have attracted much waterborne commerce which otherwise would have moved through other ports. This is particularly true in the case of bulks, such as grain shipped all-rail to the Atlantic ports. Although the equalization of export rail rates on ex-lake grain from Buffalo to most North Atlantic ports has had little detrimental effect on Baltimore's grain exports, the equalization of rates on imported iron ore from Baltimore and Philadelphia to the Pittsburgh and Ohio steel-producing areas has tended to divert some ore volume from Baltimore. The low-valued bulks are more sensitive to small rate differences than are the higher-valued general cargoes, for which total time in transit is often a crucial factor. Baltimore should work diligently to maintain the existing differentials against encroachment by other ports.

PORT AND TERMINAL CHARGES. There have been some upward revisions in the various port and terminal charges at piers in Baltimore, Philadelphia, New York, and Norfolk during the past five years. In

general, charges levied at Baltimore are much lower than at competing ports, with the exception of railroad piers at New Orleans and New York. Although the low charges at Baltimore undoubtedly act as an inducement to vessels and shippers, they do not cover the expenses incurred by the pier operators.

SPLIT CAR DELIVERIES. Baltimore's exporters now have privileges similar to those enjoyed at competing ports with regard to split export car deliveries and in-transit storage of exports at off-pier locations, but not with regard to in-transit storage of imports.

CARGO-HANDLING CHARGES. Handling charges assessed at Baltimore's railroad piers on low-revenue rail cargoes and all truck cargoes are proper and competitive with those at other ports. The railroads should be encouraged, however, to give allowances to private pier operators for loading or unloading line-haul rail cargoes at private piers, as is the practice at other North Atlantic ports.

PRESENT AND PROSPECTIVE COMMERCE THROUGH THE PORT

FOREIGN TRADE OF THE UNITED STATES. The oceanborne foreign trade of the United States increased from 133 million short tons in 1948 to 184 million tons in 1953. Most of this growth was due to the nation's increasing dependence on imported raw materials, particularly petroleum and ores. Total exports, however, were slightly less in 1953 than in 1948.

TREND OF TOTAL IMPORTS. Baltimore's 1953 imports of 16.5 million tons amounted to an increase of 60% over the 1948 total. This percentage was higher than the increases experienced by New York, Hampton Roads and New Orleans. Only Boston and the Delaware River Ports enjoyed greater relative rises. The considerable expansion of imports at these ports was caused primarily by the rising need of U. S. industries for foreign petroleum products, ores, and other minerals. It is expected that the long-term growth of the U. S. economy will require even greater import tonnages at these ports in the future.

TREND OF TOTAL EXPORTS. Exports at all the major North Atlantic ports declined considerably since 1948, the greatest relative declines being registered at the Delaware River Ports and New York. New Orleans was the only competitive port to show an increase. Baltimore's exports declined from 6.3 million tons in 1948 to less than 5.0 million tons in 1953, primarily because of declining coal shipments. The decline appears to have been arrested, however, and the outlook for gradual improvement is good.

TREND OF COASTWISE COMMERCE. Baltimore's total coastwise commerce, comprising trade with all U. S. coastal and insular ports, increased from 7.6 million tons in 1948 to 8.4 million tons in 1953. At the same time, all competing ports except New York and the Delaware River

Ports suffered substantial declines. Direct competition among Atlantic and Gulf Coast ports for much of the coastwise trade is slight because of the limited tributary area of each port, although there is strong rivalry for the Puerto Rican trade.

Coastwise receipts are much larger than shipments at all North Atlantic ports except Hampton Roads. This is due to these ports' heavy dependence on petroleum, coal, and other bulk raw materials for local needs. Even though rail-water rates on many commodities are now considerably lower than competitive all-rail rates, coastwise shipping companies have failed to recapture much of the traffic which originates or is destined inland. Considerable attention is now being given to the carriage of loaded rail cars, trailers, or vans on ocean-going vessels, and such innovations may provide the needed economies for the revival of this trade.

OCEANBORNE GENERAL CARGO COMMERCE POTENTIAL. The general cargo commerce potential to the Port of Baltimore, generated in the territory within which the Port enjoys rail rate advantages over its principal competitors for most movements, is estimated to have totaled at least 12.1 million tons in 1953. This total is composed of: 8.0 million tons generated in the Great Lakes states of Ohio, Michigan, Indiana, Illinois, Wisconsin, Iowa and Minnesota; 1.6 million tons generated in western New York, western Pennsylvania and western West Virginia; and 2.5 million tons generated in Baltimore's immediate trade area, including both the Port's waterfront industrial piers and its general cargo piers. The Port of Baltimore actually handled only 3.4 million tons, or about 28% of the total potential.

BYPASSING TRAFFIC. The oceanborne traffic which originates or terminates on the lines of the railroads serving Baltimore, but which is routed via competing ports, may be considered in a broad sense to bypass Baltimore. In an even broader sense, the similar traffic which is routed via other railroads also bypasses Baltimore. For use in this survey, the three major railroads serving Baltimore made available extensive origin and destination data for oceanborne shipments of the general cargo type of commerce which were carried by those railroads. Part of that information provided a basis for estimating the current annual tonnages of oceanborne general cargo commerce which those three railroads transport between the ports of New York and Philadelphia on the one hand, and the areas which could be served at lower export-import rail rates via Baltimore on the other. These estimates are summarized below:

TRADE TERRITORY	COMPETING PORT	ESTIMATED ANNUAL TONNAGE OUTBOUND	INBOUND	TOTAL
Baltimore's Immediate Trade Area:	Philadelphia	44,000	73,000	117,000
	New York	160,000	86,000	246,000
Other Competitive Areas:	Philadelphia	53,000	112,000	165,000
	New York	644,000	394,000	1,038,000
TOTALS		901,000	665,000	1,566,000

Similar information was furnished by the railroads for use in the 1949 survey. Sample information furnished at that time indicated that about 2.8 million tons of foreign general cargo commerce were similarly bypassing the Port. The apparent decline of 1.2 million tons annually can largely be explained by the concurrent drop in oceanborne trade of this type handled through the ports of New York and Philadelphia.

In addition to the general cargo traffic for which the above information was furnished by the three trunk railroads serving Baltimore, similar bypassing traffic is handled by the numerous trucking lines which serve Baltimore's tributary areas and the ports of New York and Philadelphia. However, information on that traffic is not consolidated and sample estimates are not obtainable.

INFLUENCE OF THE ST. LAWRENCE SEAWAY ON THE PORT OF BALTIMORE. Of the oceanborne bulk cargoes now handled by Baltimore to and from the Great Lakes states, those most vulnerable to diversion by the Seaway are grains (particularly ex-lake) and iron ore (especially from Labrador). Less than 10% of Baltimore's 2 million-ton grain exports in 1953 were ex-lake shipments. Baltimore's advantages over Great Lakes ports of year-round operation and excellent grain storage facilities will tend to restrict diversions, but it can be expected that about 80% of Baltimore's ex-lake shipments and about 50% of its all-rail movements originating near Lakes ports will be susceptible to diversion to the Seaway. On the basis of current levels this vulnerable grain volume will approximate 800,000 tons yearly.

In 1953, less than 10% of Baltimore's iron ore imports was transshipped to steel mills on the Great Lakes and approximately 25% to mills in the Pittsburgh-Wheeling-Youngstown area, while about 60% was consumed in Baltimore's metropolitan area. Diversions of large proportions of these ores from Baltimore to the Seaway are not expected because an added cost of transshipping would be required from Great Lakes ports to inland mills.

General cargo via the Seaway is expected to expand as sailings via the route become established and as terminal facilities are completed at Great Lakes ports. Nevertheless, there will be the restraining factors of seasonal operation on the Lakes, the retentive effect of traditional methods of transportation, and the inertia of channels of shipment. It is estimated that, of the total of almost one million tons of the general cargo commerce of Great Lakes states which is now handled annually at Baltimore, between 80,000 and 160,000 tons of exports and 40,000 to 80,000 tons of imports are considered to be susceptible to diversion to the Seaway. The total prospective loss of foreign commerce to Baltimore at 1953 levels therefore would be on the order of 180,000 tons.

PROSPECTIVE CARGO FOR BULK AND INDUSTRIAL PIERS. The long-term outlook is considered favorable for Baltimore's receipts of domestic and foreign bulks and other commodities handled at special terminals and private industrial piers. This applies both to the cargoes destined for

Baltimore's immediate hinterland, and also to the cargoes destined for the more competitive areas. The anticipated growth of industry and population in Baltimore's entire tributary area will act as a stimulus to receipts of these commodities.

It is expected also that shipments of fertilizers, petroleum products, and iron and steel products originating in Baltimore's immediate trade area and moving over its bulk and private industrial piers will continue to expand. The outlook for Baltimore's outbound movements of grain and coal from competitive areas, however, is less favorable.

PROSPECTIVE GENERAL CARGO. It is reasonable to assume that through intensive promotional activities and the provision of efficient and modern port facilities, together with the encouragement of the various other services essential to the growth of shipping, Baltimore could hope to secure as much as 25% of the general cargo commerce furnished by the Great Lakes states to all North Atlantic ports, together with 50% of the general cargo commerce of western New York, western Pennsylvania, and West Virginia. This target would amount to about 2.8 million tons annually at current levels, or about 1.5 million tons more than is now handled by Baltimore to and from these areas.

Baltimore should also be able to attract a large share of the 350,000 tons of oceanborne general cargo which are now handled between its own immediate trade area and competing ports via the railroads serving Baltimore. In addition, it should be able to attract a large portion of the similar volumes of traffic which are now bypassing the Port by truck. The total target increase is therefore estimated at about 2.0 million tons at present levels.

In consideration of a possible economic growth of 50% by 1975, it is estimated that Baltimore's commerce could be increased by as much as 3.0 million tons annually at that time. However, of the portion of this potential increment which is generated in the Great Lakes area, the Seaway may attract as much as 25%. This percentage reduction applied to the total otherwise prospective to Baltimore at that time from the Great Lakes states alone would reduce the total target increment for that year to about 2.4 million tons, which is regarded a reasonable goal in new commerce for Baltimore's general cargo piers.

In addition, it is estimated that by 1975 the tonnage of general cargo handled over industrial piers may be increased by about 700,000 tons over the 1953 levels. Together, Baltimore's target increase of general cargo movements for both general cargo piers and industrial piers, can reasonably be taken at about 3.1 million tons annually by 1975. The achievement of this target can be expected only as the result of persistent and well-directed efforts.

NEW DEVELOPMENTS IN LAND-WATER SERVICES. Several new types of land-water shipping have recently been instituted, all of which have one feature in common: the use of a container which is interchanged between

land and water transport without the handling of individual packages. The institution of any one of these methods would be beneficial to the Port of Baltimore, and the establishment of Baltimore as a port of call for such services should be encouraged. In particular, Baltimore should be established as a terminus for sea-train service to Puerto Rico and to other areas where this service would be justified.

FACILITIES AND SERVICES OF THE PORT

FACILITIES AND SERVICES AT THE PORT. Baltimore's position as a major port is largely attributable to its bulk cargo trade. Local interests constantly have been alert to the needs of this commerce and have developed and improved extensive facilities accordingly. Various interests are now concerned with a further expansion of ore-handling facilities, and plans are now being considered for the development of additional grain elevators at the Port. Although the future holds promise of substantial increases in the bulk cargo trade of Baltimore, various developments throughout the United States and abroad will have important bearings on Baltimore's share in this trade.

General cargo trade at Baltimore has not fared as well as the Port's bulk cargo trade. Baltimore's oceanborne commerce contains a smaller percentage of general cargo than does the trade from such important competing ports as New York and New Orleans. In order to improve this situation, emphasis should be placed on the adequacy, modernization and expansion of general cargo facilities together with more extensive use of mechanized cargo-handling equipment. Although the existing facilities are adequate for the volume of general cargo commerce now passing through the Port, more economical operations could be achieved by improvements in terminal structures and equipment. Economies of this type could be used effectively for the promotion and stimulation of the Port's general cargo trade. As the Port obtains a more reasonable share of the general cargo which is potential to it, expansion of general cargo terminals will be required.

PIER FACILITIES. With the completion of piers now under construction at the Port, 99 berths will be available for the accommodation of modern deep draft general cargo vessels or bulk carriers drawing 30 ft. or more of water and requiring 500 ft. of pier per berth.

ORE TERMINALS. The ore-handling facilities of the Port have been extensively modernized and improved in recent years to meet steadily increasing imports. As evidenced by the improvements made in bulk cargo terminals of the Port in the past and by plans being developed currently for the future, it seems probable that local private interests will continue to foresee and accept every reasonable opportunity to improve and expand Baltimore's share of this trade.

The capacity presently available was ample to meet the peak yearly ore volume of 12,200,000 tons handled in 1953. The existing

facilities are also considered adequate for the normal increase in demand anticipated for the near future. In anticipation of the Port's long-range future requirements, the Baltimore Port and Terminal Corporation has proposed to develop, with the participation of the Pennsylvania Railroad, a new $15,000,000 ore and general cargo terminal. A request for financial assistance from the City of Baltimore for the project in the amount of $11,000,000 was recently considered by the Port of Baltimore Commission but so far the project has not been approved.

COAL-HANDLING FACILITIES. The coal handling facilities of the Port are adequate to serve the present and prospective needs.

GRAIN ELEVATORS AND PIERS. With no indication of appreciable gains in exports in the near future, the bulk-handling facilities of Baltimore for grain are believed to be adequate.

OIL-HANDLING FACILITIES. Thirteen oil receiving stations are located at the Port. These include ten piers which are capable of accommodating ocean-going tankers, and one pier and several wharves for berthing smaller vessels. Most of the piers are of timber deck and open wood pile construction. This type of construction generally does not meet modern standards for oil terminals. However, these facilities are largely concentrated in the Canton, Fairfield and Curtis Bay areas away from the general merchandising piers so that hazards of spreading oil fires to other facilities in the Port are slight. Additional expansion of storage facilities is contemplated by several oil companies to meet anticipated growth.

GENERAL CARGO FACILITIES. In recent years the standards for efficient general cargo piers, transit sheds, and cargo-handling facilities have necessarily changed with an increasing use of trucks, the development of larger and faster cargo vessels, and innovations in cargo-handling equipment and port practices. Realizing this, and guided by recommendations made in the report of 1949, port interests have made or propose to make extensive improvements in various general cargo facilities. These improvements conform in part to Stage I of the modernization program formulated in 1949. However, with the exception of Rukert Terminals Corporation's new pier at Lazaretto Point and a new shed at Pennsylvania Railroad Pier No. 1, the principal features of cargo piers and sheds were not affected appreciably by the completed improvements.

Since 1949, the railroad companies and stevedoring firms operating at the major terminals acquired or leased numerous fork-lift trucks, tractors, trailers, roller conveyors, hand trucks, mobile cranes and other gear. This equipment has expedited handling of general cargo. The total expenditures made in the Port since 1949 for physical improvement of general cargo facilities and acquisition of cargo handling equipment is estimated to be approximately $4,500,000.

EVALUATION OF EXISTING GENERAL CARGO FACILITIES. Based on actual operating experience, evaluation of physical facilities and cargo-

handling practices, and computed optimum berth occupancies, the combined practical operating capacity of the general cargo terminals in Baltimore is estimated to be approximately 3.3 million tons annually.

This estimate exceeds by about 900,000 tons the total of approximately 2.4 million tons of general cargo type commerce handled at those terminals in 1953. However, to accommodate the target increase in general cargo type commerce discussed previously, the facilities of the Port will have to be expanded.

WAREHOUSE FACILITIES. More than 250,000 square feet of storage space was added to the warehouse facilities in Baltimore since 1949 and further expansion is contemplated, but there was no appreciable increase during recent years in warehouse space at the major general cargo terminals of the Port. Of approximately 4,000,000 square feet of space available in Baltimore for long-term storage, about 80% is located more than one-half mile from the general cargo piers and cannot be considered as fully effective pierside storage. Although the warehouse facilities are generally adequate in capacity for the volume of cargo passing through the Port, more economical operation would result if space were closer to the piers to be served.

STEVEDORING. The longshore labor pool is sufficient in size to meet the peak demands of shipping through the Port. The Port has an exceptional record of freedom from labor disputes which contributes to the stability of the Port's operations and to the attraction of commerce.

ICEBREAKER. The municipally operated icebreaking equipment serving Baltimore harbor and its approaches consists of the sidewheelers "Annapolis" and "F. C. Latrobe", both of which are more than sixty years old, and the tug "Baltimore". Two relatively modern Coast Guard vessels provide icebreaking services in the approaches to the Port.

The "Annapolis" is owned jointly by the State of Maryland and the City of Baltimore. Other than repair and maintenance, no improvements have been made in the icebreaking equipment of the Port since 1949. Acquisition of a new modern icebreaker would be in the best interests of the Port.

SHIP REPORTING SERVICES. Reporting of ship movements to and from a port is essential for efficient pilotage operations, the allocation of anchorage and berthing space for vessels, and numerous activities of shipping interests. The Maritime Exchange acts as a clearing house for ship reporting services in the Port but, due to budgetary limitations, it does not operate at night and, except for lookout service at North Point, does not provide services on Saturdays and Sundays. At such times, radio Station WMH and the Association of Maryland Pilots provide information regarding ship movements. For the best interests of the Port, it is desirable that a central ship reporting agency be operated on a 24-hour-a-day basis.

NAVIGATION CHANNELS AND ANCHORAGES. In June 1953, a public hearing was held by the U. S. Corps of Engineers in Baltimore at which maritime interests requested more extensive improvements covering the main channel in Chesapeake Bay, the main and branch channels in the Harbor and the Port's anchorage areas. These interests also asked that the U. S. Corps of Engineers give serious consideration either to deepening part of the Northwest Branch to 39 feet or to maintaining this part of the harbor if and when it is deepened to 39 feet by the City of Baltimore. It was also requested that a new deepwater anchorage 39 feet deep, 2,000 feet wide and 4,000 feet long be provided on the north side of the main channel opposite the Quarantine Anchorage.

A review report on the requested improvements is now being prepared by the District Engineer. A detailed presentation of facts providing financial justification of the requested improvements should be made as soon as possible by local maritime interests. This would aid the District Engineer in his review by furnishing him information not otherwise available.

There has been an increase during recent years in the number of vessels of 35-foot draft or more which have visited the Port. While it might be found that present traffic is insufficient to justify all of the improvements recently requested, the future requirements of the Port must be considered in planning these improvements. To permit more frequent calls by deeper-draft vessels, therefore, the waterways of the Port will have to be widened and deepened in general accordance with the improvements which were requested and, accordingly, representation for improvement of the Port's waterways should be intensified.

IMPROVEMENTS TO ANCHORAGES. At present, there are no public anchorages in the Port capable of accommodating vessels with more than 33-foot draft. Congestion at Quarantine Anchorage and inadequate depths in that area for modern deep-draft tankers emphasizes the need for a new deepwater anchorage close to the Quarantine Station and convenient for vessels using Curtis Bay. This new anchorage should be 2000 feet wide, 4000 feet long, and 39 feet deep. The Port's deepwater anchorage facilities could be further improved by extending and deepening Anchorage No. 5 or Anchorage No. 6.

CHESAPEAKE AND DELAWARE CANAL. The depth of the Chesapeake and Delaware Canal at present is only 27 feet and its effective width is reduced at some points to 165 feet by encroaching bridge abutments. Improvement of the Canal, as well as its approaches and the connecting channel to Baltimore, to accommodate deep draft vessels is necessary if Baltimore is to realize fully its potential in domestic and foreign commerce.

Based on representations of maritime interests and governmental agencies, the Congress of the United States recently authorized improvement of the Canal to permit utilization by modern deep draft vessels. However, funds have not as yet been appropriated to initiate

improvements. Every effort should be made to have the necessary funds allocated at the earliest possible time.

MASTER PLAN FOR DEVELOPMENT OF PORT TERMINAL FACILITIES

The terminal improvements required to enhance the Port's competitive position can be accomplished most effectively through the development and use of an approved long-range plan of modernization and expansion. A plan of this type would provide a broad and comprehensive framework which would encompass and coordinate plans of individual terminal owners and, in general, serve to direct future development to the best advantage of port interests and the Port as a whole. It would comprise a general program which would serve as a sound base for all future detailed plans for improvements and development, and yet retain sufficient flexibility to permit periodic readjustment without jeopardizing its fundamental integrity.

Based on the findings of the current survey, the present and future requirements of the Port are, with some exceptions, substantially the same now as in 1949. The primary deficiencies to be overcome are in the general cargo facilities of the Port. A decrease in general cargo trade was evidenced in recent years at Baltimore as well as at other ports, but there is still a need for improvements in order to enhance the competitive position of the Port. The decrease of trade affects only the degree of urgency for some of the improvements which were found to be essential in the first stage of the 1949 program.

Realizing that many existing general cargo piers are becoming obsolete due to new developments in ship, rail and truck transport, port interests throughout the United States are improving these facilities in accordance with specific master plans to perpetuate and enhance their competitive trade positions.

REQUIREMENTS OF MODERN GENERAL CARGO TERMINALS. Increased attention is being given to joint rail and truck transportation, joint truck and ship transportation, "sea-train" transport, and use of shipping containers. Sea-train and trailer-ship services require special terminal facilities. Ample waterfront sites exist at Baltimore for new developments of this type, especially at Hawkins Point, Sollers Point and the Arundel area. The layout of new general cargo terminals of the conventional type should be sufficiently flexible to accommodate such evolutionary changes as can be handled at those facilities including trailer-rail operations, larger cargo vessels and similar prospective developments in equipment and methods. The basic criteria for modern marine terminals of the conventional type, as given in the 1949 report, provide considerable flexibility for innovations.

Only four of the 23 general cargo piers of the Port substantially meet the requirements for modern piers. The practical operating capacities of the existing piers are considerably less than the optimum capacities possible at modern facilities.

CONSTRUCTION STAGES. Included in Stage I of the plan presented below are the improvements in transit and warehouse storage, vehicular access, and use of mechanized handling equipment which are required at this time to permit more efficient operation of the Port. It is anticipated that these improvements would be immediately effective in the promotion and stimulation of trade. In Stage II, existing structures would be further improved and expanded to provide a greater capacity to handle the additional general cargo commerce which might be secured. Recommendations are made in Stage III for long-range development of modern marine terminals which would not only meet the increasing requirements of waterborne trade in the future, but would also attract new commerce by affording modern and efficient facilities for new types of shipping.

STAGE I - Improvements to increase efficiency of general cargo operations:

a. *Lower Canton Terminal.* Construction of a 90,000 square-foot transit shed at Pier No. 10. Provide additional mechanical cargo-handling equipment for operations in the new shed, and improve truck access to this terminal.
b. *Upper Canton Terminal.* Construct a 15,000-ton capacity warehouse near Pier No. 1.
c. *Locust Point Terminal.* Extensive improvements in truck loading facilities made during recent years preclude the necessity for further major improvements at these piers under Stage I.
d. *Port Covington Terminal.* Improve accommodations for trucks at Pier No. 7 and improve access roads to the piers. Build a 12,000-ton capacity warehouse adjacent to the piers.

More extensive use of fork-lift trucks, tractors, trailers, gravity roller conveyors, and palletization is recommended to achieve greater efficiency in cargo-handling operations than now exists at the Port. Trucking firms should provide a helper as well as a driver. Consideration should be given to revising existing regulations to permit stevedores to handle cargo to and from trucks. Street access to the piers, especially along the Inner Harbor, should be improved.

The improvements recommended for Stage I would increase the practical operating capacity of the Port approximately 150,000 tons and appreciably increase the efficiency of cargo handling operations. The cost of the improvements programmed in Stage I is estimated at approximately $7,100,000.

STAGE II - Expansion of facilities to accommodate increases in commerce:

a. *Port Covington - McComas Street Terminal.* Construct a marginal wharf capable of accommodating two cargo vessels. Construct a 250,000-square foot transit shed and acquire cargo handling equipment for operations at the new wharves.

b. *Lower Canton Terminal*. Widen the Retainer Pier to 540 feet, and provide approximately 550,000 square feet of additional transit shed space and new cargo handling equipment. Construct a 30,000-ton capacity warehouse adjacent to the pier.

c. *Upper Canton Terminal*. Remove Pier No. 6 and widen Pier No. 1 to 550 feet, and add approximately 320,000 square feet of sheddage.

d. *Locust Point Terminal*. The existing piers Nos. 6 and 7 at this terminal would be combined and new transit sheds constructed to form a single, large, modern pier.

e. *Municipal Piers along Pratt Street*. Construct marginal wharves and transit sheds to replace the existing piers along Pratt Street, construct a marginal wharf and transit shed parallel to Falls Avenue, and improve bulkheads.

The improvements recommended for Stage II would cost about $64,700,000. These improvements would add approximately 2,700,000 tons to the annual practical operating capacity of the general cargo facilities of the Port.

STAGE III - Future marine terminals:

a. *Port Covington - McComas Street Terminal*. Two additional berths and transit sheds would be constructed adjacent to the marginal wharves planned for McComas Street in Stage II. Additional transit shed area would be added at existing piers.

b. *Lower Canton Terminal*. This terminal would be expanded and marginal type wharves be constructed to provide berthing space for six of the largest type cargo vessels now in use, and two berths for bulk cargo vessels.

c. *Point Breeze*. A new terminal would be constructed at Point Breeze to accommodate general cargo and bulk cargo commerce.

d. *Locust Point Terminal*. The existing piers at this terminal would be combined and developed into modern finger pier facilities when expansion of this terminal becomes financially attractive.

The estimated increase in annual practical operating capacity for general cargo which would be afforded to the entire Port by the improvements under Stage III would be approximately 3,000,000 tons. With the completion of Stage III, the total capacity of all general cargo terminals of the Port would be about 9,000,000 tons annually.

The cost of construction of the facilities and improvements recommended in Stage III would be approximately $65,000,000. The aggregate cost of all of the improvements and new facilities programmed in Stages I, II and III of the Master Plan would be approximately $137,000,000.

PRESENT ADMINISTRATION OF THE PORT OF BALTIMORE

Under present conditions a variety of public and semi-public agencies have numerous functions at the Port of Baltimore. These agencies include the Port of Baltimore Commission, various departments of the City of Baltimore, agencies of the State of Maryland, the U. S. Corps of Engineers, the U. S. Coast Guard, and several semi-official and private agencies. None of the agencies is in a favorable position to foster the improvement and development of marine terminal facilities by private enterprise, or if private sponsorship cannot be aroused, to improve or develop essential facilities under its own auspices.

THE PORT OF BALTIMORE COMMISSION. This Commission was created in 1951 as an agency of the Mayor and City Council of Baltimore, succeeding the Port Development Commission established in 1921. The present Commission has little authority. Its functions are limited primarily to negotiations on behalf of the Mayor and City Council of Baltimore in connection with financial assistance furnished by the City to private interests for port improvements.

PRESENT BALTIMORE CITY FUNCTIONS IN THE PORT. The City's Department of Public Works has the city's major responsibility for the Port. Its Bureau of Harbors in particular is exclusively devoted to the waterfront. The Bureau's functions include inspection, construction and maintenance of the City's marine facilities, sounding and dredging, control of vessel movements, control of pollution, operation of scavenger boats and icebreakers, operation of the municipal radio station and radar unit, and operation of City-owned drawbridges.

The Comptroller of the City of Baltimore manages all fiscal activities of the City, including those related to the Port. Leases are negotiated and rentals are collected for major City-owned harbor properties, such as the McComas Street Terminal and the National Gypsum Company facility. The Harbor Master acts as agent for the Comptroller in negotiating numerous other leases, in collecting rentals and dockage, and in supervising the public harbor facilities.

STATE OF MARYLAND FUNCTIONS RELATED TO PORTS. Incidental functions in the Port area are performed by the State Board of Natural Resources and the Department of Tidewater Fisheries, which regulate State waters and fishing in Chesapeake Bay and its tributaries; the State Planning Commission, which provides advice on developmental undertakings; the State Board of Public Works, which approves various construction projects; and the State Roads Commission, which is responsible for key highway approaches to the Port area.

FEDERAL AGENCY FUNCTIONS RELATED TO PORTS. The U. S. Army Corps of Engineers, through the Baltimore District Engineer, is responsible for the maintenance and improvement of waterways outside the pierhead line. The U. S. Coast Guard is responsible for ship inspection, licensing

of operating personnel, port security, oil pollution control, and ice-breaking outside the pierhead line. Other federal agencies affect the State's port areas to a lesser degree.

PRIVATE AGENCY FUNCTIONS AT THE PORT. The Baltimore Association of Commerce is a promotional agency supported by private contributions and, to a small degree, by public appropriations. It has played a leading role in the promotion of port commerce at Baltimore. Its Export and Import Bureau actively solicits new shipments through the Port. For this purpose it maintains, in addition to its Baltimore office, regional offices in New York, Pittsburgh and Chicago. The Association's Traffic and Transportation Department provides information on freight rates and port charges and protects Baltimore's interests at hearings on those matters. Its Industry Department solicits new business for the metropolitan area, including port-related industries, and otherwise promotes the growth of Baltimore's industrial activity.

The Junior Association of Commerce is an organization of young businessmen supported by private contributions. The Steamship Trade Association is an organization of local marine transportation interests devoted to the promotion and improvement of the Port. The Port Dispatch Committee was formed in 1950, partly as a result of the 1949 survey of the Port, to investigate difficulties in port operation as they arise and to recommend corrective action.

DEFICIENCIES OF THE PORT'S PRESENT DIVERSIFIED CONTROL. While there is widespread interest in the development of the Port, overall coordination is absent. This leads to costly duplication of some functions and omission of others. The Port of Baltimore Commission is so restricted in its authority and jurisdiction that it has the power to do little more than to represent the City in connection with its financial assistance program for Port improvements. This function is hampered to the extent that only one organization has successfully negotiated a loan since the present Commission was organized in 1951. Among other things, the Commission lacks autonomy, adequate operating funds, control of physical port operations where appropriate, and authority to issue its own bonds. It cannot initiate new port improvements and its geographical jurisdiction is critically limited.

EXPENSES AND REVENUES OF PRESENT PORT ADMINISTRATIVE AGENCIES. The total net cost of Baltimore City's existing port facilities and operations averages $865,000 annually. The derivation of this figure is shown in the table of revenues and expenses included in a subsequent section covering financing port administration.

Two bureaus of the Baltimore Association of Commerce are directly concerned with port matters. These are the Export and Import Bureau, with a budget of approximately $90,000, and the Traffic and Transportation Bureau, which has a budget of about $40,000. Of the annual appropriations from the State and the City to the Association, $11,000 and $10,000 respectively are specifically designated for port activities.

The remaining $109,000 of the $130,000 expended annually by the two bureaus is met by contributions from private business sources.

RECOMMENDED ADMINISTRATIVE AGENCY

The prime purposes of a port agency are the promotion of waterborne commerce, the development of port facilities, and the provision of port services. Most major world ports are administered by centralized agencies. The extent of each agency's duties varies considerably from port to port, as do its powers, but the value of centralizing the port administration has been demonstrated repeatedly.

CLASSIFICATION OF PORT ADMINISTRATIVE AGENCIES BY POLITICAL UNITS. Most port administrative bodies in the United States are branches of local governments (municipal or county) such as the Port of Baltimore Commission and the Norfolk Port Authority. About 30% are state or multi-state agencies. Alabama, Georgia, North and South Carolina and Virginia have state authorities with no district boundaries. Port districts having state administrations are Camden, N. J.; Lake Charles and New Orleans, La.; New London, Conn.; Portland, Me.; and San Francisco, Calif. At three localities where port operations directly transcend state boundaries, bi-state agencies have been instituted; these agencies are the Port of New York Authority, the Delaware River Port Authority, and Bi-State Development Agency at St. Louis.

FUNCTIONS OF PORT ADMINISTRATIVE AGENCIES. The numerous functions performed by port agencies broadly include responsibility for negotiations with other agencies and private interests in connection with general port matters, promotion of commerce, administration of waterfront facilities, and jurisdiction over specific metropolitan transportation facilities.

BOARDS OF COMMISSIONERS OF PORT ADMINISTRATIVE AGENCIES. The membership of port administrations in the United States varies from one to sixteen commissioners, with boards of five members most prevalent. The bi-state agencies have boards ranging from ten to sixteen members. In a few cases commissioners are elected, but usually appointments are made by the Governor, in the case of state agencies, and by the Mayor or County Commissioners, in the case of local agencies. Sometimes the appointees must be selected from a slate of nominees provided by various port interests. Typical terms of office of port commissioners range from one to ten years, with four years being most frequent.

THE PROPOSED PORT ADMINISTRATION. The Port of Baltimore and all other port areas in the State of Maryland should be administered by a central agency similar in this respect to the State authorities in Virginia, North Carolina, South Carolina and Alabama. The principal reasons for a statewide administration are as follows:

1. Benefits from increased port activity on Maryland's waterfront accrue to the entire State.

2. Financial participation of the entire State is essential for an effective and comprehensive port development program.
3. The Authority would be able to undertake the required port functions wherever in the State the need dictates.
4. The Authority could derive its powers from the State in the broadest form possible, without danger that subsequent needs for additional powers would become subject to political vicissitudes.

COMMISSIONERS OF THE PROPOSED AUTHORITY. It is recommended that policies of the Authority be administered by a board of nine commissioners who would be appointed by the Governor according to their places of residence. Five members from specific areas would be directly appointed by the Governor without nominations and four members at large would be appointed by the Governor from a list of nominations provided by a cross-section of port interests.

FUNCTIONS AND POWERS OF THE PROPOSED AUTHORITY. It should be an assigned duty and a principal objective of the Authority to encourage private enterprise at the port in every way. The construction and operation of physical facilities should be left to independent initiative unless private interests decline to undertake those improvements even with reasonable inducements.

MANAGEMENT OF THE PROPOSED AUTHORITY. A functional organization with six departments is recommended.

Although the Baltimore Association of Commerce should be encouraged to continue its important work in port promotion and protection, a Solicitation and Promotion Department at the Authority would be given an adequate budget to provide for a broad solicitation program of its own. A Planning and Port Development Department would plan the long-range development program of port areas in close cooperation with the many Federal, State, and municipal agencies concerned. A Port Operation Department would operate the Authority's various public facilities and provide harbor services and internal security. An Engineering and Maintenance Department would be responsible for dredging, scavenger service, tug and launch services, maintenance of structures and utilities, engineering related to design and construction of new facilities, inspection and safety, surveys, and polution control. A Finance Department would handle accounting and budgeting for the Authority. An Administration Department would provide necessary services for the Authority's internal operations.

EXPENSE BUDGET OF THE AUTHORITY. The compensation for staff members of the new Authority must be sufficient to attract and hold experienced men who can administer effectively the extensive functions outlined above. With this criterion and with experience of the present port operations at Baltimore as a guide, it is estimated that the annual budget for early years of the Authority's operations should approximate

$900,000. Although it would be safe to assume that many economies will be achieved by the centralized management in accomplishing the duties now performed by existing agencies, these savings will undoubtedly be offset by expanded obligations of the new Authority.

TRANSFER OF CITY FUNCTIONS TO THE PROPOSED AUTHORITY. At the time of the formation of the new Maryland Ports Authority, legislation should provide for the dissolution of the Port of Baltimore Commission. Present functions of the Bureau of Harbors should be transferred to the Authority with the exception of drawbridge operations and maintenance.

Arrangements should be made with the City of Baltimore for the transfer of the McComas Street Terminal and the National Gypsum pier to the Authority, and the City should be reimbursed for this transfer by the State. In addition, the National Can Company project, and any others which may be initiated subsequently by the present Port Commission, should be transferred to the Authority with the latter assuming responsibility for the rental collections and the completion of the amortization of the City's investments. The City should also relinquish its municipal piers to the Authority. With these transfers the functions of the Harbor Master's office would be assumed by the Authority.

RELATION OF THE AUTHORITY TO LOCAL AGENCIES. The Authority would assume duties similar to those now performed by the Export and Import Bureau and Traffic and Transportation Bureau of the Baltimore Association of Commerce, but with considerably enlarged scopes. In cooperation with the Authority, the Association could continue its valuable work in port promotion and protection, utilizing the contributions received by the Association from private interests for that purpose.

FINANCING PORT ADMINISTRATION

FINANCING OF PORT IMPROVEMENTS. It is in the interests of the community and in accord with sound policy for a port administrative agency to perform some service at rates which do not return their entire costs. The long-range economic consequence of such a policy in attracting business and stimulating profitable activity may far outweigh the moderate net deficit. There are, also, numerous and important functions of a port agency which are not of an income-producing nature.

Development of both general cargo terminals and industrial bulk facilities by private enterprise using private capital is the most desirable method of financing and should be encouraged in every way possible by the Authority. Many ports, however, have been forced to use public funds to maintain their competitive standings particularly in connection with foreign general cargo terminal developments. Public funds for the assistance of private undertakings in port development have long been available at Baltimore through the Port of Baltimore Commission.

REVENUE FOR PORT DEVELOPMENT FROM NON-PORT FACILITIES. Many port agencies at their inception have been endowed with unencumbered sources of regular income from facilities which are not a direct part of the port, such as toll bridges, toll tunnels, and industrial land, but no such source of assured revenue is available in Maryland. The revenues of the projected Patapsco Tunnel and of the other three highway-toll crossings under the jurisdiction of the State Roads Commission are exclusively pledged to the interest and retirement of the bonds. Similarly toll road revenues must be devoted exclusively to State road purposes. The only physical facilities from which income for the port program may be secured are port terminals and industrial properties on the waterfront.

REVENUE FOR THE AUTHORITY FROM CITY-OWNED PORT FACILITIES. It is recommended that all City port properties be transferred to the Authority. This would relieve the City of Baltimore completely of any detailed responsibilities for port facilities, except fire and police protection, and prevent conflicting responsibilities between the Authority and the City.

The City should not be called upon to furnish an annual subsidy to the Port after harbor responsibilities have been transferred to the Authority. Being relieved thus of a financial burden approximating $253,000 yearly, as shown in the following table, the City should transfer (1) the Pratt Street and Broadway pier facilities without specific consideration in return, (2) the McComas Street Terminal and the National Gypsum Company pier in return for payment approximating the unamortized investment in those two facilities, and (3) the National Can Company project, and any others which may be initiated, in return for the assumption of obligations for amortization of the applicable investments which were made by the City.

As unencumbered properties the McComas Street Terminal and the National Gypsum Company's pier would provide about $560,000 annually to the Authority until 1959. In that year the Western Maryland Railway lease for the McComas Street Terminal will expire. The renewal rate will have been negotiated prior to that time. The National Gypsum Company lease will provide a yearly rental of about $80,000 until 1974. The transfer to the Authority of the National Can Company project, and any others which may be initiated by the present Port of Baltimore Commission, would provide no net revenue to the Authority in the near future.

The total revenue derived from functions of the City's Bureau of Harbors and from the City's Public Service Enterprises averaged approximately $256,000 during the five years from 1949 through 1953. It is anticipated that receipts from those functions will gradually increase as the volume of commerce through public port facilities grows and could provide a reliable source of income to cover partially the Authority's budget.

In total, the City-owned facilities could provide revenues of approximately $816,000 yearly until 1959, leaving an annual deficit of

PROPOSED ALLOCATION OF BALTIMORE CITY REVENUES AND EXPENSES FROM PORT FACILITIES AND OPERATIONS

		PRESENT	PROPOSED	
		City(a)	City	Authority
Port of Baltimore Commission				
Expenditures		$ 19,000(b)		
Bureau of Harbors				
Receipts				
Radio station and miscellaneous	11,000			
State appropriation	32,000(c)			
Total		43,000		11,000
Expenditures				
Three bridges	$ 82,000			
All other	487,000			
Total		569,000	82,000	487,000
Net loss		$526,000	$ 82,000	$476,000
Public Service Enterprises(d)				
Receipts		245,000		245,000
Expenditures		35,000		35,000
Net Revenue		$210,000		$210,000
Harbor Security				
Expenditures		$530,000	$530,000	
Net Cost		$865,000	$612,000	$266,000

(a) Annual average for 1948-1953.
(b) Average appropriation for two years; would be discontinued.
(c) State appropriation to City toward maintenance of icebreaker "Annapolis", would be discontinued.
(d) Excludes three self-sustaining port facilities under long-term lease.

about $84,000. The level of subsequent receipts is dependent upon the results of the negotiations of lease renewals and upon the rate of increase of port commerce at public facilities.

OTHER REVENUE FOR THE AUTHORITY. As a supplementary source of income the State should allocate revenues to be derived either from presently refunded taxes on marine gasoline sales or from generally exempted State taxes on manufacturer's tools and machinery. The estimated potential annual incomes from these sources at current levels are $210,000 and $150,000, respectively.

In total, therefore, the Maryland Ports Authority would receive during its first years of operation an annual revenue of $1,000,000 more or less, the exact amount depending on the tax means selected. This income would provide a small but desirable annual surplus. The legislation which will authorize the supplementary income from State sources should include provisions for adjustments to meet the anticipated changes in other sources of income to the Authority.

APPROPRIATIONS FROM THE STATE. The State of Maryland presently appropriates an average of about $43,000 yearly for activities at the Port of Baltimore. This consists of funds given to the Baltimore Association of Commerce for port promotion and protection and funds given to the City for a share of the maintenance costs of the icebreaker "Annapolis".

It is proposed that these annual appropriations be discontinued but that initially the State appropriate a sum which would be adequate to cover the transfer from the City to the Authority of the McComas Street Terminal and the National Gypsum Company pier. The size of this initial appropriation would depend upon the payment agreed to by the City, but it should be sufficient to cover the unamortized investment of the City in the two facilities, estimated at about 2.0 million dollars for the McComas Street Terminal and about 1.5 million dollars for the National Gypsum Company pier. If the appropriation available from the State would not be adequate to cover the transfer of both of these facilities to the Authority, it would be desirable as a minimum to transfer the McComas Street Terminal free and clear. Such a lump-sum appropriation by the State toward establishing the Maryland Ports Authority on a self-sufficient basis would be well justified.

THE PORT OF BALTIMORE

A RE-SURVEY FOR

THE MARYLAND LEGISLATIVE COUNCIL

PORT COMMITTEE

REPORT

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CHAPTER I

INTRODUCTION

AUTHORIZATION

This report is submitted in conformance with authorization from the State of Maryland and the City of Baltimore for the firm of Knappen-Tippetts-Abbett-McCarthy to re-survey the Port of Baltimore and report thereon to the Port Committee of the Maryland Legislative Council. The purpose of the re-survey and report is to bring up-to-date the study completed by this firm in 1949, revising the findings and recommendations of that report where appropriate in light of developments during the last five years.

SCOPE OF THE SURVEY AND REPORT

The 1949 study covered the entire range of activities which relate to the Port and its administration. In line with recommendations of that report, various steps were taken since then but in many cases the measures taken were insufficient to meet the goals which were set. This is particularly true with regard to port administration and financing. The purpose of the present study is to investigate and report on the various changes which have occurred since 1949, and to determine the courses of action now necessary to achieve the desired objectives.

The scope of the present study, determined by the authorization referred to above, embraces as its principal items, an analysis of recent economic changes within the tributary area of the Port, a review of the freight rate situation, an examination of recent commerce trends, a study of the probable effects of the St. Lawrence Seaway on the Port, a re-appraisal of Baltimore's potential commerce, a re-study of port matters relating to railroads and trucking lines, a re-survey of the physical condition and adequacy of the port facilities, a re-examination of the master plan for port development recommended in 1949, a re-study of the administration of the Port, and an investigation of practicable methods for financing administrative and development costs.

WORK DONE

The first phase of these studies involved extensive field research. Although most of that research was performed in Baltimore, various field inquiries were necessary in New York, Washington, Philadelphia and other locations. In the course of these investigations, interviews

and conferences were held with representatives of Federal agencies, Departments and Commissions of Maryland, Baltimore City and the neighboring counties and business and transportation associations; and with railroad officials, truckers, steamship operators and agents, terminal operators, manufacturers, bankers, and many other individuals interested in Maryland's ports.

Commerce information in great detail was made available by the Baltimore & Ohio Railroad, the Pennsylvania Railroad, the Western Maryland Railway and the Waterman Steamship Corporation. These data were reviewed and consolidated to derive pertinent statistics with regard to Baltimore's trade, and its trade potential. With the assistance of the various railroads, the Baltimore Association of Commerce, and other organizations and individuals, freight rate matters were reviewed and comparative studies were made of freight rates and port charges relating to activities at Baltimore and competing ports.

An extensive re-examination was made of the physical facilities of the Port and of the changes which would now be appropriate in the Master Plan for Port Development. For this work various data, maps and plans were made available by the terminal operators and other organizations and individuals directly concerned with port operations.

With the cooperation of agencies of the City of Baltimore, including the Port of Baltimore Commission, the Bureau of Harbors and the Comptroller's Office, detailed analyses were made of the expenses and revenues currently involved in the City's port activities.

ACKNOWLEDGMENTS

Acknowledgment is due to the many individuals who furnished valuable information and assistance. The Chairman and members of the Port Committee of the Maryland Legislative Council worked in close cooperation with the staff of this firm throughout the investigations and the preparation of the report. As mentioned previously, extensive and valuable information was furnished by officials of the Baltimore & Ohio Railroad, the Pennsylvania Railroad, the Western Maryland Railway and the Waterman Steamship Corporation. The officers of the Baltimore Association of Commerce were most helpful in many ways. The Director and members of the Port of Baltimore Commission assisted generously.

Acknowledgment is due to many officials of the City of Baltimore and the State of Maryland who also furnished valuable data and assistance. In addition, much helpful information was obtained from the Steamship Trade Association, the Junior Association of Commerce, and many other local agencies, private organizations and individuals.

The report owes much to the wholehearted cooperation of all of these organizations and individuals. A list of those who assisted during the course of this work is given in Appendix I-A.

CHAPTER II

THE PORT AREA

LOCATION OF THE PORT

Baltimore is the third largest city on the Atlantic Seaboard and one of the outstanding ports of the United States. It is noted for its efficient bulk cargo-handling facilities and extensive tidewater industries. The head of navigation within the port is located approximately 14 miles from the main Chesapeake Bay Channel and about 160 miles above the Chesapeake Capes, as shown on Plate 1.

STEAMSHIP SERVICE

Baltimore is now served by 83 steamship lines in foreign trade, six in intercoastal trade and five in coastal trade (including two on Chesapeake Bay). In addition, there are numerous ships which are chartered to haul grain, coal, ore, and tanker cargo, and many vessels which are owned by Baltimore's industrial firms.

Total sailings of vessels from Baltimore increased from 3,031 in 1949 to 4,667 in 1953. In the latter year, 1,219 ships sailed directly for foreign ports. Most of these were chartered or industrially-owned vessels carrying bulk cargoes.

There are at present no direct sailings scheduled between Baltimore and Europe or South America. Three lines serve Cuba directly and one has regular direct sailings to Puerto Rico. Most ships in Baltimore's foreign trade also call at Philadelphia and New York before leaving the United States. Shippers of high-value commodities prefer to ship through the ports which offer frequent and direct service even if a somewhat greater expense is incurred. Consequently considerable general cargo commerce which is generated within the area tributary to Baltimore is handled via the Port of New York, where more frequent services are available, thereby contributing to a cycle which increases the difficulty of initiating direct service out of Baltimore.

None of the steamship lines which serve the Port owns piers at the Port. Two of the coastwise lines and one of the lines in foreign trade lease piers. The remaining lines use facilities owned or operated by others.

The Port is served by 21 foreign freight forwarders, 4 railroad foreign freight offices, and 6 banks with foreign trade departments.

RAILROADS

As shown on Plate 2, the Port is served by three trunkline railroads, two short-haul railroad lines, and two terminal railroads. The trunkline railroads are the Baltimore & Ohio Railroad, the Pennsylvania Railroad and the Western Maryland Railway. Both the Baltimore & Ohio Railroad and the Pennsylvania Railroad have trackage connecting Baltimore with major cities in the Trunkline and Central Freight Association territories. The Western Maryland Railway has rails in Maryland, West Virginia, and Pennsylvania and connecting lines give it access to cities in the East and Midwest. These three trunkline railroad systems also serve the South and West through connecting lines.

Short-haul service is given by the Maryland and Pennsylvania Railroad, connecting Baltimore with York, Pennsylvania, and the Baltimore and Annapolis Railroad, which serves Annapolis. The Canton Railroad Company provides local rail services to many Baltimore industries and has connections with the major trunkline systems. The Patapsco and Back Rivers Railroad links the Sparrows Point Plant of the Bethlehem Steel Company with the Baltimore & Ohio Railroad and the Pennsylvania Railroad.

Most of the specialized and general cargo piers at the Port are owned by the three trunkline railroads and the Canton Company. All of these piers are served by rail, with interchange among lines usually being provided by lighter. Numerous interchange points for switching are provided on the periphery of the city and beyond.

HIGHWAYS

The City of Baltimore recently embarked on an intensified program to facilitate the movement of traffic in the downtown and waterfront areas by the designation of many one-way streets and by other means. An extensive express-highway plan for the City is projected and parts of it are now completed, as shown on Plate 2 and discussed in Chapter V. Vehicular facilities recently completed near Baltimore include the Chesapeake Bay Bridge and the Washington Expressway. Plans are now underway for a cross-bay tunnel between Fairfield and Canton. This tunnel will divert vehicles traveling between Washington and Philadelphia, and to that extent it will relieve the congestion in the downtown streets of Baltimore. Within recent years the State of Maryland adopted a comprehensive twelve-year highway building program. The development of this program should increase the accessibility of the Port facilities to the hinterland areas served by truck.

TRUCKING LINES

About fifty long-distance common carrier truck lines now serve Baltimore. Of this total, approximately twenty lines connect Baltimore

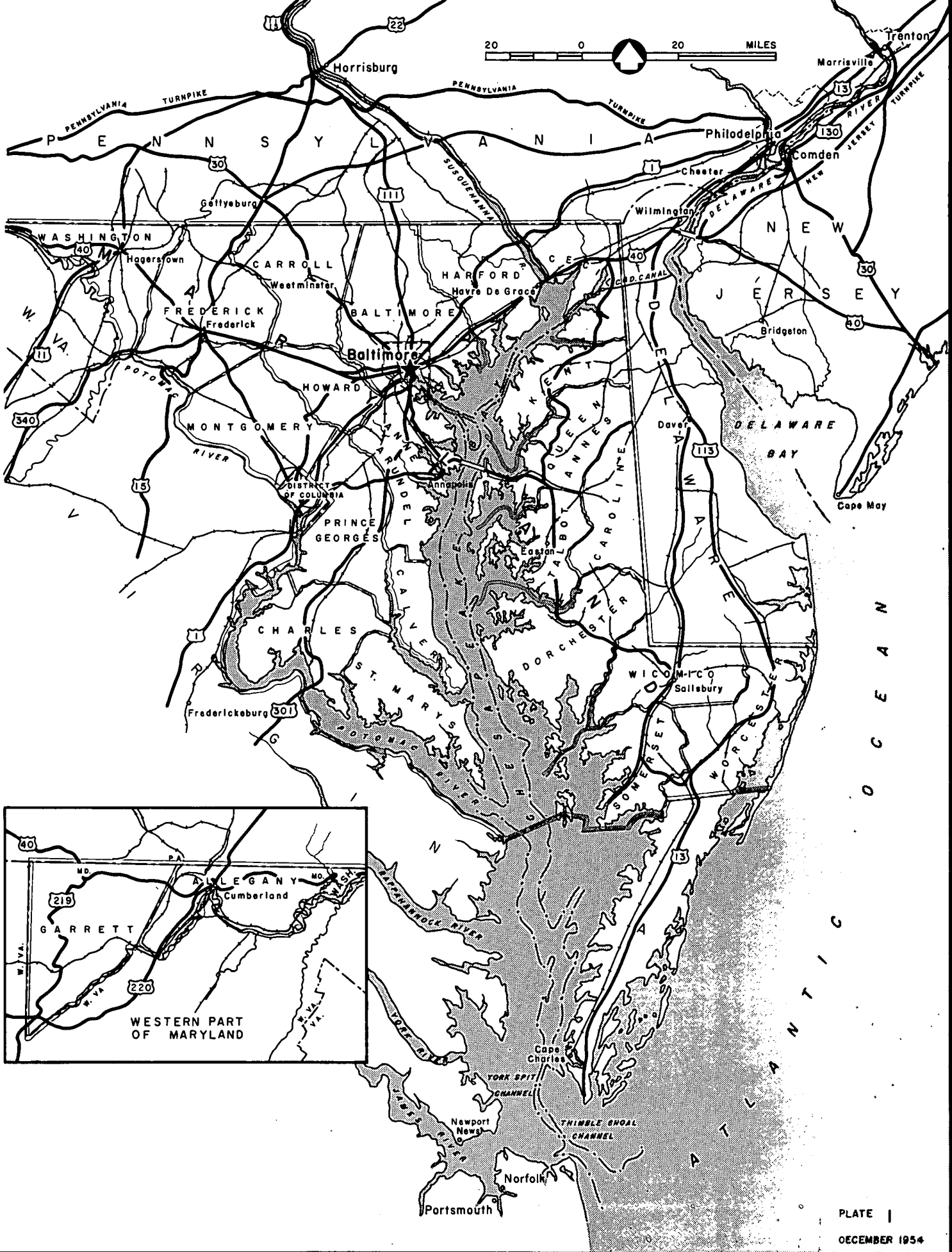


PLATE I

DECEMBER 1954

THE PORT OF BALTIMORE

KNAPPEN - TIPPETTS - ABBETT - McCARTHY

ENGINEERS NEW YORK

LOCATION MAP

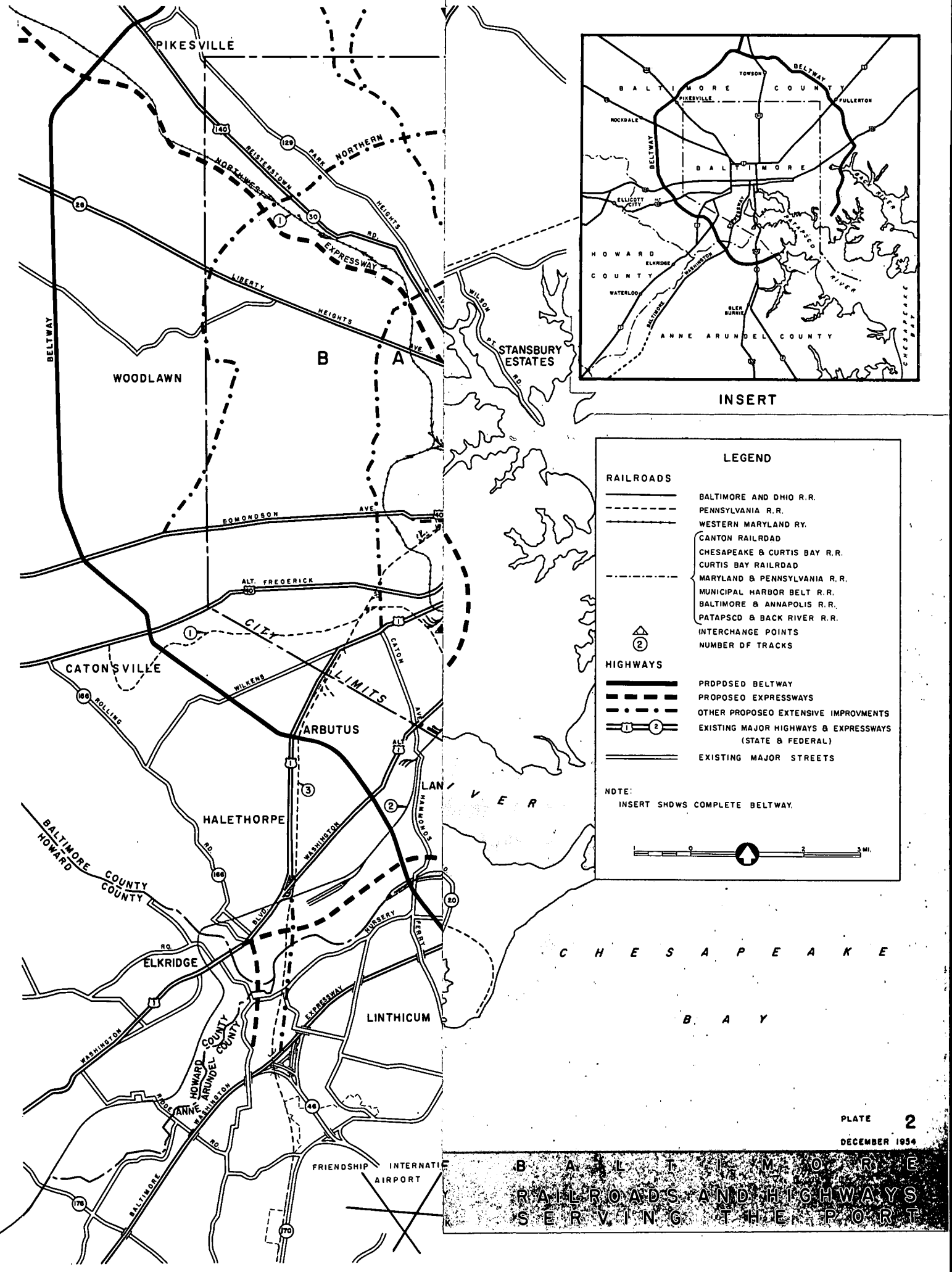
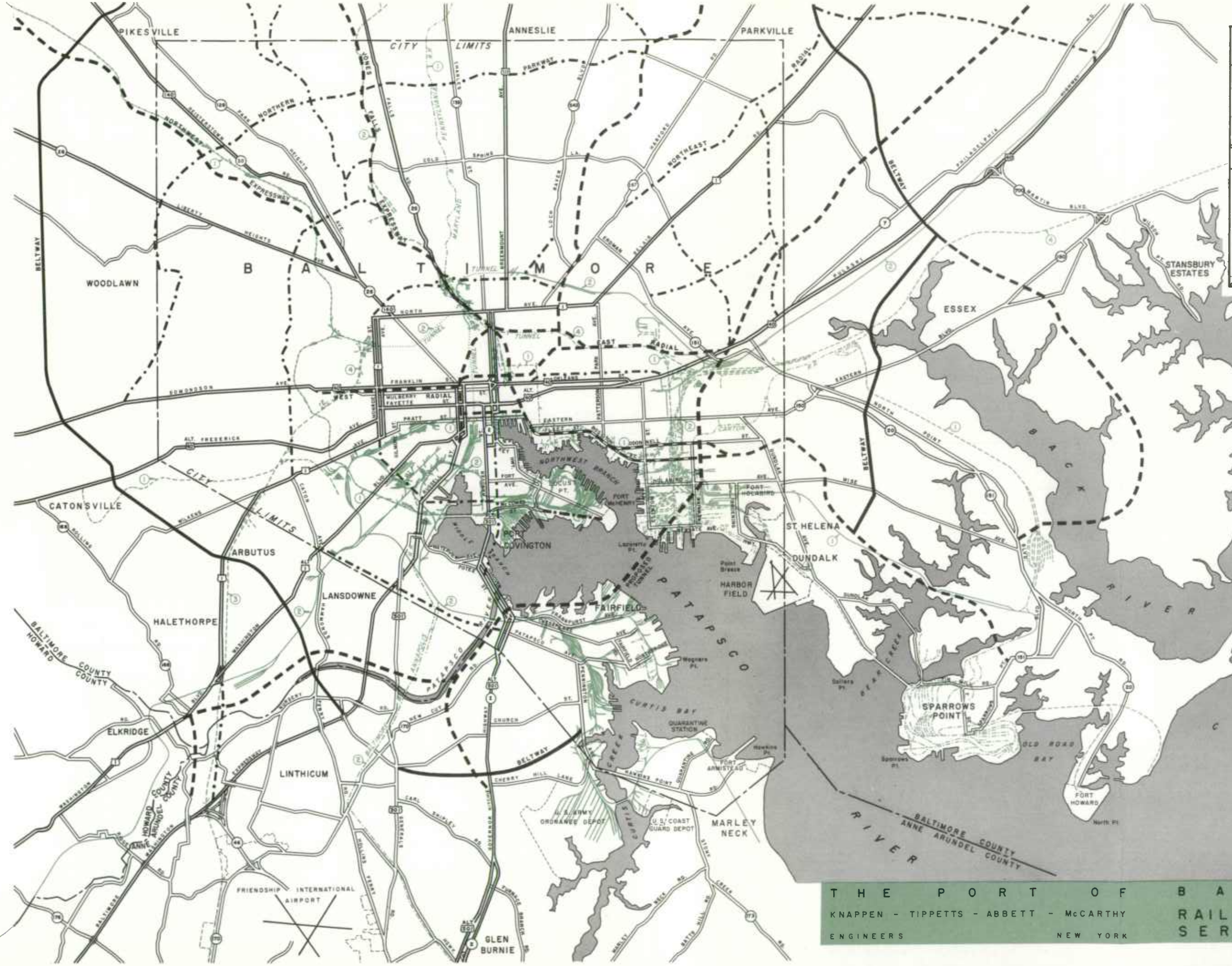
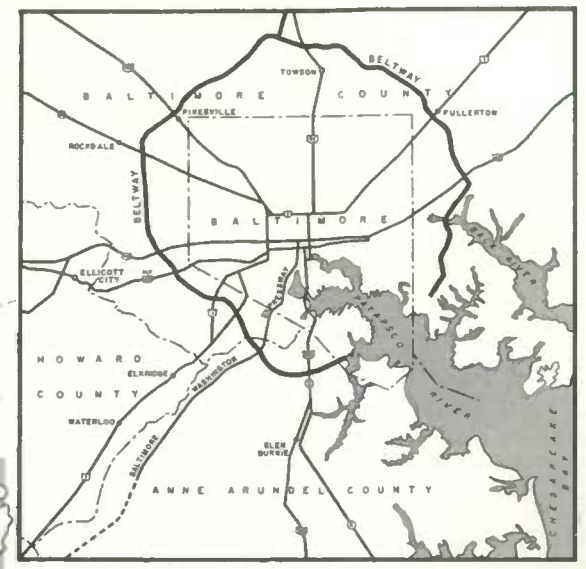


PLATE 2

DECEMBER 1954

BALTIMORE
RAILROADS AND HIGHWAYS SERVING THE PORT





INSERT

LEGEND

RAILROADS

- BALTIMORE AND OHIO R.R.
- PENNSYLVANIA R.R.
- WESTERN MARYLAND RY.
- CANTON RAILROAD
- CHESAPEAKE & CURTIS BAY R.R.
- CURTIS BAY RAILROAD
- MARYLAND & PENNSYLVANIA R.R.
- MUNICIPAL HARBOR BELT R.R.
- BALTIMORE & ANNAPOLIS R.R.
- PATAPSCO & BACK RIVER R.R.
- INTERCHANGE POINTS
- NUMBER OF TRACKS

HIGHWAYS

- PROPOSED BELTWAY
- PROPOSED EXPRESSWAYS
- OTHER PROPOSED EXTENSIVE IMPROVMENTS
- EXISTING MAJOR HIGHWAYS & EXPRESSWAYS (STATE & FEDERAL)
- EXISTING MAJOR STREETS

NOTE:
INSERT SHOWS COMPLETE BELTWAY.

PLATE 2
DECEMBER 1954

THE PORT OF BALTIMORE

KNAPPEN - TIPPETTS - ABBETT - McCARTHY
ENGINEERS NEW YORK

RAILROADS AND HIGHWAYS SERVING THE PORT

with the Midwest. In addition, a large number of long distance private and contract carriers serve the port. A continuous expressway type route between Baltimore and Pittsburgh would encourage the diversion to Baltimore of some of the truck traffic of the Midwest which now favors Philadelphia because of the faster schedules attainable on the Pennsylvania Turnpike.

In many cases the rate differential favoring truck shipments over rail shipments is narrow, but trucks provide the added convenience of door-to-door shipment which is absent in many less-than-carload rail hauls. The railroads retain an inherent advantage in the hauling of carload lots of most bulky or heavy products.

The majority of Baltimore's truck terminals are located within a two mile-wide belt extending eight miles from the southwestern to the eastern limits of the city. Within this belt there is a large cluster of terminals on the Pulaski Highway, and another near the Middle Branch of the Patapsco River. The future construction of a tunnel from Fort McHenry to Canton would provide shorter routes between the truck terminals and the many local plants on the other side of the harbor. At present, such hauls must be made via the congested streets around the Inner Harbor.

POPULATION AND LABOR FORCE

The population of the Baltimore Metropolitan Area (now defined by the U. S. Census Bureau as including Baltimore City, Baltimore County, and Anne Arundel County) increased from 985,000 in 1930 to 1,083,000 in 1940 and 1,337,000 in 1950. The Maryland State Planning Commission estimates that the population of this area will continue to increase, exceeding 1,900,000 by 1970.

The labor force of Baltimore City rose from 362,000 persons in 1930 to 388,000 in 1940, and 418,000 in 1950. The total labor force of the entire Metropolitan Area in 1950 was 572,000 persons.

INDUSTRY

Baltimore is one of the leading industrial cities of the country, and it is noted for the extent and diversity of its waterfront factories. As shown in Table II-1, the Baltimore Metropolitan Area now employs over 200,000 persons in manufacturing industries. These employees earned $826,000,000 in wages and salaries in 1953. Almost all of the local industries increased their employment between 1947 and 1953. The area's largest industries in terms of employment are primary and fabricated metal products (25%), transportation equipment (18%), electrical and industrial machinery (13%), apparel and textiles (11%), and food products (11%). It is estimated that all the factories in Baltimore's metropolitan area produced goods valued at a total of 3.8 billion dollars in 1953, of which 1.5 billion dollars was value added by manufacture.

TABLE II-1

RECENT MANUFACTURING PROGRESS IN THE BALTIMORE METROPOLITAN AREA BY INDUSTRIES

Thousands of Dollars

Industry Group	Average Number of Employees		Total Wages & Salaries		Value Added By Manufacture	
	1947	1953	1947	1953	1947	1953
All Industries, Total	170,062	201,316	$482,643	$826,230	$899,534	$1,507,031
Food & Kindred Products	21,169	21,828	55,512	80,942	144,210	210,239
Tobacco Manufactures	*	112	*	307	*	469
Textile Mill Products	2,878	3,505	6,676	10,703	12,483	20,006
Apparel & Related Products	16,583	17,235	38,328	49,745	76,891	99,889
Lumber & Products, Exc. Furniture	1,568	1,924	4,312	6,151	5,962	8,508
Furniture & Fixtures	2,015	4,243	4,720	13,475	7,510	21,458
Paper & Allied Products	2,847	4,662	7,081	17,190	14,723	35,738
Printing & Publishing Industries	8,707	8,999	26,829	38,265	49,000	69,827
Chemicals & Allied Products	9,477	10,705	27,292	44,832	92,644	151,973
Petroleum & Coal Products	2,407	2,175	7,794	11,358	18,002	26,232
Rubber Products	1,260	1,924	3,507	6,217	5,960	10,572
Leather & Leather Products	1,282	1,417	2,934	4,047	4,894	6,744
Stone, Clay & Glass Products	4,666	5,763	11,702	22,847	23,169	45,241
Primary Metal Industries	30,336	32,074	93,114	146,563	155,559	244,680
Fabricated Metal Products	16,294	17,085	43,806	68,465	78,225	122,259
Machinery (Exc. Electrical)	8,254	10,805	24,556	46,665	34,499	65,541
Electrical Machinery	8,546	15,205	26,328	71,991	33,542	91,708
Transportation Equipment	27,925	36,534	*	168,402	*	246,562
Instruments & Related Products	*	1,292	*	5,225	*	6,699
Miscellaneous Manufactures	3,131	3,829	7,567	12,840	13,380	22,686

*Inaufficient data available for eatimating figurea for 1947.
Source: Baltimore Association of Commerce, September 1954

The principal industries of Baltimore which contribute directly to the waterborne commerce of the Port through the use of waterborne raw materials are the petroleum and sugar refineries, steel plants, fertilizer factories, chemical plants, and building material plants. Many of these plants have their own piers at which ocean-going vessels or barges may dock.

In addition, a large number of local producers of canned foods, beverages, soap, textile products, paper, brick, insulators, copper, tin cans, other metal products, machinery, and chemicals ship their products via Baltimore's general cargo piers. Many local firms also receive quantities of waterborne canned foods, coffee, vegetable oils and fibers, beverages, latex, dyeing and tanning materials, cork, woodpulp, paper, and non-ferrous metals. As previously described, however, large volumes of general cargo produced by plants within Baltimore's metropolitan area are exported via competing ports (particularly New York) which offer frequent sailing schedules. For the same reason, considerable quantities of general cargo imports destined for Baltimore's industrial and individual consumers are shipped through New York and other competing ports.

Since World War II, investments in new plants and expansions in Baltimore have totaled $705,000,000. In 1954 alone, they amounted to $99,000,000. The establishment of 33 new industries and many additions in 1954 created new employment for about 5,000 workers. In recent months, new wire and agricultural machinery factories were established near Baltimore, and plans were announced for the construction of steel bar and plate mills, and sulfuric acid, titanium oxide, and titanium metal plants. Both the electronics and aircraft industries are expanding rapidly near Baltimore, and large glass and cement plants are under construction in other parts of Maryland.

As described in Chapter VI, there are large areas on the waterfront of the Port of Baltimore which are zoned for industry. The largest tracts available for development are in Marley Neck and adjacent to the Back River. Both areas now have good rail and highway access, and they may be made accessible to barges and ships by the dredging of channels to deep water. There are numerous other suitable plots within the Baltimore Metropolitan Area which are either zoned for industry at present or may be so zoned in the future.

The Baltimore City Board of Advisory Engineers on Future Water Supply have estimated that the waterfront areas of Baltimore County and Anne Arundel County will experience extensive industrial expansion in the next 20 years. Both counties now have few industries which depend on the City's water supply. The area served by the City system includes Baltimore City, most of Baltimore County, and portions of Anne Arundel, Howard, and Harford Counties. The Board estimates that by 1975 that area will require 127% more water for industrial purposes than was needed in 1953. Of the expected increase, 70% will be required in the zones nearest the waterfront, according to the forecast.

ECONOMIC IMPORTANCE OF PORTS TO MARYLAND

The benefits resulting from port operations extend beyond the local economy into the adjacent hinterland and to the more remote areas where the port communities transact business. These benefits include (1) transportation savings resulting directly from the use of water transport or indirectly from the effects of water competition on rail and truck rates, (2) direct and indirect community income attributable to port activities, and (3) direct and indirect community benefits from port-oriented industries.

The advantages of direct savings in transportation costs brought about by low-cost water transport rates are obvious and widespread. Since such savings can be passed on to the consumer, manufacturers are placed in better competitive positions in their respective fields, principally through their consequent ability to utilize remote sources of raw materials, and in part as a result of an expansion of the marketing area in which their products can effectively compete.

Direct financial benefits to the community result from the arrival and departure of ships, and from the services performed in connection with both the ships and their cargoes. Income from this source is "direct" because it would not exist but for the operation of the Port's marine terminals and supporting facilities. Some of this income is generated on the waterfront, and more develops as the cargo moves to, from, or within the port area. Examples of such direct benefits are incomes received from loading and unloading ships; switching and trucking cargo; freight forwarding, insuring, and banking; and fueling, repairing, and provisioning ships.

Indirect financial benefits of port activity are measured by the stimulation of economic activity in the area resulting from the money brought in as direct income. A conservative estimate is that every dollar entering a community from a basic industry (of which the port is one) causes at least two dollars' additional activity in local and state-wide merchandising, business, and professional channels.

Port-oriented industries located in the port area largely because of the advantages of low-cost water transportation provide a third type of benefit. As described earlier in this chapter, a large number of industries within the Baltimore Metropolitan area ship considerable volumes of cargo through the Port. In 1953, Maryland's factories and distributors shipped and received almost 800,000 tons over Baltimore's general cargo piers alone. This cargo movement through the Port benefited not only the shippers and consignees but also the railroads, trucking lines, steamship lines, stevedores and others who handle or process those shipments.

According to a study by the Maryland State Planning Commission, approximately 63% of all industrial employees in the Baltimore Metropolitan Area work in factories which ship or receive some of their raw

materials, fuel, or finished products by water. Many plants located in other parts of Maryland also move considerable quantities of cargo over Baltimore's piers. The provision of more frequent direct sailings between the Port and many parts of the world would increase further the Port's utilization by the State's industries. The location of new plants in the area would not only increase the Port's direct income but also spread benefits throughout Maryland to wholesalers, retailers, service tradesmen, and to all others who derive income indirectly from those new industries, as well as create revenue for government taxing bodies.

Every citizen in the State of Maryland directly or indirectly derives economic benefits in some degree from port activity. Stimulation of that activity by investment of public funds is in the public interest and is a matter of statewide concern.

CHAPTER III

FREIGHT RATES AND PORT CHARGES

FREIGHT RATE TRIBUTARY AREA OF THE PORT OF BALTIMORE

As shown on Plate 3, the Port of Baltimore has preferential rail export-import class rates in Maryland (except for the Eastern Shore), northern Virginia, most of West Virginia, western and central Pennsylvania, and eastern Ohio. The Port also enjoys an advantage in export-import rail rates over New York and Philadelphia in the large region bounded roughly by the Ohio River on the south, the Missouri River on the west, and a line through Sandusky and Columbus on the east. Norfolk has equality with Baltimore in this entire territory. New Orleans has lower rates than Norfolk and Baltimore in the portion of the territory which lies west of lower Lake Michigan, Indianapolis, and Cincinnati. Baltimore also has equality with New York and Philadelphia in western New York State and in a small area of northwestern Pennsylvania.

RELATION OF RAIL AND TRUCK RATES

The cargo trucked to and from Baltimore's general cargo piers amounts to about 16% of the total transported by rail and truck combined. This proportion appears to be increasing gradually. Although the major portion of truck cargo is moved by private and contract carriers, there is a trend toward equalization of common carrier truck freight rates with rail rates, particularly on long-haul traffic between the East and Middle West.

OCEAN RATES

The tariffs established by the water carrier rate conferences provide equality in ocean shipping rates for the principal North Atlantic ports, but the rates of non-conference lines and tramp steamers vary from port to port and change frequently. A large part of Baltimore's bulk cargo is shipped on non-conference vessels. The shipping rates for such movements are negotiated between the shippers and the carriers.

PORT DIFFERENTIALS IN RAIL RATES

The differentials on export-import class rates for movements by rail between the Central Freight Association Territory and the various North Atlantic and Gulf ports have remained essentially unchanged

since settlement of the rate "wars" of the 1870's. The following table is representative of Baltimore's relative standing with competing Atlantic and Gulf Coast ports.

TABLE III-1

DIFFERENTIALS IN RAIL RATES FOR MOVEMENTS BETWEEN CENTRAL FREIGHT ASSOCIATION TERRITORY AND SELECTED PORTS

	Export Class Rates						Import Class Rates					
CLASS NUMBER	1	2	3	4	5	6	1	2	3	4	5	6
	(Cents per 100 Pounds above Baltimore Rates)											
Boston	3	3	3	3	3	3	8	8	3	3	3	3
New York	3	3	3	3	3	3	8	8	3	3	3	3
Philadelphia	1	1	1	1	1	1	2	2	1	1	1	1
Norfolk *	0	0	0	0	0	0	0	0	0	0	0	0
	(Cents per 100 Pounds below Baltimore Rates)											
New Orleans **	15	15	9	5	3	3	10	10	9	5	3	3

* For CFA Territory west of and including Sandusky and Columbus, Ohio.

** For CFA Territory west of and including Chicago, Indianapolis, and Cincinnati, on exports to Europe, Africa, and the east coast of South America, and on imports from Europe and Africa. Rates via New Orleans to and from all other points are equal with those of Baltimore.

Aside from rail rates on ex-lake grain and iron ore, commodity rates generally follow the differential pattern for class rates given above. In recent years truck competition forced rail rates on a few high-value commodities such as drugs and medicines via other ports to be set below those at Baltimore. The railroads serving Baltimore have tried to eliminate or meet such rates, but there have been some instances in which other competitive factors have weighed more heavily than Baltimore's objections.

Baltimore has enjoyed an all-rail export grain rate differential of ½¢ per 100 pounds under Philadelphia and 1½¢ under New York and Boston. Since January 29, 1952, however, export rates on ex-lake grain from Buffalo have been equalized to Portland, Boston, New York, Albany, Philadelphia, and Baltimore. The rate through Norfolk remains ½¢ higher.

An equalization of rates on iron ore imports via Baltimore and Philadelphia to the Pittsburgh district has existed since 1903, contrary to the normal differential pattern. During the recent construction of a new ore-unloading facility in Philadelphia, equalization of these rates was extended to include steel mills in Youngstown, Steubenville, and Wheeling. The I.C.C. on February 19, 1954 approved this broadening of the area of equalization, but it rejected New York's and Boston's attempt to gain similar rates. The I.C.C. in now re-hearing the entire iron ore rate case.

The ex-parte rate increases granted the railroads since 1946 on all commodities were on a percentage basis, which resulted in a widen-

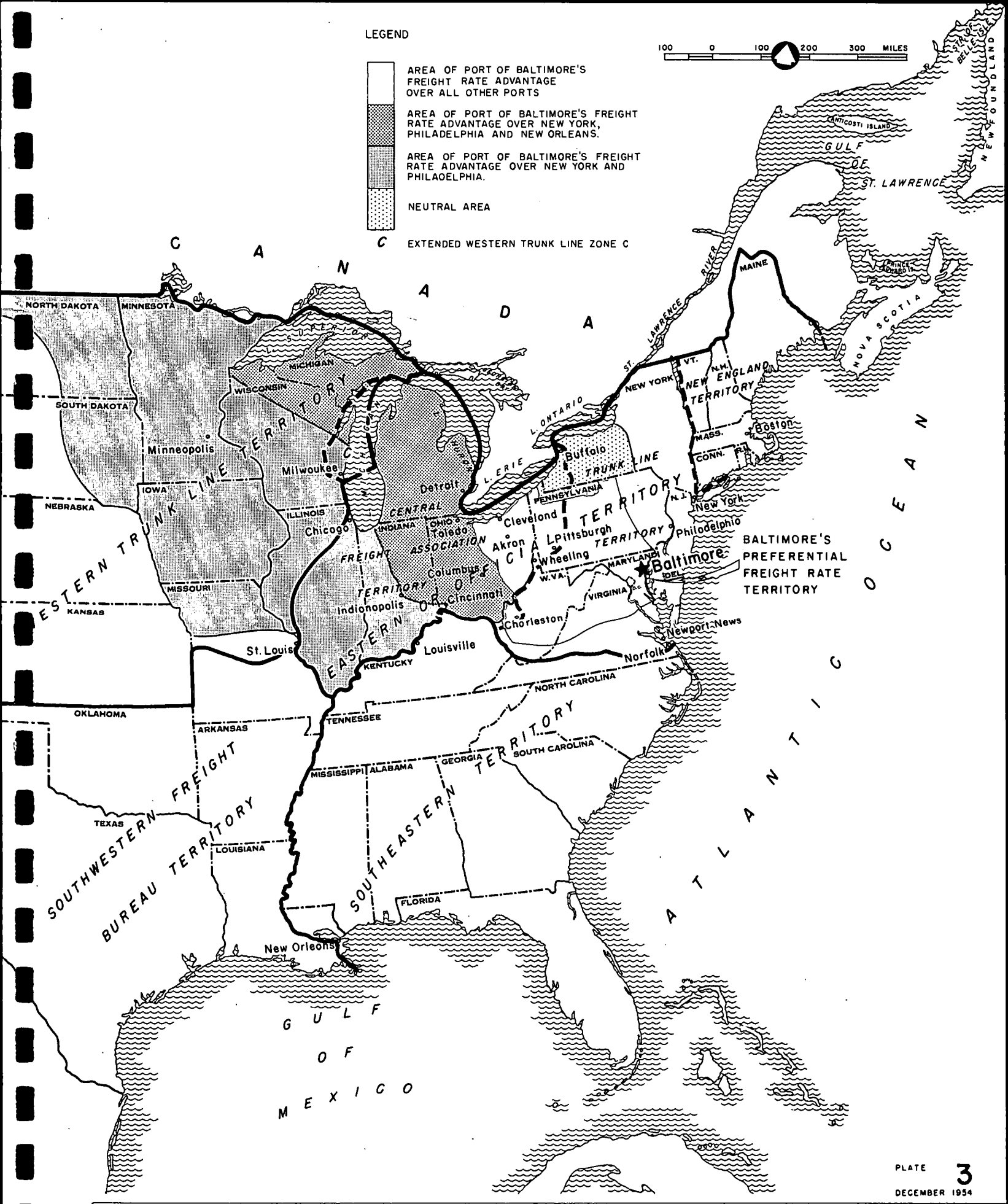


PLATE 3
DECEMBER 1954

THE PORT OF BALTIMORE

KNAPPEN - TIPPETTS - ABBETT - McCARTHY
ENGINEERS NEW YORK

EXPORT - IMPORT FREIGHT RATE AREAS

ing of the dollar-and-cents port differentials on most class and commodity rates. In the latter part of 1952, however, the railroads finally restored the traditional differentials on export-import cargo.

Barge transportation on the Mississippi River between the Central Freight Association Territory and New Orleans remains a competitive problem for railroads serving the North Atlantic ports. In recent years, these railroads have reduced rates on some commodities, particularly iron and steel products from Pittsburgh, in an effort to meet the low export rates made possible by the low cost of barge shipments to New Orleans.

RAIL-WATER COASTWISE RATES

Although the Interstate Commerce Commission widened the differentials between all-rail and rail-water class rates in the Atlantic and Gulf Coast trades in 1952, the coastwise water carriers have failed to increase appreciably their tonnages of cargoes moving under those rates. Most of the water carriers' traffic moves under commodity rates. The conventional carriers have been hard-pressed by rapidly-rising costs since World War II but, as indicated in Chapter IV, new types of land-water transportation methods are being developed in an effort to reduce cargo-handling costs.

INFLUENCE OF FREIGHT RATES ON GENERAL CARGO AND BULK COMMERCE

Favorable rail rate differentials at Baltimore undoubtedly have attracted much waterborne commerce which otherwise would have moved through other ports. This is particularly true in the case of bulks, such as grain shipped all-rail to the Atlantic ports. The low-valued bulks are more sensitive to small rate differences than are the higher-valued general cargoes, for which total time in transit is often a crucial factor. Baltimore should work diligently to maintain the existing differentials against encroachment by other ports.

Even though export rail rates on ex-lake grain have been equalized to most North Atlantic ports, Baltimore has been able to retain most of this traffic due to its superior grain storage and handling facilities. On the other hand, the recent equalization of certain iron ore rates has resulted in loss to Baltimore.

SPLIT EXPORT CAR DELIVERY

Split export car delivery consists of the assembly by one shipper of several shipments of less-than-carload size, destined for the same port but to different vessels, into one carload consigned at the lower rate applicable to carload export movement. These split export car deliveries have been permitted at Baltimore since February 1, 1949, as

they had been previously at other North Atlantic ports. In addition, railroad tariffs published for these ports since April 1, 1954 have provided in substance that shipments may be delivered to certain off-pier locations for preparation for export without loss of the lower export rate, provided export is accomplished within a given time, and provided further that costs of pier delivery will not be included in the line-haul rate. In connection with these tariffs, split deliveries are permitted both to piers and to other locations. These changes have resulted in greater flexibility and attraction for export shippers.

SWITCHING AND LIGHTERAGE

There have been no changes in the Baltimore railroad switching situation since 1949. As heretofore, switching and lighterage charges within the port limits are usually absorbed on line-haul traffic, but are charged at published rates for local switching and lighterage movements. There has been no serious attempt to institute reciprocal switching in Baltimore, because as outlined in the 1949 survey, many piers are too narrow to accommodate and handle efficiently an entire ship's cargo if it were all to be moved over the pier's railroad tracks.

PORT AND TERMINAL CHARGES

Port and terminal charges are levied for the use of port terminal facilities in the interchange of cargo between vessels and land carriers, shippers, or consignees. Typical charges levied at Baltimore and competitive North Atlantic ports are defined as follows:

Dockage - a charge assessed against a vessel for the space it occupies at a pier or wharf.
Wharfage - a charge for the privilege of passing cargo over a pier or wharf, or from vessel to vessel at a pier or wharf, and for holding cargo during free time.
Top Wharfage - a charge assessed against cargo delivered to or received from vessels by truck.
Side Wharfage - a charge assessed against cargo delivered to or received from a lighter over the side of the vessel.
Pier Storage - a charge for storing or holding cargo beyond allowed free time.

There have been some upward revisions in the various port and terminal charges at piers in Baltimore, Philadelphia, New York, and Norfolk during the past five years. Current charges are summarized in Table III-2 and are discussed briefly below.

Dockage - Philadelphia Piers, Inc., raised its dockage rates from 3% to 4¢ per net registered ton per day. The Philadelphia railroad piers also increased their rates on non-line haul cargo from 1¾¢ to 2¢ or 4¢, depending on the pier. The

TABLE III-2
TYPICAL PORT CHARGES

	BALTIMORE		PHILADELPHIA		NEW YORK	NORFOLK
	Railroad Piers	Municipal Piers	Philadelphia Piers, Inc.	Railroad Piers	Piers Operated by the City	Typical Piers
Dockage	No charge	$25 per day for vessel of over 2500 gross tons. Vessels not assessed if wharfage produces greater revenne	4¢ per net registered ton per day	2¢ or 4¢ per net registered ton per day for steamers, depending upon pier at which docked. Not assessed if cargo resnlts in line-hanl	$200 per day for vessels between 4001 and 5000 net registered tons; $225 per day for vessels over 5000 net registered tons	No charge for loading or unloading cargo, when cargo results in line-haul. Otherwise, 2¢ per net registered ton per day
Wharfage	No charge when rate for line-haul is 19¢ per 100 lbs. or more. Some exceptions.	Ballast 5¢/ton, Wstermelons 15¢/100, Lnmber 20¢/MBF per 10 dsys	No charge	Inclnded in line-haul freight rate subject to certain minimum revenne	No charge	No uniform rates at private piers. At railroad piers, 28¢ per net ton except when cargo results in line-haul
Top Wharfage	5 3/4¢ per 100 lbs., minimum $1.15 per shipment	No charge	5 3/4¢ per 100 lbs., minimum $1.15 per shipment	5 3/4¢ per 100 lbs., minimnm $1.15 per shipment	No rate puhlished	5 3/4¢ per 100 lbs. at all terminals
Side Wharfage	12¢ per net ton, minimnm 23¢ per shipment	For transfer of goods from one vessel to another, one-half of wharfage rate.	No rate pnblished	No rate pnblished	No rate pnbliahed	2¢ per 100 lbs.
Pier Storage (Import)	Free Time 5 days 10¢ per 100 lbs. for first 30 days 3¼¢ per 100 lbs. each succeeding 15 days. (1) 15¢ per 100 lbs. for first 30 dsys; 6¢ per 100 lbs. each succeeding 15 days. (2)	Harbor Maater may levy penalty after 24 hours if pier space is required	Same as for railrosd piers	Free Time 5 days 10¢ per 100 lbs. for first 30 days; 3¼¢ per 100 lbs. esch sncceeding 15 days. (1) (2)	10¢ per ton per day	Free Time 5 days, 10¢ per 100 lbs. for first 30 days; 3¼¢ per 100 lbs. each succeeding 15 days. (1)
Pier Storage (Export)	Free Time 7 days in csrloads and 5 dsys LCL except grain. 5¼¢ per 100 lbs., for first 10 days; 2¢ per 100 lbs. for each succeeding 10 days.		Ssme as for rsilrosd piers	Free Time 7 days in carloads snd 5 dsys LCL except grain. 5¼¢ per 100 lbs. for first 10 days; 2¢ per 100 lha. for each snccecding 10 days.	10¢ per ton per day	Free Time 7 days in carloads snd 5 days LCL except grain. 5¼¢ per 100 lbs. for first 10 days; 2¢ 100 lbs. for each succeeding 10 days

NOTES: (1) Traffic with minimnm weight in official classification of 24,000 pounds.
(2) Bnlk trsffic with minimnm weight in official classification of less than 24,000 ponnds.

Baltimore railroads continued their policy of not charging dockage on cargo handled over their piers.

Wharfage - As in 1949, wharfage charges on cargo resulting in line-hauls are not levied at railroad-owned piers in Baltimore, Philadelphia, and Norfolk. Wharfage is not charged on non-line haul cargo at the other piers, with the exception of charges for a few specific items at the Baltimore municipal piers.

Top Wharfage - At railroad-owned piers in Baltimore, Philadelphia, and Norfolk, as well as at Philadelphia Piers, Inc., rates on top wharfage have been raised from 5¢ to 5¾¢ per 100 pounds with a minimum charge of $1.15 per shipment. Municipal piers at Baltimore and New York make no top wharfage charges.

Side Wharfage - Baltimore railroads raised side wharfage rates from 10½¢ to 12¢ per net ton, and raised the minimum charge per shipment from 21¢ to 23¢. None of the other ports listed publishes side wharfage tariffs except Norfolk, where 2¢ per 100 pounds is charged.

Pier Storage - The railroad piers at the competitive ports and Philadelphia Piers, Inc., now levy a uniform storage charge on imports of 10¢ per 100 pounds for the first 30 days and 3¼¢ for each succeeding 15-day period, in contrast to former rates of 9¢ and 3¢, respectively. However, for import shipments of less than 24,000 pounds through Baltimore and Philadelphia, charges are 15¢ per 100 pounds for the first 30 days, and 6¢ for each succeeding 15-day period. Storage rates on exports likewise have been raised from 5¢ to 5½¢ per 100 pounds for the first ten days, and from 1¾¢ to 2¢ for each succeeding ten-day period at Baltimore, Philadelphia, and Norfolk. There are no separate rates on export shipments of less than 24,000 pounds. City-operated piers at New York have maintained their former storage rate of 10¢ per ton per day on both exports and imports.

Instead of paying dockage, wharfage, or other charges, many steamship companies lease municipal or private piers at large annual rentals. This practice, which is common at New York especially, makes difficult any realistic comparison of terminal charges at competing ports.

Revenues at selected Atlantic and Gulf Coast ports, taken from a study recently completed by the American Association of Port Authorities, are given in Table III-3. As shown in that table, charges levied against a typical Victory ship with cargo of 1,000 tons are much lower at Baltimore than at competing ports, with the exception of railroad piers at New Orleans and New York. Although the low charges at Baltimore undoubtedly act as an inducement to vessels and shippers, they do not cover the expenses incurred by the pier operators. The Association believes that the break-even point is $645 per berth for a typical vessel and its cargo at an "average" U. S. port. That amount is almost three times the average of $230 received at Baltimore. The railroads serving Baltimore must therefore recoup their pier losses from line-haul revenues.

TABLE III-3

REVENUES RECEIVED BY PIER OPERATORS AT SELECTED PORTS

(Revenues received from a typical Victory ship discharging 1000 tons of a volume commodity in 36 hours at one berth)

PORT	OPERATOR	FROM VESSEL	FROM CARGO	TOTAL
Baltimore	Railroads	none	$230.00	$230.00
Boston	N. Y. Central	$125.00	$872.00	$997.00
	Other Private Terminals	$125.00	$350.00-$385.42	$475.00-$510.42
	Port of Boston Commission	$125.00	$475.60	$600.60
New Orleans	Board of Commissioners	$684.54	$150.00	$834.34
	Railroads	none	none	none
New York	Railroads	none	none on line-hauls	none
	New York City	$400.00	$300.00	$700.00
	New York Dock Co.	$400.00	$300.00	$700.00
	Port of New York Authority	$378.18-$606.36	none	$378.18-$606.36
Norfolk	Private Terminals	none	$415.00-$870.00	$415.00-$870.00
Philadelphia	Philadelphia Piers, Inc.	$363.92	$264.50	$628.42
	Railroads	none	$253.00-$402.50	$253.00-$402.50

Source: American Association of Port Authorities, October 1954

FREE STORAGE TIME

Import cargoes moving by rail receive five days' free storage time at rail facilities in Baltimore and competing ports. Free time on export carload movements (except grain) is seven days; on l.c.l. shipments it is five days. In January 1954, a decision of the Federal Maritime Board extended free time on truck-hauled goods from 48 hours to five days at both Baltimore and Philadelphia railroad facilities. This decision eliminated many occasions for complaints concerning storage charges.

The Interstate Commerce Commission equalized the free time on grain at 20 days for all North Atlantic ports. At New York, this applies only to grain held in cars, but not to grain stored in elevators or floating storage facilities, where free time is held to ten days.

IN-TRANSIT STORAGE

Storage of export cargoes is now permitted at non-railroad warehouses without loss of the export classification for rail rate determinations, providing that exportation is accomplished within a specified time. The railroads do not absorb the cost of subsequent delivery of export goods from non-railroad warehouses to their own piers. Storage of imports in transit without loss of the import classification for rail rate determinations is also permitted, but only if the goods are stored in railroad-owned warehouses. It would be beneficial to Baltimore's import trade if this restrictive provision were eliminated.

PILOTAGE

Pilotage rates at Baltimore now amount to $5.50 per foot of draft less than 10 feet, $6.00 per foot of draft 10 feet to less than 13 feet, and $7.50 per foot of draft 13 feet and over. The pilotage charge for passage through the Chesapeake and Delaware Canal is $40 per vessel regardless of draft. The pilotage rate at Philadelphia is $7.00 per foot of draft for most seagoing vessels, and at New York the rate is $5.50 per foot of draft.

TOWAGE

There has been a gradual increase in the towing rates for docking, undocking, or shifting of vessels within the Port of Baltimore and competing ports since 1949. Baltimore's relative position has remained the same, but with somewhat higher rates than those at other ports for large vessels docking and undocking within the central harbor areas. The rate for moving a Victory or Liberty ship during regular working hours, for example, is approximately $100 per tug.

CARGO-HANDLING CHARGES

The Baltimore railroads still absorb all cargo-handling charges at their piers on line-haul traffic paying over 19¢ per 100 pounds. However, they now charge $2.06 per ton for handling cargo received from or delivered to trucks and lighters when no rail movement is involved. On traffic paying less than 19¢ per 100 pounds, an additional charge of $1.56 per ton is now imposed, an increase of 15% since 1949. The comparable charge at Philadelphia is $1.84 on both rail and non-rail freight. Baltimore's terminal railroads are reimbursed by the trunk-line railroads for cargo-handling expenses on line-haul cargo, by means of a division of the line-haul revenue.

The Baltimore railroads now give allowances to private pier operators for loading onto rail cars cargo passing through privately owned fumigation plants and also fertilizer and fertilizer materials discharged from vessels in bulk and bagged locally before rail shipment. The private terminal operators are not reimbursed by the railroads for handling other commodities to and from rail cars. The extension of allowances by the railroads to apply to other types of line-haul rail cargo loaded or unloaded at private piers would bring practices at Baltimore in line with those at other North Atlantic ports.

CONCLUSIONS WITH REGARD TO FREIGHT RATES AND PORT CHARGES

The traditional rail class-rate differentials applying to export-import freight between North Atlantic ports and the Central Freight Association Territory have had a favorable influence on Baltimore's commercial development for many years. Although the equalization of export rail rates on ex-lake grain from Buffalo to most North Atlantic ports has had little detrimental effect on Baltimore's grain exports, the equalization of rates on imported iron ore from Baltimore and Philadelphia to the Pittsburgh and Ohio steel-producing areas has tended to divert some ore volume from Baltimore. It is imperative that the differentials be maintained. To do so will require well-organized efforts to offset the attempts of competing ports to disrupt them.

Even though many rail-water coastwise rates are now substantially lower than all-rail rates between the same points, rapidly-rising ocean shipping costs have tended to nullify this advantage.

Baltimore's exporters now have privileges similar to those enjoyed at competing ports with regard to split export car deliveries and in-transit storage of exports at off-pier locations, but not with regard to in-transit storage of imports.

No changes in Baltimore's switching and lighterage arrangements have been made, or are needed at present.

Baltimore's port and terminal charges to vessels and their cargoes are considerably lower on the average than those at competing

ports. The advantage accrues largely to the steamship companies, since most of them pay neither dockage nor rental of pier space for cargo-handling. This situation tends to attract more ships to Baltimore, but it forces the railroads to depend primarily on line-haul revenues for the operation of their piers. Wharfage, top wharfage, and side wharfage charges at Baltimore are generally in line with those at competing ports except New York, where the leasing of piers by steamship companies is the predominant practice.

Baltimore's pier storage rates are equal to or lower than those at competing ports. The length of free storage time permitted on rail cargoes at railroad facilities has been equalized at all competing North Atlantic ports. Baltimore's railroads have extended free time on truck cargoes from 48 hours to five days at their piers, in line with the practice at Philadelphia.

Handling charges assessed at Baltimore's railroad piers on low-revenue rail cargoes and all truck cargoes are proper and competitive with those at other ports. The railroads should be encouraged, however, to give allowances to private pier operators for loading or unloading line-haul rail cargoes at private piers, as is the practice at other North Atlantic ports.

CHAPTER IV

PRESENT AND PROSPECTIVE COMMERCE THROUGH THE PORT

TRIBUTARY AREA OF THE PORT

The area within which Baltimore has favorable import-export rail freight rates is described in Chapter III. It embraces an extensive region which accounts for a large part of the nation's economy. Its core is the preferential area of Baltimore, within which the Port has import-export freight rate advantages over competing ports for most commodities. This preferential area consists of the State of Maryland to the west of Chesapeake Bay, the District of Columbia, northern Virginia, most of West Virginia, central and western Pennsylvania and eastern Ohio. Extending fanwise to the Missouri River portion of the preferential area is the highly competitive portion of the territory which is tributary to all of the North Atlantic ports and, for some portions, to the Gulf Ports. In this territory Baltimore has freight rate advantages over Philadelphia and New York but equality with Norfolk, and for some points, disadvantages in relation to New Orleans. Excellent rail and truck service is provided between Baltimore and the entire tirbutary area. On the basis of freight rates alone, Baltimore is in a favored position to handle commerce of the entire area.

FOREIGN TRADE OF THE UNITED STATES

The oceanborne foreign trade of the United States increased from 133 million short tons in 1948 to 184 million tons in 1953, as shown in Appendix IV-A. This growth was due to the nation's increasing dependence on imported raw materials, particularly petroleum and ores. Total exports, however, were slightly less in 1953 than in 1948.

A decreasing dependence in Europe and Asia on U. S. coal and agricultural commodities was largely responsible. Although a scarcity of dollars in foreign countries has tended to limit purchases abroad of U. S. manufactured goods, our foreign economic and military aid programs are continuing to stimulate foreign trade.

ANALYSES OF COMMERCE

The detailed analyses of waterborne commerce covered in the 1949 report were extended for the years 1948 through 1953. These analyses covered the commerce of the Port of Baltimore and the competing ports of Boston, New York, Delaware River ports, Hampton Roads, and New Orleans. Charts IV-1 to IV-10 show the commerce of these ports under the following classifications:

a. Total waterborne commerce
b. Total foreign commerce
c. Total imports and total exports
d. Imports and exports by commodities and commodity groups
e. Total coastwise commerce
f. Total coastwise receipts and shipments
g. Coastwise receipts and shipments of selected commodities

These data are summarized also in Appendices IV-A to C.

TREND OF TOTAL WATERBORNE COMMERCE (Chart IV-1)

Total waterborne commerce includes foreign, coastwise, internal, intraport, and local movements. The last three categories consist primarily of cargoes moved by barge, carfloat or lighter on the internal waterways or arms of a port. The total waterborne commerce as shown by the Corps of Engineers increased gradually in Baltimore and in most of its competing ports. It should be noted, however, that there is duplication in the reported totals in the case of exported items which arrive alongside ocean vessels by barge and imported cargoes which are transshipped by lighter, both movements being included in two categories of the Engineers' tabulations.

TREND OF TOTAL FOREIGN COMMERCE (Chart IV-1)

Baltimore and most of its competing ports have increased their foreign trade between 1948 and 1953 although some declines have been registered since 1951, as shown in Appendix IV-A. Baltimore's 1953 total of 21.4 million tons represented an increase of 28.7% over the 1948 total. This percentage increase was surpassed only by those of Boston and the Delaware River Ports. New Orleans and New York experienced smaller relative increases, while Hampton Roads suffered a slight loss. In terms of total volume of foreign trade in 1953, New York ranked first, followed by the Delaware River Ports, Baltimore, Hampton Roads, New Orleans, and Boston.

TREND OF TOTAL IMPORTS (Chart IV-1)

Baltimore's 1953 imports of 16.5 million tons amounted to an increase of 60% over the 1948 total. This percentage was higher than the increases experienced by New York, Hampton Roads and New Orleans. Only Boston and the Delaware River Ports enjoyed greater relative rises. The considerable expansion of imports at these ports was caused primarily by the rising need of U. S. industries for foreign petroleum products, ores, and other minerals. It is expected that the long-term growth of the U. S. economy will require even greater import tonnages at these ports in the future.

TREND OF TOTAL EXPORTS (Chart IV-1)

Exports at all the major North Atlantic ports declined considerably since 1948, the greatest relative declines being registered at the Delaware River Ports and New York. New Orleans was the only competitive port to show an increase. Baltimore's exports declined from 6.3 million tons in 1948 to less than 5.0 million tons in 1953, primarily because of declining coal shipments. However, the decline appears to have been arrested and the outlook for gradual improvement is good.

IMPORTS OF VARIOUS COMMODITIES (Charts IV-2, IV-3 and IV-4)

The trends in the movements of the principal commodities imported by Baltimore and competing ports are discussed below.

IMPORTS OF ORES. Baltimore's imports of ores doubled since 1948, reaching a high of over 12 million tons in 1953. Practically all of this tonnage consisted of iron, manganese, and chrome ores destined for the blast furnaces of Baltimore, central and western Pennsylvania, Buffalo, Wheeling, Youngstown, and Steubenville. About seven million tons were consumed annually by Baltimore's steel and refractory plants alone. The principal sources of Baltimore's ore imports are Chile, Venezuela, and Sweden, with significant amounts received also from Liberia, Brazil, and Mexico.

The other main U. S. iron ore-importing ports are Philadelphia and Mobile, but these ports are far behind Baltimore in volume. However, Philadelphia's tonnage rose rapidly with the completion of U. S. Steel's Fairless plant and an unloading facility of the Pennsylvania Railroad at Philadelphia. The construction of the latter, together with the equalization of rail rates from Baltimore and Philadelphia to the Pittsburgh-Youngstown-Wheeling-Steubenville steel-producing areas, caused the diversion of sizable volumes of ore imports from Baltimore. Nevertheless, the long-range outlook for ore imports at Baltimore is favorable. The U. S. Department of the Interior estimates that as much as 37% of the nation's annual needs of iron ore will be imported by 1975. Even if most of the Labrador ore imports enter by way of the St. Lawrence Seaway there will be at that time imports of 18 million tons from other sources, according to this forecast. This tonnage would be available to the coastal ports, although some of it may be susceptible to movements via the Seaway. In addition almost all of the nation's chrome and manganese ores are imported. These imports are expected to expand with the anticipated future increases in the country's steel production.

IMPORTS OF PETROLEUM. Although Baltimore's imports of crude petroleum for local refineries declined from about 1.5 million tons in 1948 to 664,000 tons in 1953, imports of residual fuel oil rose from less than one million tons to over two million tons during the same period. Interrelated with imports, and considerably larger in volume, are domestic receipts. While Baltimore's future imports and coastwise

receipts of crude petroleum will be limited by the refining capacity at the Port,, its future receipts of fuel oil in excess of the output of local refineries will depend on the growth of industry and residential consumption within the distribution area served from the Port.

The Delaware River refineries are by far the largest importers of crude oil in the Atlantic coast, followed by New York, Baltimore, and Boston. New York is the leading importer of fuel oil, followed by Boston, Baltimore, Hampton Roads, and the Delaware River Ports. It is likely that the upward trend in petroleum imports and coastwise receipts will continue at all these ports.

IMPORTS OF GYPSUM. Imports of gypsum from Nova Scotia to Baltimore rose gradually to an annual volume of 275,000 tons in 1953. Most of the gypsum is consumed locally. New York, Delaware River Ports, and Hampton Roads handle greater quantities, and Boston imports sizable volumes. The expected growth of the construction industry makes further increases likely.

IMPORTS OF SUGAR. Baltimore's imports of raw and refined sugar rose from 271,000 tons in 1948 to 347,000 tons in 1953. All of the raw sugar (by far the largest part of the total) is utilized locally. (Coastwise receipts supplement these imported supplies.) Baltimore's imports were less than those of most competing ports. Increases can be expected along with a rising population and increased per-capita consumption of sugar in the country as a whole.

IMPORTS OF MOLASSES. Imports of inedible molasses at Baltimore rose from 20,000 tons in 1948 to 68,000 in 1953. Most of these volumes were utilized by local plants for the production of industrial alcohol. Imports at Boston and New York were comparable to those at Baltimore, but both New Orleans and the Delaware River Ports imported far larger quantities. Future imports of this product will depend largely on the demand for industrial alcohol.

IMPORTS OF BANANAS. New York, New Orleans and Baltimore are the only Atlantic and Gulf ports receiving bananas in large volumes. Imports at Baltimore averaged about 190,000 tons annually since 1948. Approximately one-third of Baltimore's imports are distributed by truck to local dealers and those of the District of Columbia and nearby points in Maryland, Virginia, and Pennsylvania. The remainder goes into refrigerated rail cars for delivery to destinations in Maryland, West Virginia, western Pennsylvania, Ohio, New York State, Indiana, and Canada. Baltimore's distribution territory for bananas is fairly well defined and its future imports will depend mainly on changes in consumption within that area.

IMPORTS OF WOODPULP. Baltimore's woodpulp imports from Scandinavia declined since 1947. In 1953 they amounted to only 46,000 tons, as compared with much larger quantities imported at the Delaware River Ports, Boston, and New York. Baltimore's imports of this commodity were

consumed largely in Maryland, Pennsylvania, and Ohio. They are not expected to rise appreciably in the future.

IMPORTS OF RUBBER AND LATEX. Rubber and latex imports through Baltimore expanded only slightly between 1948 and 1953. The growing use of synthetic rubber has inhibited imports of rubber but latex is being used increasingly in the manufacture of foam rubber. About half of the current annual imports of 70,000 tons consists of liquid latex which is consumed largely by local plants. The remaining half, consisting of sheet or ball rubber, is shipped largely to Ohio. Only New York has larger imports of these commodities.

IMPORTS OF MISCELLANEOUS COMMODITIES. Baltimore's imports of miscellaneous commodities (other than ores, petroleum, sugar, molasses, woodpulp, bananas, rubber, and gypsum, mentioned previously) increased slightly from 635,000 tons in 1948 to 653,000 tons in 1953. These imports include such products as fertilizer materials, iron and steel products, logs and lumber, coffee, inedible animal products, canned foods, copra, dyeing and tanning materials, vegetable fibers, cork, newsprint, miscellaneous non-metallic minerals, lead, sand, gravel, and industrial chemicals. Competing ports also experienced increases in imports of these commodities since 1948, although most of the 1953 tonnages are lower than peak volumes handled in 1951.

Baltimore's fertilizer plants are among the largest in the nation. They import considerable quantities of nitrates, potash, and other raw materials. These imports increased from 20,000 tons in 1948 to 90,000 tons in 1953. Only Hampton Roads and New Orleans annually import more of these commodities. The future outlook is dependent on increasing U. S. agricultural production and foreign markets, and appears favorable.

Imports of iron and steel products declined at Baltimore from 158,000 tons to 1948 to 79,000 tons in 1953 as a result of the country's lessening dependence on foreign supplies of scrap, pig iron, and steel mill products since the period of domestic steel shortage following World War II.

Baltimore's imports of logs and lumber are still small, but increased from 11,000 tons in 1948 to 24,000 tons in 1953. (As mentioned subsequently, however, coastwise receipts of lumber are of much greater importance.) Most of the waterborne lumber is consumed within the State of Maryland. It is expected that these movements, both foreign and domestic will continue to grow along with the construction industry of Maryland and surrounding areas.

Coffee imports at Baltimore declined from 52,000 tons in 1948 to 38,000 tons in 1953. Baltimore's imports are consigned to roasters in the City and in Pennsylvania. New York and New Orleans dominate mid-western markets. To the extent that this situation prevails, Baltimore's imports will depend on the needs of local and nearby roasters.

EXPORTS OF VARIOUS COMMODITIES (Charts IV-5 and IV-6)

EXPORTS OF COAL AND COKE. Baltimore is second only to Hampton Roads in exports of coal and coke. The total U. S. exports of these commodities declined considerably since 1947, despite upturns in 1951 and 1952. Future prospects are not favorable. Coal production in England, Belgium, France, and Germany revived since the war to the point where U. S. supplies are in less demand. In 1953 Baltimore's exports of bituminous coal amounted to over 1.5 million tons, mostly from mines in West Virginia and Pennsylvania, compared with 3.4 million tons in 1948. Four thousand tons of anthracite and 19,000 tons of coke were also shipped from the Port in 1953. At the same time, Hampton Roads exported over 12 million tons of bituminous coal.

EXPORTS OF GRAIN. With the gradual curtailment of U. S. foreign aid projects and increasing grain production in Europe and Asia, U. S. exports declined. Even though a further drop is likely, Baltimore is in a good position to retain a majority of all shipments from the North Atlantic, due to its all-rail rate advantages and superior facilities.

In spite of the 1952 equalization of rail rates on ex-lake grain from Buffalo to all North Atlantic ports, Baltimore maintained a commanding lead in grain exports originating both ex-lake and all-rail. Baltimore's 1953 grain exports of about 2.0 million tons were almost double its 1948 exports, although they dropped slightly from the 1951 peak of 2.6 million tons. Baltimore's total 1953 exports were composed of 1.2 million tons of corn, 702,000 tons of wheat, 142,000 tons of soybeans, and 17,000 tons of barley. In 1953 the combined grain exports from Boston, New York, Delaware River Ports and Hampton Roads amounted to only 1.5 million tons. The Gulf ports, which have been obtaining a larger share of total U. S. grain exports, shipped 5.1 million tons in that year.

EXPORTS OF IRON AND STEEL PRODUCTS. Exports of iron and steel products, including tin plate, declined at all North Atlantic ports following the rehabilitation of the European steel industry. However, the decline in Baltimore's exports, from 834,000 tons in 1948 to 627,000 tons in 1953, was more than offset by increases in coastwise shipments. Approximately 40% of Baltimore's total oceanborne shipments of iron and steel products originates in local plants. The remainder is received from mills in Pennsylvania, Ohio, and Michigan. Shipments of iron and steel products constitute a very large part of all outbound shipments at Baltimore's general cargo piers, emphasizing that efforts should be made to diversify Baltimore's export trade so that it will not be dependent on the fluctuations of the steel industry. Although New Orleans and the Delaware River Ports also compete for those products, New York is the only North Atlantic port which surpasses Baltimore in iron and steel exports.

EXPORTS OF PETROLEUM PRODUCTS. Baltimore's exports of various petroleum products, consisting of lubricating oils, petroleum asphalt

and other refined products, declined from 41,000 tons in 1948 to 7,000 tons in 1953. As described later, coastwise shipments of these products are substantial. New Orleans, New York, and the Delaware River ports are the principal competing ports. Local refineries at each port supply these exports. It is unlikely that any large increases may be expected, since foreign refining capacity is expanding rapidly.

EXPORTS OF WHEAT FLOUR. Baltimore's flour exports since 1948 remained at a low level of 20,000 to 80,000 tons. Both New York and New Orleans ship out substantially larger volumes, but Boston, Philadelphia and Norfolk export smaller quantities.

EXPORTS OF FERTILIZERS. Baltimore is by far the largest U. S. exporter of fertilizers, most of which are phosphatic types produced in local plants. These shipments increased slightly from 160,000 tons in 1948 to 186,000 tons in 1953. Hampton Roads and New York each ship only 20,000 to 30,000 tons annually and other competing ports handle only negligible quantities. Many agricultural nations are making strenuous efforts to increase their food production by greater use of fertilizers, so the outlook for exports appears favorable.

EXPORTS OF CANNED FOODS. Baltimore's exports of canned meats and vegetables (mostly from local plants) have remained below 30,000 tons annually during the past five years. Although New York exports much larger tonnages of these commodities, its exports were affected by a substantial shrinkage in foreign markets since 1947. Because food shortages abroad are less acute now than during the immediate postwar years, no significant increase in U. S. exports is expected.

EXPORTS OF MISCELLANEOUS COMMODITIES. Total exports of miscellaneous commodities from Baltimore (after excluding the previously-mentioned shipments of coal and coke, grain, flour, iron and steel products, fertilizers, petroleum products, and canned foods) declined from 462,000 tons in 1948 to 342,000 tons in 1953. These exports include movements of such commodities as vehicles, machinery, vegetable oils, glass products, clay products, miscellaneous non-metallic minerals, copper, and chemicals. New York also experienced a decline in exports of these commodities while the other competing ports enjoyed increases.

Exports of automobiles, trucks and buses from Baltimore declined since World War II and now amount to only 11,000 tons annually. Vehicles make good top and deck cargo, and New York, therefore, has remained the nation's principal port for such shipments. Until Baltimore obtains a larger number of direct foreign sailings, it is unlikely to attract much of this cargo.

Machinery exports from Baltimore remained between 80,000 and 90,000 tons annually since 1948. Some of these products are fabricated in nearby factories, but the majority arrive from plants in Pennsylvania and Ohio. The great industrial expansion and mechanization of agriculture now occurring in many ports of the world provide a favorable out-

look for Baltimore's exports of many types of machinery, although some items produced near the Great Lakes may move via the St. Lawrence Seaway.

TREND OF COASTWISE COMMERCE (Charts IV-7, IV-8, IV-9 and IV-10)

Baltimore's total coastwise commerce, comprising trade with all U. S. coastal and insular ports, increased from 7.6 million tons in 1948 to 8.4 million tons in 1953. At the same time, all competing ports except New York and Delaware River Ports suffered substantial declines. In 1953, total coastwise commerce was about 53 million tons through New York, 30 million tons through Delaware River Ports, 14 million tons through Hampton Roads, 12 million tons through Boston, and 7 million tons through New Orleans. Direct competition among these ports for much of the coastwise trade is slight because of the limited tributary area of each port, although there is a strong rivalry for the Puerto Rican trade.

Coastwise receipts are much larger than shipments at all North Atlantic ports except Hampton Roads. This is due to these ports' heavy dependence on petroleum, coal, and other bulk raw materials brought in by vessel for local needs. Even though rail-water rates on many commodities are now considerably lower than competitive all-rail rates, coastwise shipping companies have failed to recapture much of the traffic, which originates in or is destined to inland territories. They have been more successful in capturing that traffic (particularly dry bulks and tanker cargo) which is generated in the ports themselves. As discussed subsequently, however, considerable attention is now being given to the carriage of loaded rail cars, trailers, or vans on ocean-going vessels, and such innovations may provide the needed economies for the revival of this trade.

COASTWISE RECEIPTS. The total coastwise receipts at Baltimore in 1953 amounted to about 7 million tons. This represented an increase of 440,000 tons over the 1948 volume. About 80% of the receipts consists of petroleum products. In 1953, receipts at New York amounted to 43 million tons, Delaware River Ports 22 million tons, Boston 11 million tons, Hampton Roads 5 million tons, and New Orleans 700,000 tons. The prospect for increased receipts at Baltimore is believed to be good because of the expanding needs for fuel, foodstuffs and industrial raw materials in the local trade area.

Baltimore's annual coastwise receipts of petroleum and petroleum products remained at about 5.5 million tons since 1948. Annual tonnages of crude petroleum for local refineries rose by 400,000 tons, while those of refined products (mainly gasoline and diesel oil) declined by about the same amount. The future of these receipts will be affected by the level of imports, local refining capacity and regional consumption of refined products.

Fertilizer materials consist mainly of phosphate rock which is shipped in large quantities from Tampa. These movements at Baltimore amounted to over 600,000 tons annually during the last five years and were substantially in excess of receipts at other North Atlantic ports.

Baltimore's annual receipts of sulfur from Texas and Louisiana remained at a level of about 300,000 tons since 1948. They are consumed primarily by local plants in the manufacture of sulfuric acid for use in the production of fertilizers and various chemicals. Prospects for expansion of these industries are believed to be good.

Lumber receipts at Baltimore rose from 49,000 tons in 1948 to 139,000 tons in 1953. These shipments originate mainly in the Pacific Northwest. As long as construction continues to expand in the Baltimore area, coastwise receipts of lumber can be expected to rise.

Receipts of iron and steel products (principally scrap iron) at Baltimore increased from 14,000 tons in 1948 to 46,000 tons in 1953. The growth of this trade will depend on the requirements of the local steel industry.

Baltimore's sugar receipts rose from 50,000 tons in 1948 to 200,000 tons in 1953. A large part of this total is composed of refined sugar from Puerto Rico and Hawaii. Much of it is subsequently shipped to Pennsylvania, Ohio, and Michigan, while some is consumed by the local candy industry. All of the coastwise receipts of raw sugar are unloaded at the American Sugar Refining Company.

Canned foods receipts at Baltimore rose from 25,000 tons in 1948 to 84,000 in 1953. Canned fruits from California predominate, but vegetables are also important. They are consumed both in Baltimore and surrounding territory. Future waterborne volumes will depend largely on the degree to which competition of the railroads is met.

Molasses receipts at Baltimore increased from postwar lows to 18,000 tons in 1953. These receipts are consumed by local producers of industrial alcohol.

COASTWISE SHIPMENTS. Coastwise shipments increased since 1948 at all major North Atlantic ports except Hampton Roads. The latter port, suffering from declining coal shipments, is the only one which has a surplus of shipments over receipts. Baltimore's outbound coastwise movements amounted to 1.4 million tons in 1953, as compared with 10.3 million tons at New York, 8.8 million tons at Hampton Roads, 8.3 million tons at the Delaware River Ports, 6.0 million tons at New Orleans, and 800,000 tons at Boston. Baltimore's shipments are composed almost entirely of iron and steel products and refined petroleum. Since the industrial needs of Puerto Rico and the coastal areas served by Baltimore's shipping lines are increasing rapidly, it is expected that at least part of this expansion will result in greater waterborne movements.

Iron and steel products, including tinplate, pipe and fittings, are the mainstay of Baltimore's coastwise shipments. They grew from 482,000 tons in 1948 to 904,000 tons in 1953, and now comprise over 60% of the port's outbound coastwise trade. These products originate both in local plants and in steel mills of Pennsylvania, Ohio, and West Virginia. Baltimore's 1953 shipments were far larger than those of its nearest competitors, New York (200,000 tons) and the Delaware River Ports (350,000 tons). Because Baltimore has both the nation's largest tidewater steel mill and also advantageous rail-water rates from inland mills, its coastwise steel shipments should continue to expand along with the growing need for these products in U. S. insular and coastal areas.

Baltimore's coastwise fertilizer shipments declined considerably in recent years although, as noted above, exports increased. Coastwise movements fell from 66,000 tons in 1948 to 13,000 in 1953. This decline is believed to be accounted for partly by the supplanting of waterborne shipments by rail movements and partly by a trend toward decentralization.

Canned foods now move in small coastwise volumes from Baltimore. The 1948 tonnage of 20,000 was further reduced to 15,000 in 1953. A large part of these movements originate at Maryland canneries, which ship larger quantities by truck and rail.

Baltimore's petroleum shipments by coastwise vessels amounted to 171,000 tons in 1953. They consisted of refined products produced in both local and Pennsylvania plants. Although volumes have fallen from the 1948 shipments of 244,000 tons, it is likely that they will continue to be significant.

Coal and coke shipments from Baltimore in the coastwise trade are very small, but rose from 8,000 tons in 1948 to 23,000 tons in 1953. In the latter year, Hampton Roads shipped over 8.7 million tons of bituminous coal and the Delaware River Ports shipped 80,000 tons of anthracite and coke.

OTHER DOMESTIC WATERBORNE COMMERCE AT BALTIMORE (Chart IV-7)

Baltimore's domestic waterborne commerce other than coastwise consists of internal and local movements. This commerce rose from 10.9 million tons in 1948 to 12 million tons in 1953. Internal shipments and receipts are those which move on barges and small vessels serving the other ports of Chesapeake Bay, such as Hampton Roads and Annapolis. (Movements via the Chesapeake and Delaware Canal are listed within the Philadelphia District by the Army Engineers.) Petroleum products accounted for one million tons of Baltimore's internal receipts in 1953. Other commodities moving in volume were grains, paper, pig iron, copper ore, and sulfuric acid. Some arrived by rail at Hampton Roads for transshipment by water to Baltimore.

Internal shipments from Baltimore in 1953 consisted of 1.4 million tons of petroleum products, 300,000 tons of sulfuric acid, and large quantities of fertilizer, sugar, canned vegetables, beverages, non-metallic minerals, steel products, and electrical machinery.

Local movements, consisting of those restricted solely to the confines of the Port of Baltimore (which includes Curtis Bay and Sparrows Point) amounted to 8.4 million tons in 1943. Principal cargoes were coal (6.6 million tons), petroleum (1.1 million tons), and smaller quantities of sulfuric acid, sand, gravel, and other non-metallic minerals. These shipments are vital to the numerous tidewater industries and power plants in or near Baltimore.

SUMMARY OF OCEANBORNE COMMERCE TRENDS

Baltimore's foreign and coastwise trade increased from 24.2 million tons in 1948 to 29.8 million tons in 1953, as shown in Table IV-1, with a peak of 31.1 million tons in 1951, attributable at least in part to increased activities brought about by the Korean War. During the same period the total foreign and coastwise trade of all the North Atlantic ports increased 5.6% from 201 million tons to 213 million tons. The increase for the cargoes generally received at Baltimore's bulk and industrial piers was 24.5% from 22.0 million tons to 27.4 million tons and the increase for cargoes of the types generally handled at general cargo piers was 6.1% from 2.2 million tons to 2.4 million tons.

TABLE IV-1

SUMMARY OF BALTIMORE'S FOREIGN & COASTWISE TRADE, 1948-1953
(1,000 SHORT TONS)

Distribution by Pier Types	1948	1949	1950	1951	1952	1953
Totals	24,187	24,706	24,302	31,153	30,040	29,802
Bulk & Industrial Piers:	21,960	21,932	21,550	28,261	27,604	27,438
Receipts	16,094	16,256	18,301	20,334	21,023	22,657
Shipments	5,866	5,676	3,249	7,927	6,581	4,781
General Cargo Piers:	2,227	2,774	2,752	2,892	2,436	2,364
Receipts	813	1,129	1,321	1,302	1,007	906
Shipments	1,414	1,645	1,431	1,590	1,429	1,458

INLAND ORIGINS AND DESTINATIONS OF CARGO HANDLED AT BULK AND INDUSTRIAL PIERS

The cargo handled at Baltimore's bulk and industrial piers includes, in addition to bulks, 1.1 million tons of commerce of the type

which is sometimes handles over general cargo piers, as discussed under prospective commerce.

Approximately 22.7 million tons of bulk imports and inbound coastwise cargo were received in 1953 at Baltimore's bulk and private industrial terminals. On the basis of 1953 carload waybill statistics of the Interstate Commerce Commission, it is estimated that 17.8 million tons of this total were destined for the Baltimore Metropolitan Area and those parts of Maryland, northern Virginia, and central Pennsylvania where there is little competition from other ports for bulk commodity movements. These statistics indicate that most of the tanker cargo, sulfur, gypsum, and raw sugar, and two-thirds of the ores, bananas, and lumber receipts were consumed within this essentially non-competitive area. The remaining 4.7 million tons of ores and 200,000 tons of fertilizer materials, lumber, and bananas were shipped to competitive areas in the Central Freight Association Territory.

The same statistics indicated that of the 4.8 million tons of cargo shipped in 1953 from Baltimore's bulk and industrial piers via oceangoing vessels in export and coastwise trade, 1.8 million tons originated within Baltimore's metropolitan area and those parts of Maryland, northern Virginia, and central Pennsylvania where the Port has little direct competition from other ports on bulk commodity movements. Almost all of the Port's fertilizer and petroleum shipments and part of its shipments of steel products, grains, and coal were derived from this area. In addition, 1.9 million tons of grain and 1.1 million tons of coal arrived for ocean shipment from competitive inland areas of the Central Freight Association Territory and West Virginia which also ship considerable quantities via other ports.

INLAND ORIGINS AND DESTINATIONS OF CARGO HANDLED AT GENERAL CARGO PIERS

The cargo considered in this category consists of goods usually packaged, bagged, cased, barreled, or handled as individual items, such as flour and feeds, canned foods, coffee, refined sugar, rubber, woodpulp, iron and steel products, machinery, vehicles, glass, brick and tile, cement and the like, even though quantities of some of these materials are sometimes handled in bulk. They exclude bulk movements of oil, coal, ores, grain, chemicals, bananas, and other cargoes such as steel products and raw sugar which are handled over private industrial piers.

Almost 2.4 million tons of goods of this category were handled to and from ocean-going vessels at Baltimore's general cargo piers in 1953. (It should be noted again that an additional 1.1 million tons of this type of commerce were handled at Baltimore's industrial piers in 1953.) Of the total handled at the general cargo piers, about 900,000 tons were receipts and about 1.5 million tons were shipments. The inland origins and destinations of this cargo by states were estimated from extensive data furnished by the four railroads serving Baltimore and truck and steamship companies and local industries.

About 54% of the total receipts was destined for consumption within those parts of the Trunk Line Territory where there is little competition with other ports. About 39% was shipped to the Central Freight Association Territory (including Buffalo, Pittsburgh, and Wheeling), and 7% was shipped to all other states. (Table IV-2 and Plate 4). Approximately 36% of the total shipments originated within relatively non-competitive areas of the Trunk Line Territory; 62% came from the Central Freight Association Territory (including the Pittsburgh-Youngstown-Wheeling steel-producing centers), and 2% came from all other states. Iron and steel products comprised almost 60% of the outbound total (excluding an additional 600,000 tons of iron and steel shipped from Baltimore plants having private piers).

About 84% of all cargoes handled at Baltimore's general cargo piers arrived or departed by rail or lighter, with 16% being handled by truck. It is estimated that over 90% of the truck movements were generated within 150 miles of Baltimore.

ESTIMATED OCEANBORNE GENERAL CARGO COMMERCE POTENTIAL TO BALTIMORE

For this analysis the general cargo commerce potential is discussed separately for the three more-or-less distinctive territories which make up the Port's tributary area: (1) the Great Lakes States, (2) other competitive areas, and (3) Baltimore's immediate trade area.

OCEANBORNE GENERAL CARGO COMMERCE OF GREAT LAKES STATES. The Great Lakes states include a substantial part of the competitive Central Freight Association Territory. The trade potential of these states is considered separately, as a part of Baltimore's total potential, to review and bring up to date a similar analysis included in the 1949 report. As discussed in that report, a study made by the U. S. Department of Commerce indicated that in 1947, 16.9 million tons of cargo other than wheat, coal, iron ore, and petroleum were shipped between foreign countries and the Great Lakes states (Ohio, Michigan, Indiana, Illinois, Wisconsin, Iowa and Minnesota) via New York, Delaware River Ports, Baltimore and Hampton Roads. When other grains, logs and lumber, fertilizers, other ores, clays, gypsum, other tanker cargo, and Department of Defense cargo are excluded from the above total for 1947, about 12.3 million tons remain of the type of cargo usually handled at general cargo piers. Since 1947, this type of trade has declined at the North Atlantic ports by about 30%. This percentage reduction applied to the 1947 total of 12.3 million tons reduces it to approximately 8.6 million tons for 1953.

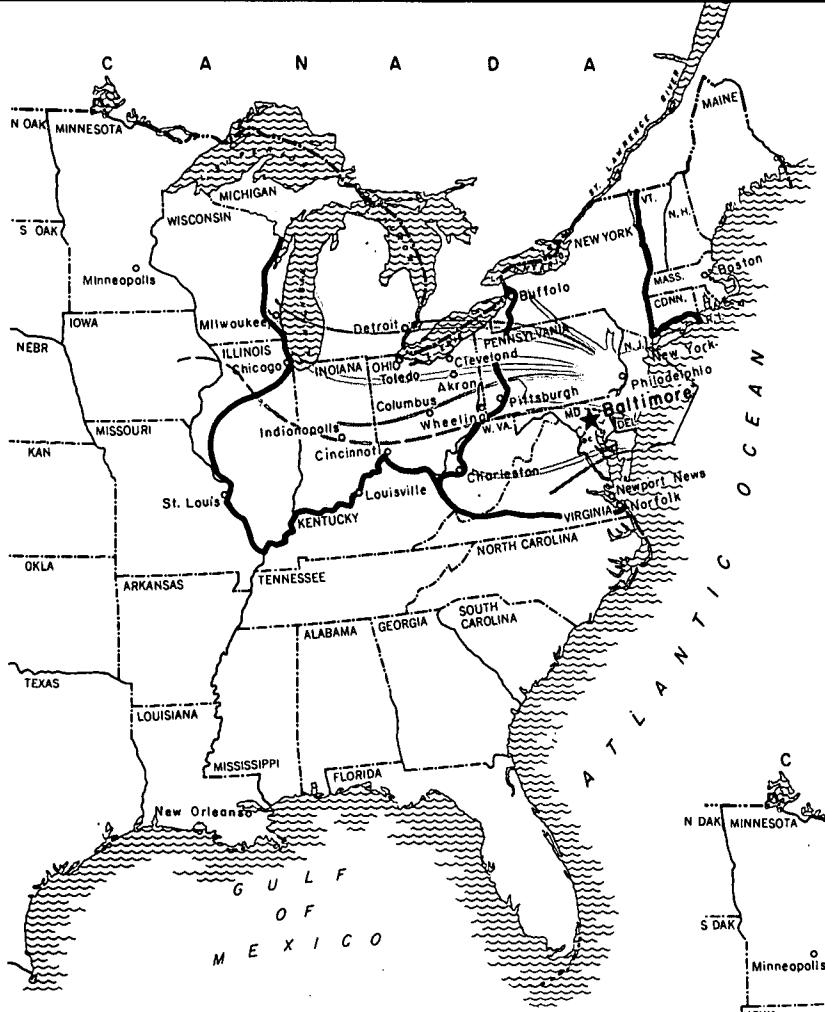
Another estimate of the amount of general cargo commerce generated by the Great Lakes states and shipped through the North Atlantic ports is provided by a comparison of employment in the manufacturing industries of the Great Lakes and North Atlantic states. These two regions roughly cover the entire trade area of the North Atlantic ports. According to U. S. Census data for 1950, the Great Lakes states (as defined above) employed 4.5 million persons in manufacturing plants in

TABLE IV-2

DOMESTIC ORIGINS AND DESTINATIONS OF BALTIMORE'S OCEANBORNE TRADE HANDLED OVER GENERAL CARGO PIERS, 1953

State	Imports & Coastwise Receipts		Exports & Coastwise Shipments		Total Foreign & Coastwise	
	1000 Short tons	%	1000 Short tons	%	1000 Short tons	%
Grand Total:	906	100	1458	100	2364	100
Trunk Line Territory:*	500	54	530	36	1030	44
Maryland	366	40	401	27	767	32
Central Pennsylvania (1)	74	8	101	7	175	7
District of Columbia	29	3	2	-	31	2
Northern Virginia (2)	31	3	26	2	57	3
Eastern West Virginia	-	-	-	-	-	-
Other states (3)	-	-	-	-	-	-
Central Freight Association Territory:**	351	39	892	62	1243	52
Western Pennsylvania (4)	65	7	348	24	413	17
Western New York (5)	16	2	83	6	99	4
Western West Virginia (6)	21	2	74	5	95	4
Ohio	161	18	243	17	404	17
Michigan	49	5	35	2	84	3
Indiana	14	2	27	2	41	2
Illinois	24	3	70	5	94	4
Southeastern Wisconsin (7)	1	-	12	1	13	1
All Others (8)	55	7	36	2	91	4

*Baltimore's immediate trade area
**Competitive area for North Atlantic ports, plus "neutral" rate zone of western New York and extended Western Trunk Line Zone C.
(1) Including Johnstown and Harrisburg,
(2) including Richmond and Roanoke,
(3) including Delaware, New Jersey, and eastern New York,
(4) including Pittsburgh and Erie,
(5) including Buffalo and Rochester,
(6) including Wheeling, Charleston, and Huntington,
(7) including Milwaukee,
(8) principally Western Trunk Line and Southeastern territories.



ORIGINS OF OCEAN-BORNE SHIPMENTS

DESTINATIONS OF OCEAN-BORNE RECEIPTS

TRUNK LINE TERRITORY

CENTRAL FREIGHT ASSOCIATION TERRITORY (AND EXTENDED WESTERN TRUNK LINE ZONE C)

20
40
60
80
100
PERCENT OF TOTAL

ALL OTHER STATES

NOTE:

INCLUDES GOODS USUALLY PACKAGED, BAGGED, CASED, BARRELED OR HANDLED AS INDIVIDUAL ITEMS SUCH AS FLOUR AND FEEDS, CANNED GOODS, COFFEE, REFINED SUGAR, RUBBER, WOOD PULP, IRON AND STEEL PRODUCTS, MACHINERY, VEHICLES, GLASS, BRICK AND TILE, CEMENT AND THE LIKE, EVEN THOUGH QUANTITIES OF SOME OF THESE MATERIALS ARE SOMETIMES HANDLED IN BULK; EXCLUDES BULK MOVEMENTS OF OIL, COAL, ORES, GRAIN, CHEMICALS, BANANAS, RAW SUGAR, AND SIMILAR SPECIAL CARGOES USUALLY HANDLED OVER PRIVATE INDUSTRIAL PIERS. (ABOUT 650,000 TONS OF IRON AND STEEL SHIPMENTS ARE ESTIMATED TO BE IN THE LATTER CATEGORY.)

PLATE 4

DECEMBER 1954

THE PORT OF BALTIMORE

KNAPPEN - TIPPETTS - ABBETT - McCARTHY
ENGINEERS NEW YORK

BALTIMORE'S OCEAN-BORNE TRADE USUALLY HANDLED OVER GENERAL CARGO TERMINALS, 1953

comparison with 5.9 million persons employed in similar factories of the North Atlantic states (Maine, New Hampshire, Vermont, Massachusetts, Rhode Island, Connecticut, New York, New Jersey, Pennsylvania, Maryland, Delaware, West Virginia, and Virginia). On the basis of these figures the Great Lakes states employ about 43% of the combined total of persons working in the manufacturing industries of both regions. Since manufactured goods and some industrial raw materials make up a large part of general cargo commerce, it may be assumed that the general cargo trade of particular areas is roughly proportional to their industrial development. On this basis, and considering that movements of the Great Lakes states via the Gulf ports introduce a minor but conservative error in the analysis, it is estimated that approximately 7.1 million tons, or 43% of the 16.6 million tons of the general cargo handled by the North Atlantic ports were generated by the Great Lakes states. Most of the remaining 9.5 million tons was generated in the North Atlantic states themselves.

The above estimates of the oceanborne general cargo commerce of the Great Lakes states via North Atlantic ports in 1953 are relatively close, even though computed by unrelated methods. An intermediate figure of about 8.0 million tons is believed to represent a reasonable estimate of the 1953 potential. The Port of Baltimore actually handled about 650,000 tons from the Great Lakes states, or only about 8% of the total potential available to it. (Table IV-2). Coastwise trade generated in the Great Lakes states and moving via the North Atlantic Ports is relatively small and has not been included in these computations.

OCEANBORNE GENERAL CARGO COMMERCE OF OTHER COMPETITIVE AREAS. An important segment of Baltimore's tirbutary area lies in the North Atlantic states between the Great Lakes states included in the preceeding paragraphs and Baltimore's immediate trade area. This region comprises the Western portions of New York State, Pennsylvania west of the Alleghenies, and West Virginia near the Ohio River. U. S. Census data for these areas indicate that a total of almost one million persons are employed in their manufacturing industries. This total represents approximately 17% of the 5.9 million persons employed in similar industries of all the North Atlantic states. It is therefore reasonable to assume that about 17% (or 1.6 million tons) of the estimated 9.5 million tons of general cargo generated in the North Atlantic states in 1953 was produced or consumed in those areas. Baltimore handled approximately 607,000 tons or 38% of that cargo, most of which consisted of outbound shipments of iron and steel products from mills at Pittsburgh, Buffalo, and Wheeling.

Other states of the West and South also ship and receive oceanborne general cargoes via the North Atlantic ports, but these movements are relatively small and, in the case of Baltimore, amounted to only 91,000 tons in 1953.

OCEANBORNE GENERAL CARGO COMMERCE OF BALTIMORE'S IMMEDIATE TRADE AREA. Baltimore's immediate trade area, consisting of Maryland (except the Eastern Shore), central Pennsylvania, West Virginia except the

Ohio Valley portion, northern Virginia, and the District of Columbia, generated in 1953 at least 1.4 million tons of oceanborne general cargo commerce. In addition to this, about 1.1 million tons were generated by Baltimore's waterfront industries, yielding a total of 2.5 million tons of general cargo generated in the immediate trade area. Slightly over 1.0 million tons of this cargo were handled by Baltimore's general cargo piers in that year. Even though the import-export rail rates between Baltimore and this area are lower than corresponding rates between the other ports and that region, substantial quantities of the area's trade are handled at competing ports. Information furnished for this survey by the railroads serving the region indicates that in 1953 over 100,000 tons of this oceanborne trade moved through the Port of Philadelphia and about 250,000 tons moved through the Port of New York. In addition, an indeterminate but considerable quantity of the area's oceanborne commerce moved by truck to and from these ports.

SUMMARY OF OCEANBORNE GENERAL CARGO COMMERCE POTENTIAL. The general cargo commerce potential to the Port of Baltimore generated in the territory within which the Port enjoys rail rate advantages over its principal competitors for most movements is estimated to total at least 12.1 million tons on the basis of 1953 levels, as discussed above. This total is subdivided as follows: 8.0 million tons generated in the Great Lakes states of Ohio, Michigan, Indiana, Illinois, Wisconsin, Iowa and Minnesota; 1.6 million tons generated in western New York, western Pennsylvania and western West Virginia, and 2.5 million tons generated in Baltimore's immediate trade area, including both the Port's waterfront industrial piers and its general cargo piers. The Port of Baltimore actually handled only 3.4 million tons, or about 28% of the total potential.

BYPASSING TRAFFIC

The oceanborne traffic which originates or terminates on the lines of the railroads serving Baltimore, but which is routed via competing ports, may be considered in a broad sense to bypass Baltimore. Of course in an even broader sense, the similar traffic which is routed via other railroads also bypasses Baltimore.

For use in this survey, the three major railroads serving Baltimore, the Pennsylvania Railroad, the Baltimore & Ohio Railroad, and the Western Maryland Railway, made available extensive origin and destination data for oceanborne shipments of the general cargo type of commerce which were carried by those railroads. Part of that information provided a basis for estimating the current annual tonnages of oceanborne general cargo commerce which those three railroads transport between the ports of New York and Philadelphia and the areas which could be served at lower export-import rail rates via Baltimore. These estimates are summarized on the following page:

TRADE TERRITORY	COMPETING PORT	ESTIMATED ANNUAL TONNAGE Outbound	Inbound	Total
Baltimore's Immediate Trade Area:	Philadelphia	44,000	73,000	117,000
	New York	160,000	86,000	246,000
Other Competitive Areas:	Philadelphia	53,000	112,000	165,000
	New York	644,000	394,000	1,038,000
TOTALS		901,000	665,000	1,566,000

Similar information was furnished by the railroads for use in the 1949 survey. Sample information furnished at that time indicated that about 2.8 million tons of foreign general cargo commerce were similarly bypassing the Port. The apparent decline of 1.2 million tons annually in this bypassing traffic can largely be explained by the decline in oceanborne trade of this type handled through the ports of New York and Philadelphia of about 22% and 33%, respectively, during the same period.

These estimates of bypassing traffic emphasize that additional cargo might be secured by Baltimore through intensive promotional activities and the provision of the various modern and efficient terminal facilities which are attractive to shipping. When viewed in connection with the other numerous rail lines which also handle traffic of the competitive area to and from competing ports, the estimates furnish another approximate scale of the total commerce potential to Baltimore. It would be imprudent to suggest that all or even most of the cargoes of the tributary areas of Baltimore which are handled via New York or Pennsylvania by the three railroads serving Baltimore could be captured by Baltimore, but it would be reasonable to expect that a substantial portion of it and of the similar movements handled by the railroads which do not serve Baltimore could be captured.

In addition to the bypassing general cargo traffic for which the extensive information was furnished by the three railroads serving Baltimore, similar bypassing traffic is handled by the numerous trucking lines which serve Baltimore's tributary areas and the ports of New York and Philadelphia. However, information on that traffic is not consolidated and sample estimates are not obtainable.

INFLUENCE OF THE ST. LAWRENCE SEAWAY ON THE PORT OF BALTIMORE

Cargo movements between the U. S. Great Lakes ports via the St. Lawrence River rose from 90,000 tons in 1948 to 550,000 tons in 1953, despite the existing limitations of lock clearances and channel depths. Commodities exported in 1953 included Department of Defense cargo, machinery, lard, motor vehicles, corn and meats. Principal imports were iron and steel products, woodpulp, alcoholic beverages, and glass products.

Completion of the proposed 27-foot channel will permit Great Lakes vessels and many ocean carriers to use the Seaway during the eight-month season of ice-free navigation. The latest estimate of the St. Lawrence Seaway Development Corporation, which is the U. S. Government agency charged with development of the project, is that 36 million tons of cargo will pass through the Seaway during its first year of operation and that 52 million tons will move through it annually by 1965. This cargo is expected to consist mainly of iron ore from the Labrador fields and overseas sources, U. S. and Canadian grain for export, coal and petroleum for consumption in Quebec, and, of course, various miscellaneous items of the general cargo type.

Of the oceanborne bulk cargoes now handled by Baltimore to and from the Great Lakes states, those most vulnerable to diversion by the Seaway are grains (particularly ex-lake) and iron ore (especially from Labrador).

GRAINS. Less than 10% of Baltimore's 2 million-ton grain exports in 1953 were ex-lake shipments. Baltimore's advantages over Great Lakes ports of year-round operation and excellent grain storage facilities will tend to restrict diversions, but it can be expected that about 80% of Baltimore's ex-lake shipments and about 50% of its all-rail movements originating near Lake ports will be susceptible to diversion to the Seaway. On the basis of current levels this vulnerable annual volume will be in order of 800,000 tons.

IRON ORE. In 1953, less than 10% of Baltimore's iron ore was transshipped to steel mills on the Great Lakes and approximately 25% to mills in the Pittsburgh-Wheeling-Youngstown area, while about 60% was consumed in Baltimore's metropolitan area. The Port's imports of Labrador iron ore amounted to only 11,000 tons in 1953 and were destined primarily for Sparrows Point. The principal mills of the seven companies now owning the Labrador fields are located in the Pittsburgh, Youngstown, Cleveland, Detroit, and Chicago steel-producing areas. Most of the future imports from those fields (estimated to amount to 20 million tons annually by 1965) are expected to move by water via the St. Lawrence Seaway. Baltimore's remaining iron ore imports, the bulk of which now come from Chile, Venezuela, Sweden, and Liberia, are consumed by plants in Baltimore, Pittsburgh, Youngstown, and Wheeling. Diversions of large proportions of these ores from Baltimore to the Seaway are not expected because of the added cost of transshipping which would be required from Great Lakes ports to the inland mills. Prospective diversions from Baltimore are estimated to amount to about 500,000 tons annually at current levels, or approximately 6% of the total now received annually at Baltimore. Since it is estimated that the United States will require 44 million tons of iron ore from South America, Africa, and Europe by 1965, Baltimore probably will receive considerably larger tonnages from those countries than it now does, thereby offsetting future losses to the Seaway.

GENERAL CARGOES. Trade via the Seaway in general cargo type commodities is expected to expand as sailings via that route become established and as terminal facilities are completed at Great Lakes ports.

Nevertheless, seasonal operation on the Lakes, plus the retentive effect of traditional methods of transportation and the inertia of shippers will be restraining factors. Of course, some of these effects will diminish with the passage of time and the stabilization of services obtainable through the Great Lakes ports.

The trade which will be susceptible to diversion from Baltimore to the Seaway will probably be limited to a portion of the commerce generated within 100 to 200 miles of the Great Lakes ports. The extent of this area of influence is subject to change with adjustments which might possibly be made in regard to export-import rail rates via the Great Lakes ports. Such adjustments of course cannot be projected at this time, and it is reasonable in this estimate to consider as susceptible to diversion the entire trade of the various states which adjoin the Great Lakes.

To provide basic data for estimates of the amount of Baltimore's cargo which might be susceptible to diversion via the Seaway, detailed information with regard to origins and destinations of oceanborne general cargo commerce was furnished by the Pennsylvania Railroad, the Baltimore & Ohio Railroad, the Western Maryland Railway, and the Waterman Steamship Corporation. Consolidated estimates of the general cargo commerce of Baltimore which is now generated annually in the states adjoining the Great Lakes were prepared from these data and are shown in Table IV-3. For each state the amounts susceptible to diversion were estimated with due consideration to the restrictive factors. The principle restrictive factors with regard to Seaway services will be (1) seasonal operation; (2) lack of service both in world wide coverage and in scheduled sailings; (3) retentive effect; and (4), inertia. The effects are cumulative. Thus after the overall potential is reduced to correspond with the estimated effect of seasonal operation, it is further diminished by another factor which represents the degree of service available during the open season, and so on. The following example, for the State of Michigan, illustrates the procedures used for determining the diversion factors for each of the Great Lakes states.

EXAMPLE OF DERIVATION OF CUMULATIVE DIVERSION FACTORS FOR ST. LAWRENCE SEAWAY TRADE (USING THE STATE OF MICHIGAN FOR ILLUSTRATION)

	INITIAL YEARS OF SEAWAY OPERATION	AFTER 5 YEARS OF SEAWAY OPERATION
Seasonal Operation	67%	67%
Lack of Service	65%	75%
Retentive Effect	70%	80%
Inertia	80%	100%
Cumulative Factors	25%	40%

Thus, as shown in the above, it is estimated that during the first years of the Seaway's operation, 25% of the oceanborne general cargo commerce of Michigan, which would otherwise be prospective to Baltimore, would be susceptible to diversion to the Seaway, and after five years of Sea-

TABLE IV-3

ESTIMATED POTENTIAL DIVERSIONS OF GENERAL CARGO
FROM BALTIMORE TO ST. LAWRENCE SEAWAY
(Based on 1953 Volumes)

	Estimated Range of Prospective Diversion	EXPORTS		IMPORTS		TOTALS	
		Current Exports	Range of Prospective Diversions	Current Imports	Range of Prospective Diversions	Current Exports and Imports	Range of Prospective Diversions
	%	(1000 Tons)		(1000 Tons)		(1000 Tons)	
Western Pennsylvania*	0 - 10	190	0 - 19	65	0 - 7	255	0 - 26
Western New York**	25 - 40	70	18 - 28	16	4 - 6	86	22 - 34
West Virginia	0 - 0	60	0 - 0	21	0 - 0	81	0 - 0
Ohio	15 - 30	186	28 - 56	110	17 - 33	296	45 - 89
Michigan	25 - 40	35	9 - 14	49	12 - 20	84	21 - 34
Indiana	20 - 35	27	5 - 9	14	3 - 5	41	8 - 14
Illinois	20 - 35	70	14 - 25	24	5 - 8	94	19 - 33
Wisconsin	30 - 40	12	4 - 5	1	0 - 0	13	4 - 5
TOTALS (All of C.F.A. Territory)	12 - 25	650	78 - 156	300	41 - 79	950	119 - 235

*Including Pittsburgh

**Including Buffalo

way operation the divertible proportion could be expected to increase to about 40%. Similar diversion factors and the corresponding estimated divertible tonnages for the various other Great Lakes states are given in Table IV-3. As shown in that table, it is estimated that of the total of almost one million tons of the general cargo commerce of Great Lakes states which is now handled annually at Baltimore, 80,000 to 160,000 tons of exports and 40,000 to 80,000 tons of imports are considered to be susceptible to diversion to the Seaway. The total prospective loss of foreign commerce to Baltimore at 1953 levels would be in the order of 180,000 tons. Of course as the economy of the Great Lakes region expands, the tonnages susceptible to diversion would also increase. A portion of the increased traffic generated would also be susceptible to capture by Baltimore, offsetting, at least in part, some of the diversions. Other forces, such as the anticipated growth of population and industry in Baltimore's tributary area, the improvement of the Chesapeake and Delaware Canal, and greater solicitation efforts by Baltimore in the North Central States, may offset further the expected diversions to the Seaway.

PROSPECTIVE CARGO FOR BULK AND INDUSTRIAL PIERS

The long-term outlook for Baltimore's receipts of domestic and foreign bulks and other commodities handled at special terminals and private industrial piers is considered faborable. This applies to both the cargoes destined for Baltimore's immediate hinterland, and also to the cargoes destined for the more competitive areas. The anticipated growth of industry and population in Baltimore's entire tributary area will act as a stimulus to receipts of these commodities.

It is expected also that shipments of fertilizers, petroleum products, and iron and steel products originating in Baltimore's immediate trade area and moving over its bulk and private industrial piers will continue to expand. The outlook for Baltimore's outbound movements of grain and coal from competitive areas, however, is less favorable. Although shipments of these two commodities exceeded three million tons in 1953, they are declining and are subject to increasing competition from other ports. As mentioned previously, Baltimore's excellent grain-handling facilities and lower all-rail rates are expected to continue to attract the majority of the North Atlantic's grain exports. Nevertheless, some diversion to the St. Lawrence Seaway, particularly of grain now shipped ex-lake via Buffalo, may be expected, as discussed previously. Furthermore, both a declining export market for coal and Baltimore's rail rates from the West Virginia mines, which are higher than Hampton Roads' rates, make Baltimore's prospects unfavorable for coal movements.

Constant vigilance to improve and modernize bulk cargo piers and facilities to effect economical movement of this type of cargo, plus the safeguarding of favorable rail rates, and an effective industrial promotion program are necessary if Baltimore is to hold its own in exports of bulk cargoes.

It is expected that oceanborne shipments and receipts of such commodities as iron and steel products, sugar, and some fertilizers which now move primarily over Baltimore's private industrial piers, but are sometimes handled by general cargo terminals, will continue to expand. Movements in this category, generated by existing tidewater industries alone, amounted to 1.1 million tons in 1953 and are expected to increase with the growth of these industries by at least 200,000 tons within the next two decades. It is also reasonable to assume that future industries locating in the available waterfront sites described in Chapter II will handle approximately 500,000 tons of general cargo type commodities at their own piers. Therefore the total future growth of these cargoes at industrial piers alone is believed to be about 700,000 tons.

PROSPECTIVE GENERAL CARGO

As discussed previously, it is estimated that about 8.0 million tons of general cargo type commerce are generated annually in the Great Lakes states and move through the major North Atlantic ports, and an additional 1.6 million tons of the same type of cargo are generated annually in the western parts of New York State, Pennsylvania, and West Virginia. Of this total of 9.6 million tons, Baltimore now handles only about 1.3 million tons, or less than 14%, consisting of about 8% of the general cargo type commerce generated in the Great Lakes states and shipped through the major North Atlantic ports, and about 38% of the same type of commerce generated in the western parts of New York State, Pennsylvania, and West Virginia. Of the 8.3 million tons handled between these competitive areas and other North Atlantic ports, about 1.2 million tons were carried by the three railroads which also serve Baltimore.

It is reasonable to assume that through intensive promotional activities and the provision of efficient and modern port facilities, together with the encouragement of the various other services essential to the growth of shipping, Baltimore could hope to secure as much as 25% of the general cargo commerce which the Great Lakes states furnish all North Atlantic ports, together with 50% of the general cargo commerce of western New York, western Pennsylvania, and West Virginia. This target would amount to about 2.8 million tons annually or about 1.5 million tons more than now handled to and from those areas.

Baltimore should also be able to attract a large share of the 350,000 tons of oceanborne general cargo which are now handled between its own immediate trade area and competing ports via the railroads serving Baltimore. In addition, it should be able to attract a large portion of the similar volumes of traffic which are now bypassing the Port by truck. The total current target increase is therefore estimated at about 2.0 million tons at current levels.

The anticipated growth of population and industry of both the highly-competitive midwestern states and Baltimore's immediate trade area should also increase the Port's potential commerce substantially.

In consideration of a possible economic growth of 50% by 1975, it is estimated that Baltimore's commerce could be increased by about 3.0 million tons annually at that time. However, of the portion of this potential increment which is generated in the Great Lakes area, the Seaway may attract as much as 25%. This percentage reduction applied to the total otherwise prospective to Baltimore at that time from the Great Lakes states alone would reduce the total target increment for that year to about 2.4 million tons, as a reasonable goal in new commerce for Baltimore's general cargo piers.

In addition, as described in the preceding section, it is estimated that by 1975 the tonnage of general cargo handled over industrial piers may be increased by about 700,000 tons over the 1953 levels. Together, Baltimore's target increase of general cargo movements for both general cargo piers and industrial piers, can reasonably be taken at about 3.1 million tons annually by 1975. As explained earlier, however, the achievement of this target can be expected only as the result of persistent and well-directed efforts.

NEW DEVELOPMENTS IN LAND-WATER SERVICES

The low post-war level of coastwise and intercoastal shipping has made it apparent that the only way in which this trade can be revived is by the inauguration of a new type of shipping service which will permit lower handling costs and will reduce the time now lost at terminals. The method of piece-by-piece handling generally used in foreign trade has proven inadequate in domestic water transport. The high costs of this operation and the excessive time-loss incurred have increased the rates of domestic water transport to a point where they are often non-competitive with rail and truck transport.

Several new types of land-water shipping have recently been instituted. One of these is the train-ship service, which uses special vessels equipped to transport loaded railroad cars. The best known of these 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 the 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 the car to the proper deck through hatches. Movement within the ship is on rails. The Interstate Commerce Commission recently granted the Seatrain Line a permanent operating certificate for the New York-Savannah trade which had been operated on a temporary basis for several years.

The Newtex Corporation (steamship operators) is presently considering construction of two train-ships with a capacity of 128 cars each. These vessels would load cars through hatches by means of heavy-lift equipment on board. Discussions are also underway with a view toward instituting similar train-ship service between the Pacific North-

west and Alaska. Other operations of a similar functional character are established between Florida and Cuba, and in Europe.

Another new type of water shipping is the trailer-ship service, whereby loaded truck trailers are carried between ports on board ships. The American and Overseas Chartering Corp. began such a 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 13 knots. Trailers are loaded and unloaded by roll-on, roll-off method. As of October 1954 the two ships had performed more than 900 voyages, carrying more than 250,000 tons of cargo with very few delays.

Similar services are in operation on the Gulf Coast serving Houston, New Orleans and Mobile, using tugs and barges, and between Newark and San Juan, Puerto Rico using liberty ships. 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.

The most recent development in the trailer-ship field is the proposal of the McLean Trucking Company to build and operate in coastal service four ships of 10,000 gross tons each. Each ship would accommodate 286 trailers, which would be loaded through stern ports via bridge-ramps from the shore. 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 has water carrier rights to serve the Atlantic Coast territory. The McLean Company estimates that the proposed initial service would be doubled by 1960.

These systems all have one feature in common: the use of a container which is interchanged between land and water transport without the handling of individual packages, in the same way that rail cars are interchanged between railroads. The institution of any one of these methods would be beneficial to the Port of Baltimore, and active steps should be taken to encourage the establishment of Baltimore as a port of call for such services as may be initiated at other east coast ports. In particular, efforts should be made to establish Baltimore as a terminus for sea-train service to Puerto Rico and to other areas where the operation of such service would be justified.

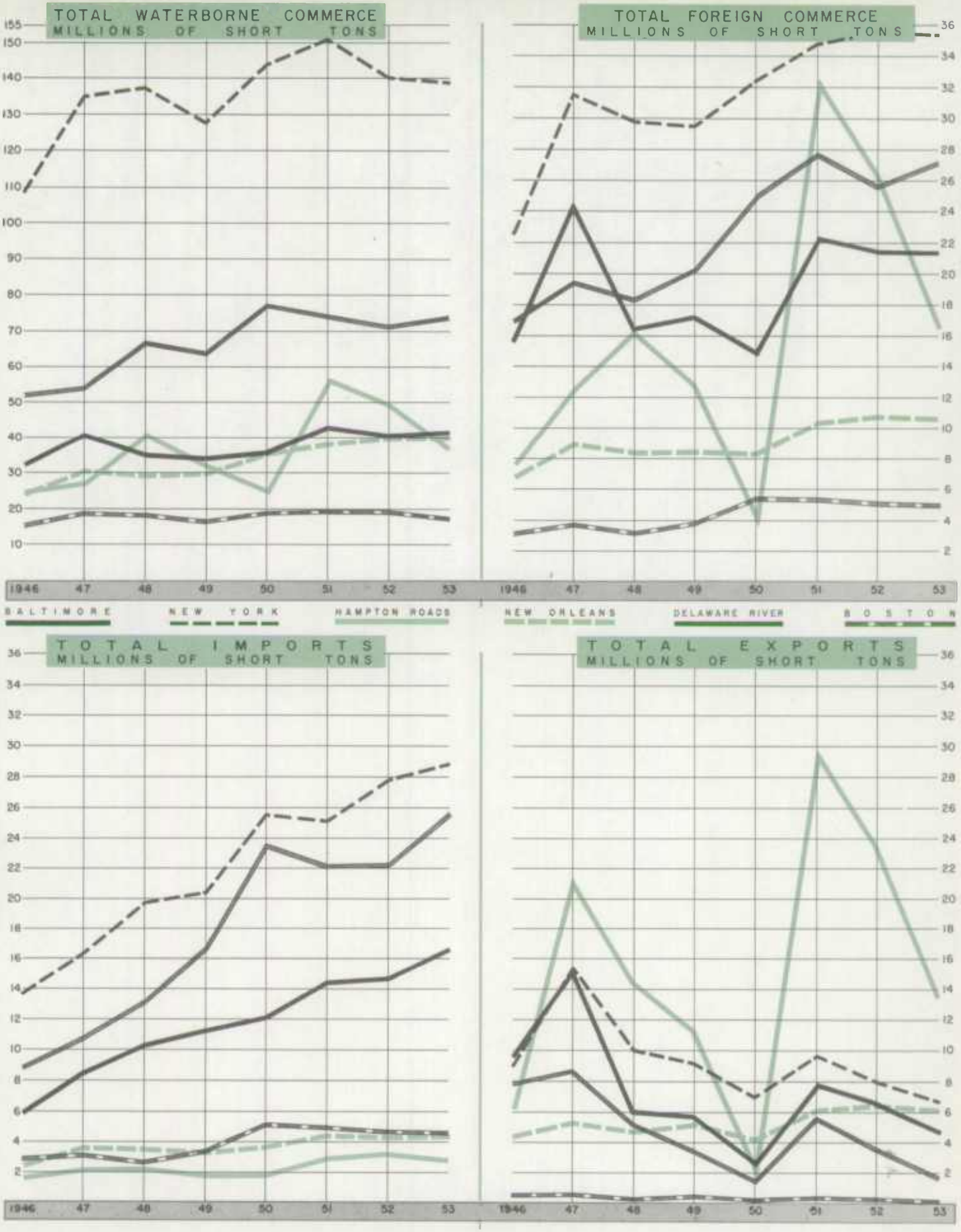


CHART IV-1

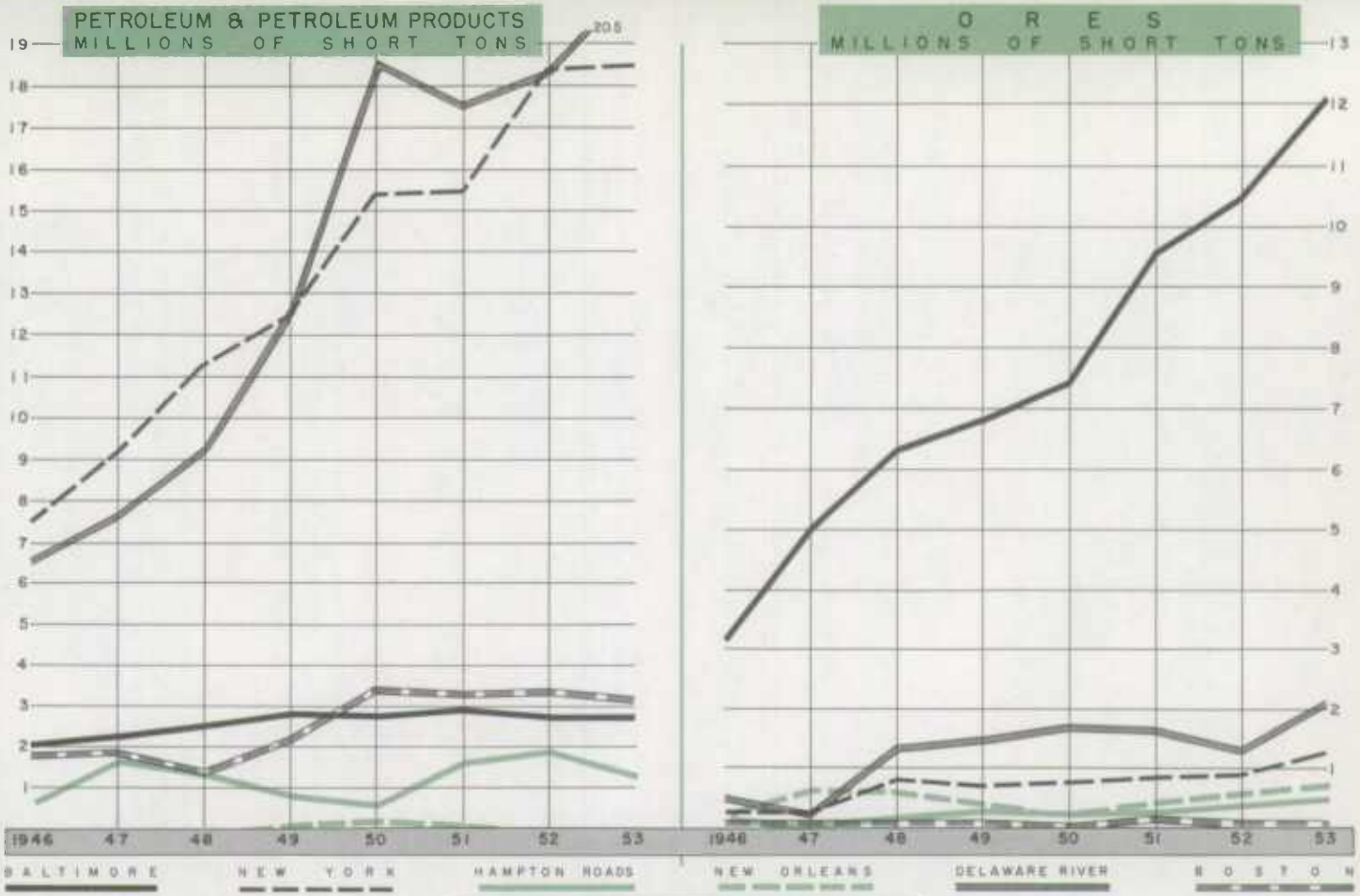
DECEMBER 1954

THE PORT OF BALTIMORE

KNAPPEN - TIPPETTS - ABBETT - McCARTHY

ENGINEERS NEW YORK

WATERBORNE COMMERCE



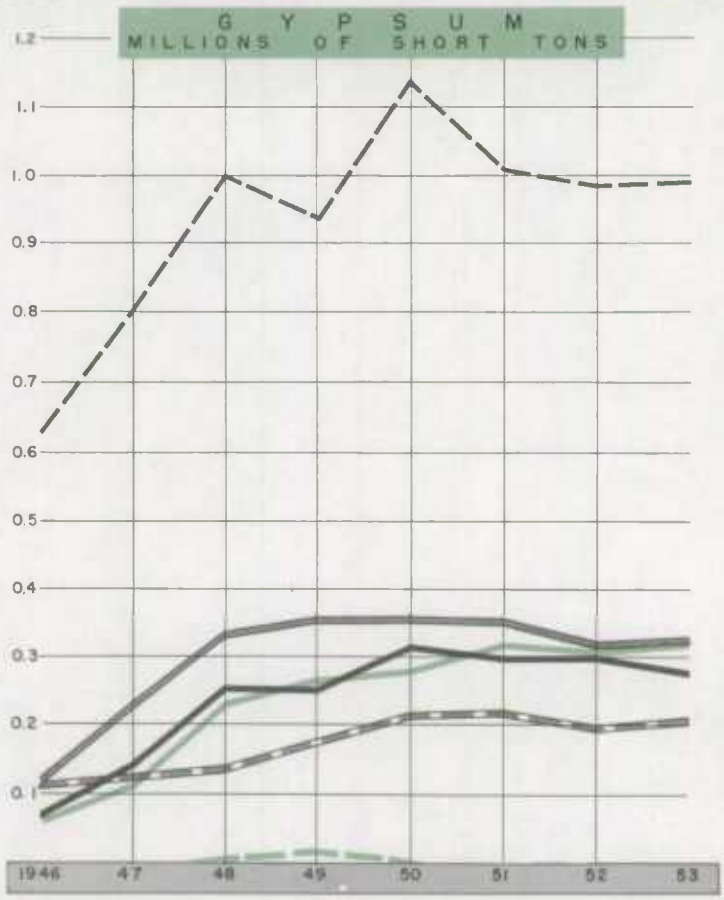


CHART IV-2

DECEMBER 1954

THE PORT OF BALTIMORE

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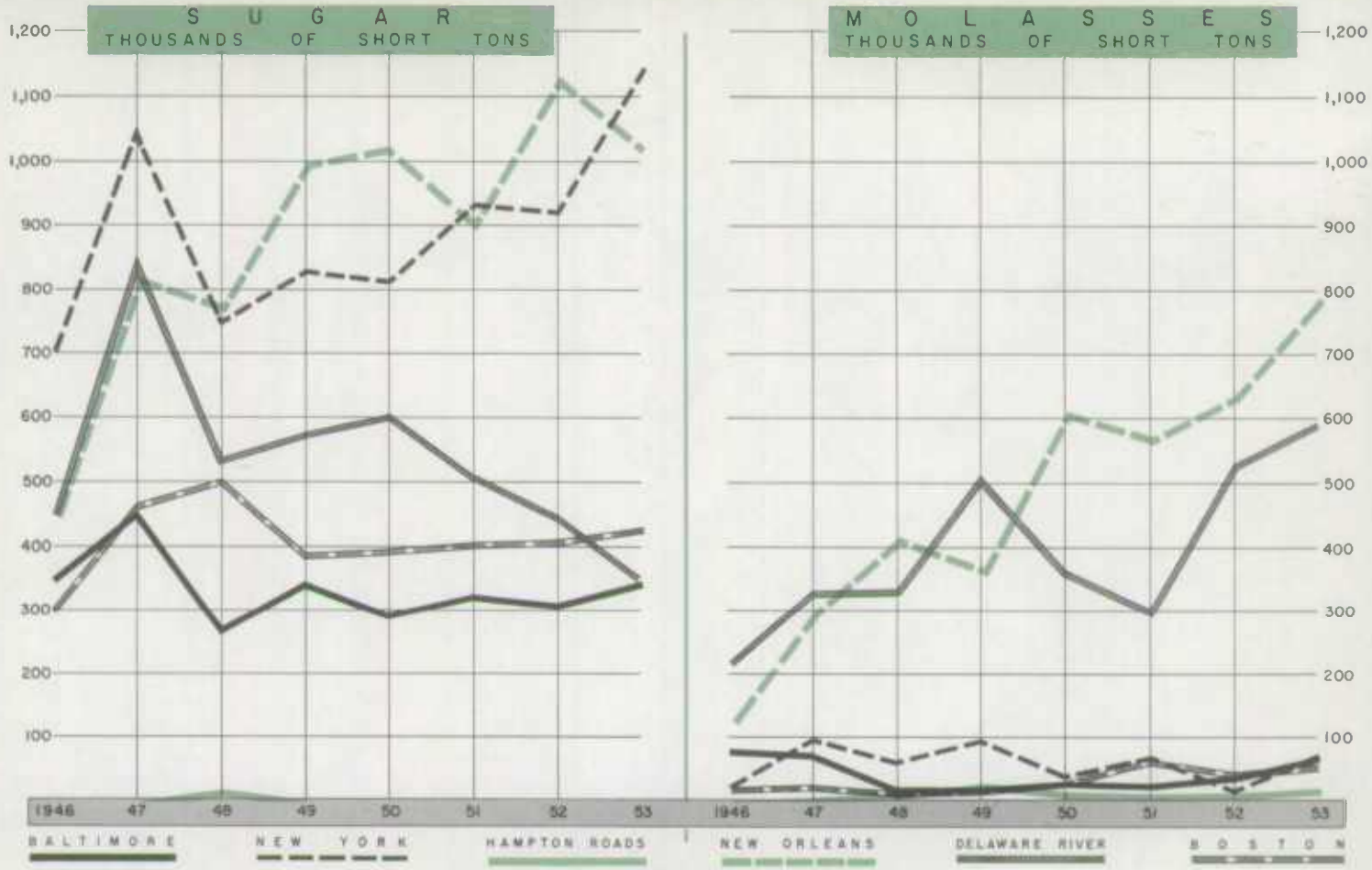
IMPORTS



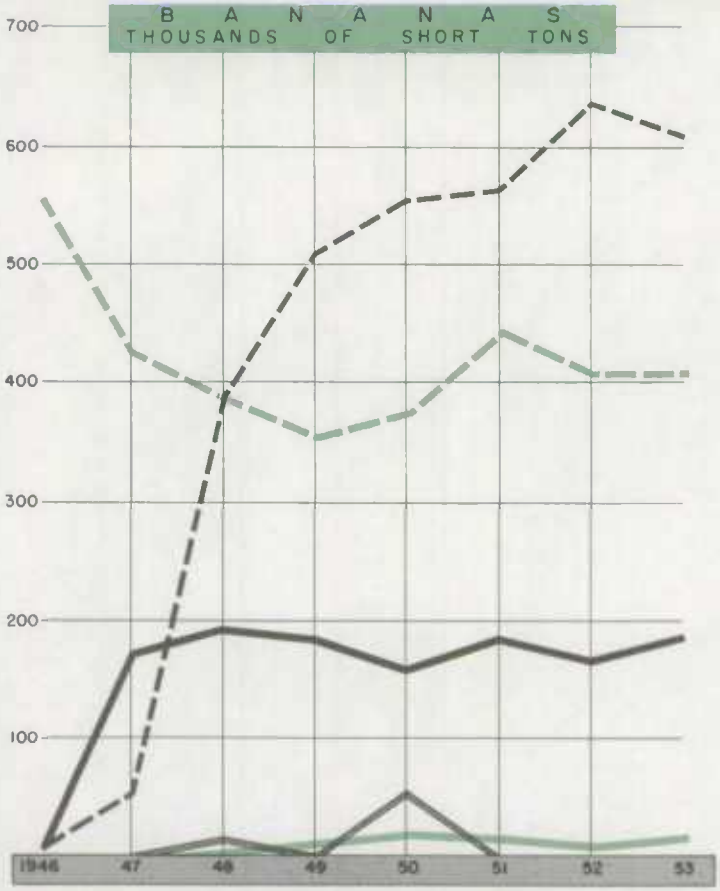


CHART IV-3

DECEMBER 1954

THE PORT OF BALTIMORE

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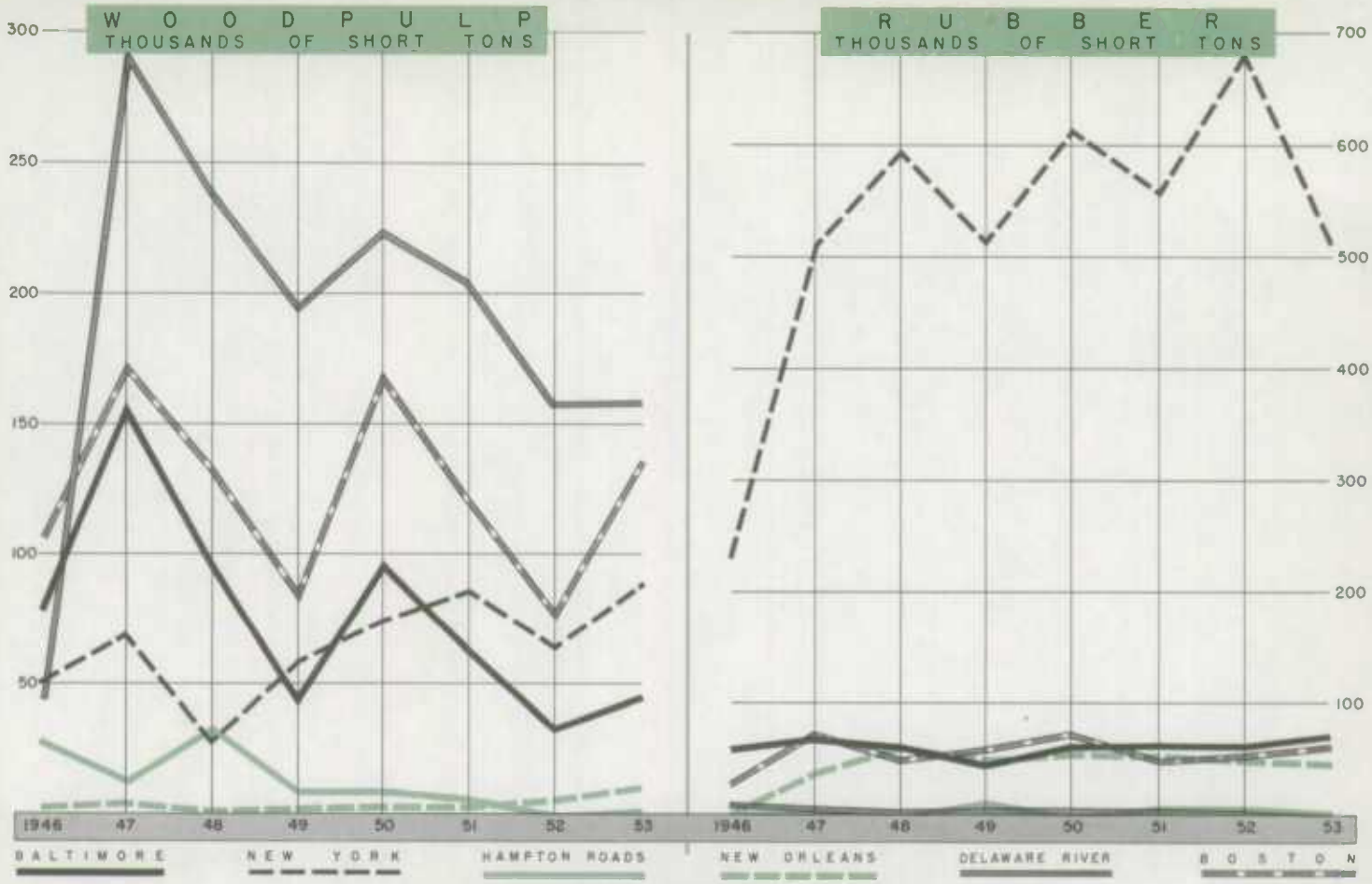
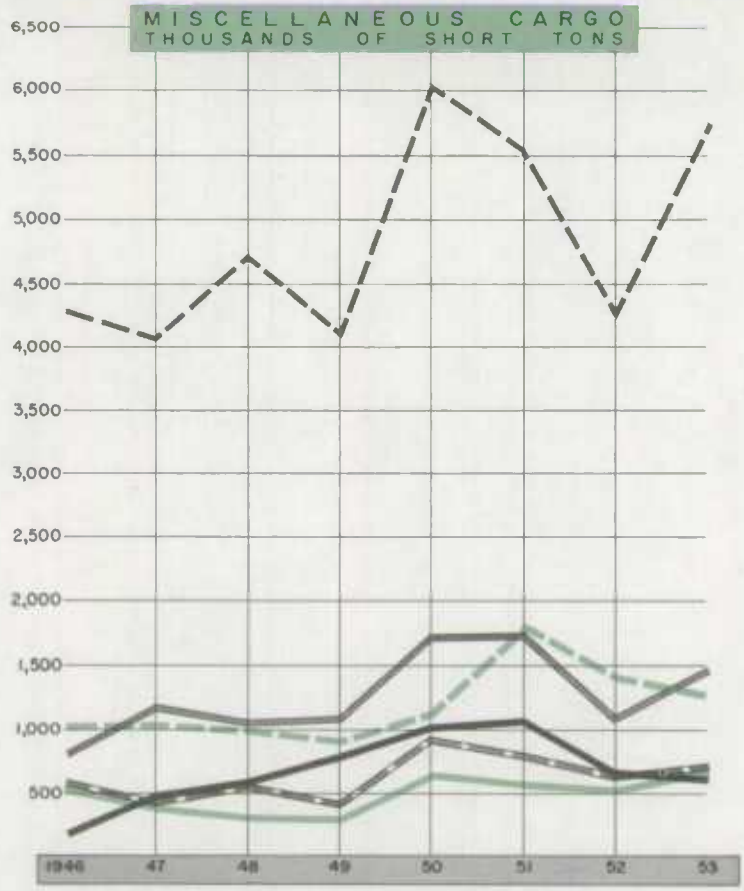
ENGINEERS NEW YORK

IMPORTS





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DECEMBER 1954

THE PORT OF BALTIMORE

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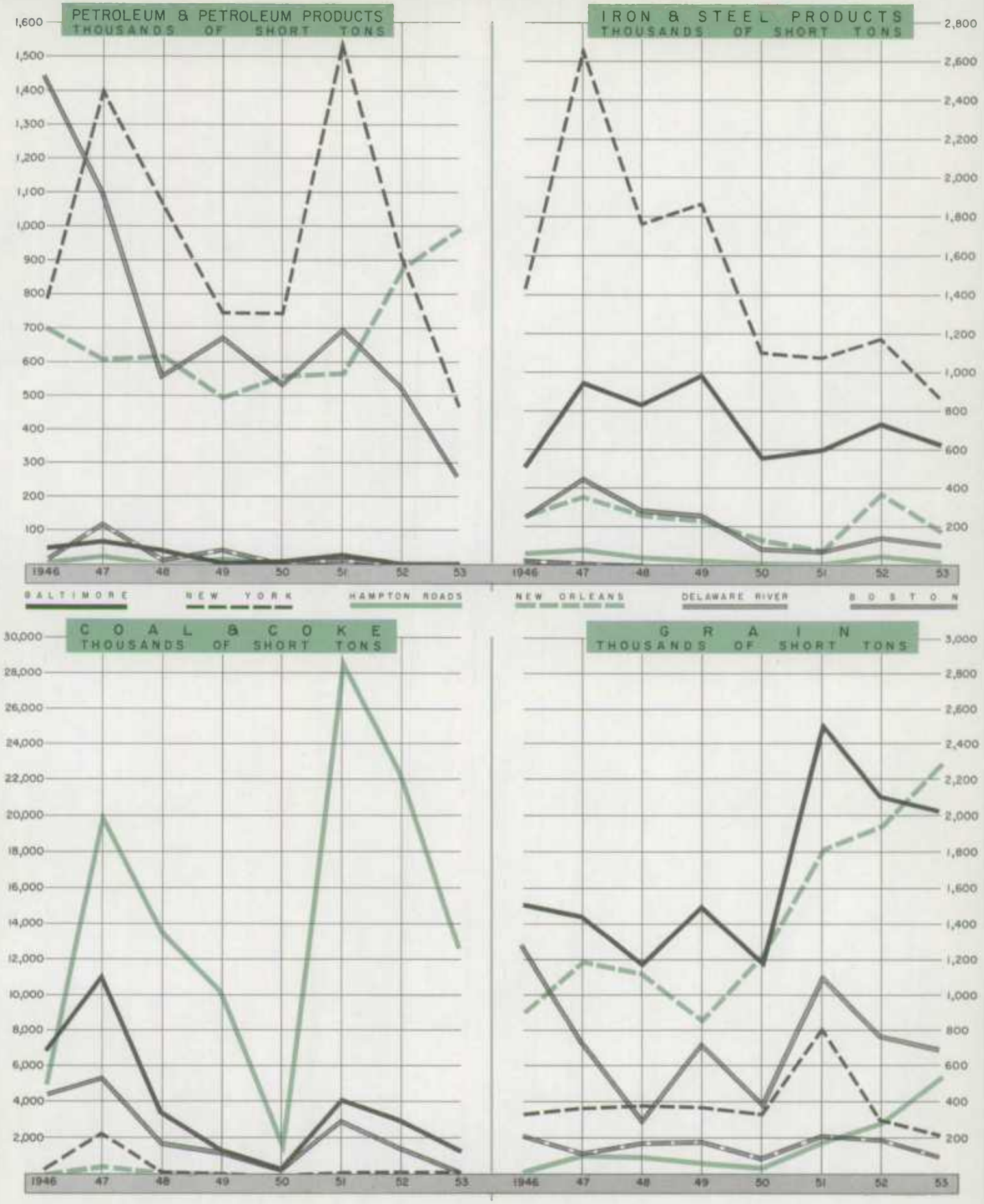

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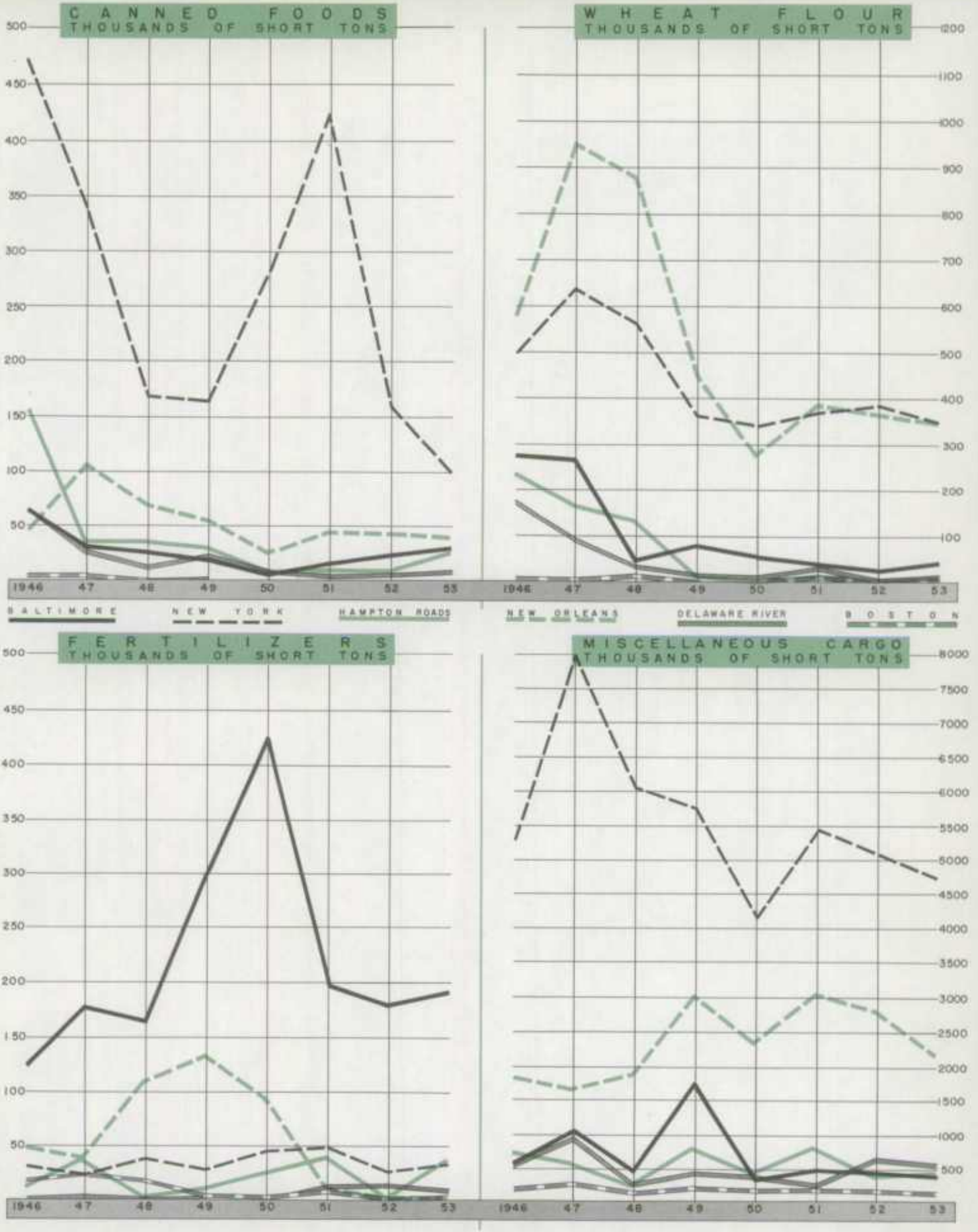
DECEMBER 1954

THE PORT OF BALTIMORE

EXPORTS

KNAPPEN • TIPPETTS - ABBETT - McCARTHY

ENGINEERS NEW YORK



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DECEMBER 1954

THE PORT OF BALTIMORE

EXPORTS

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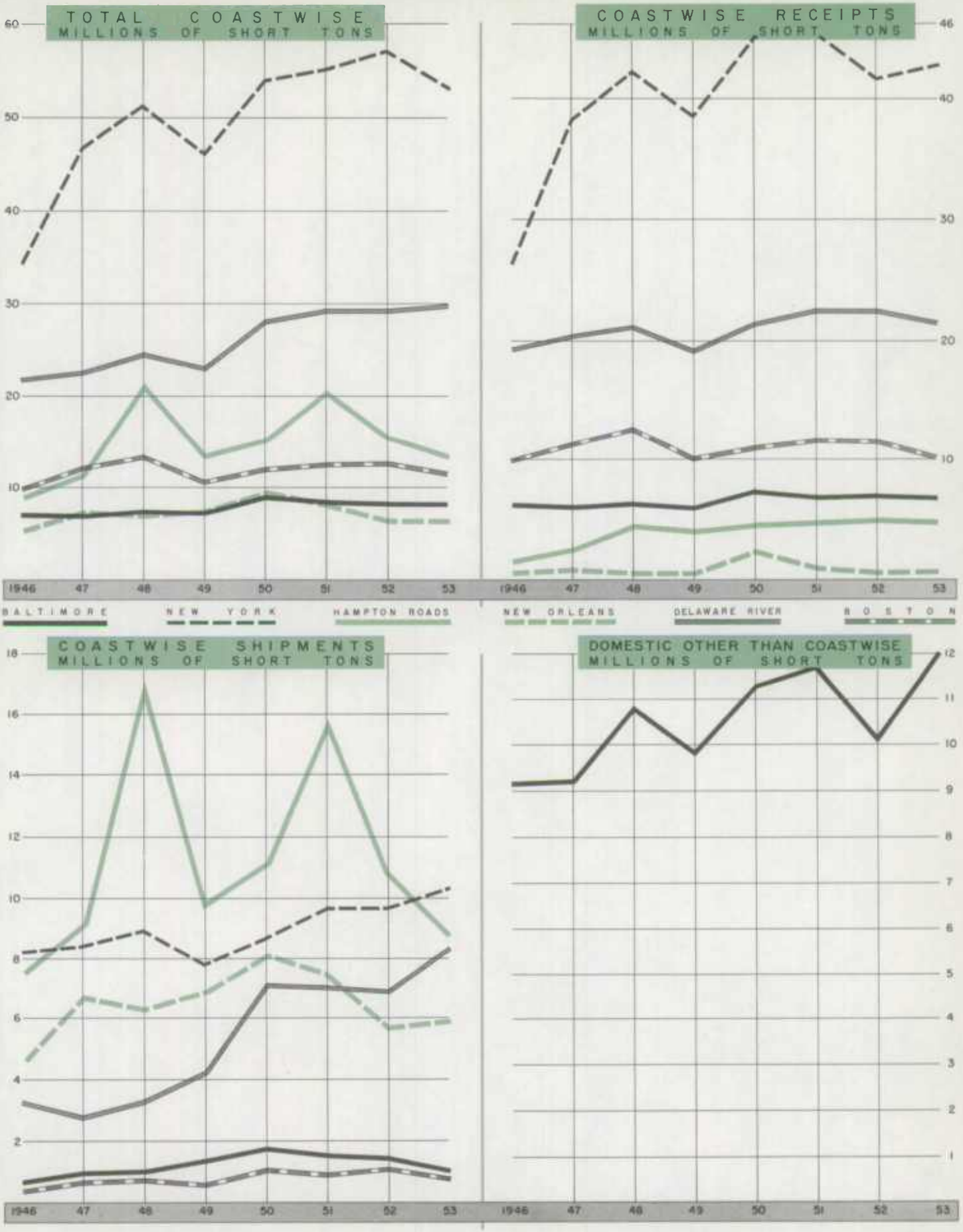

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DECEMBER 1954

THE PORT OF BALTIMORE

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ENGINEERS NEW YORK

DOMESTIC COMMERCE

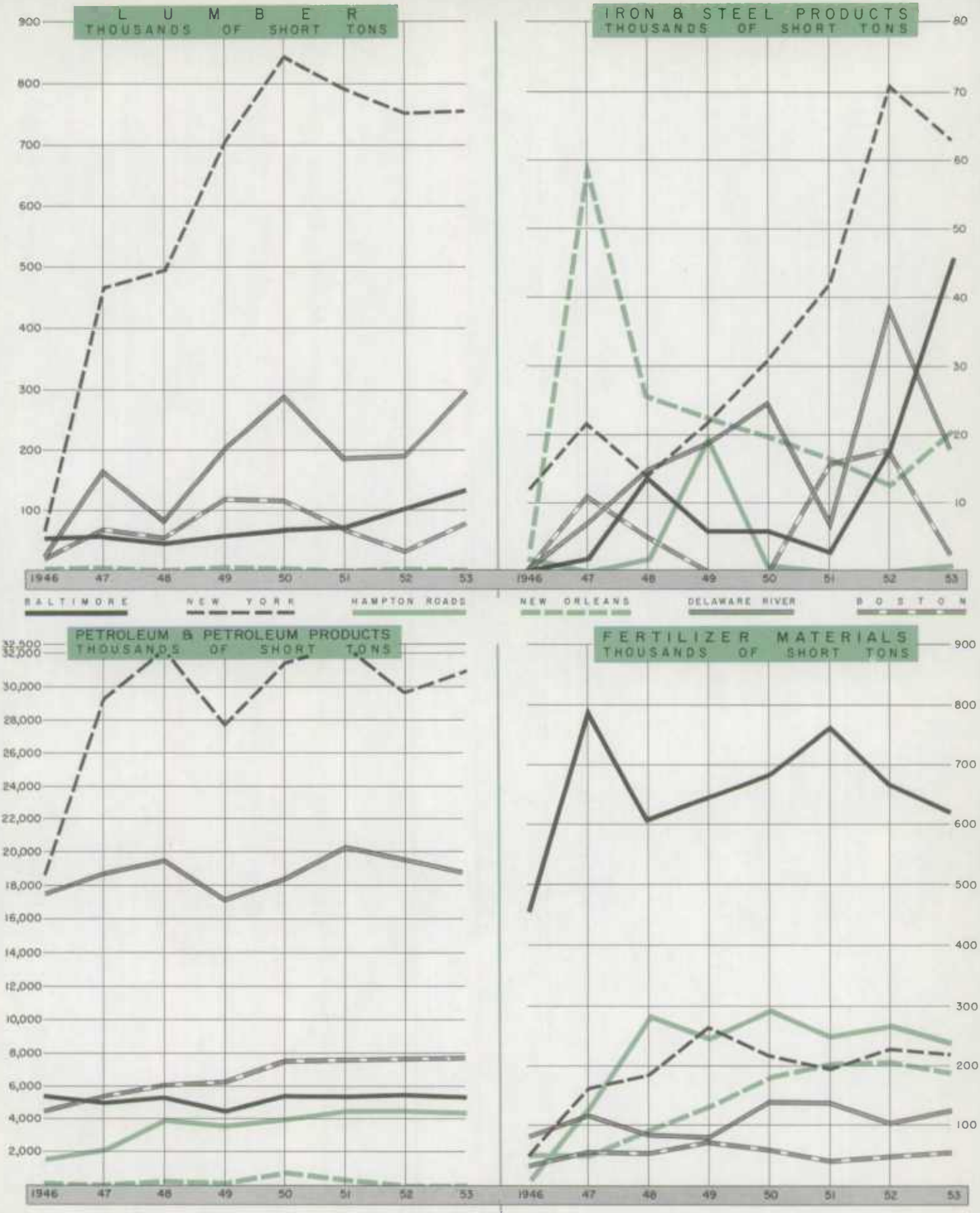


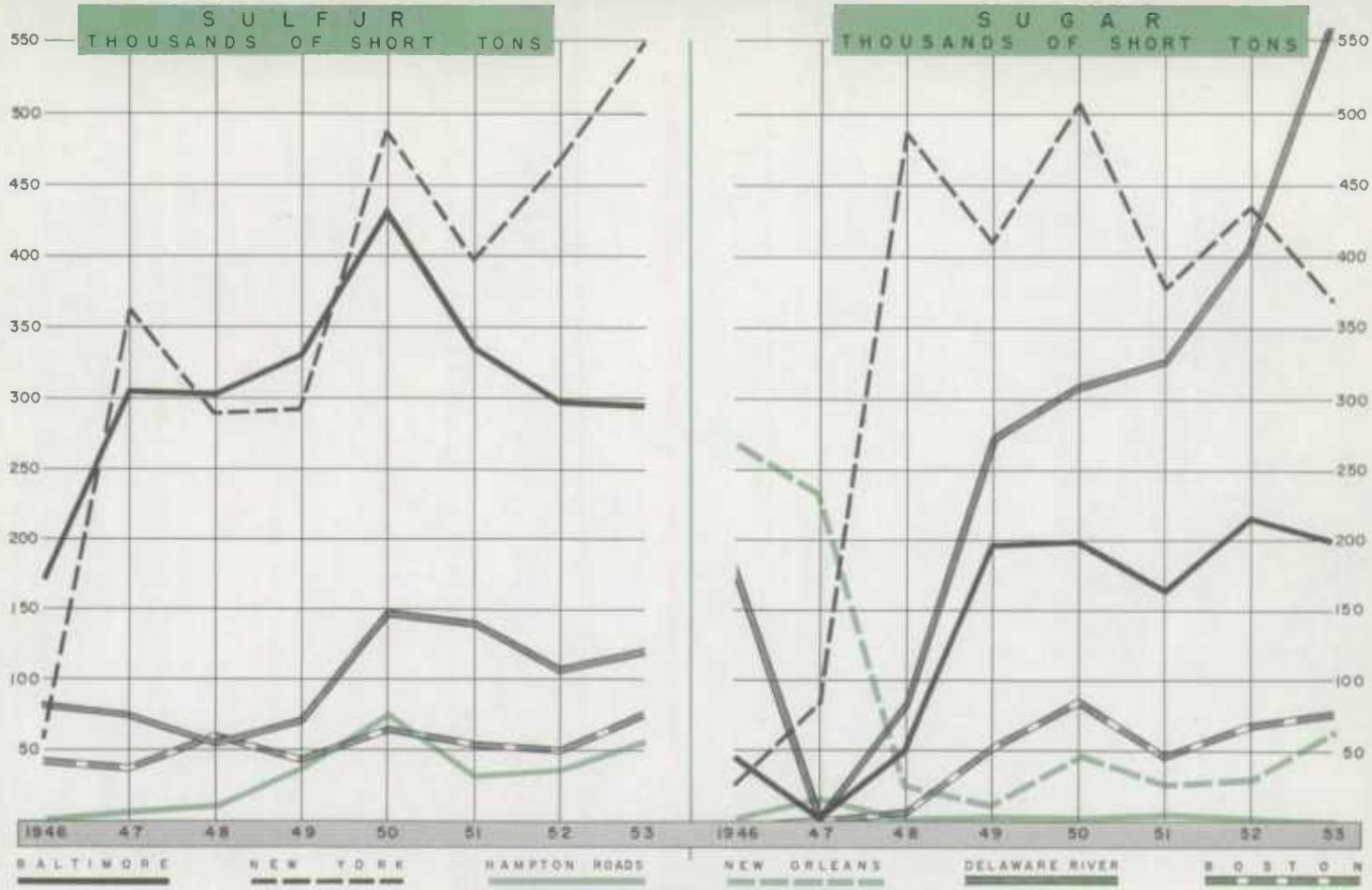
CHART IV-8

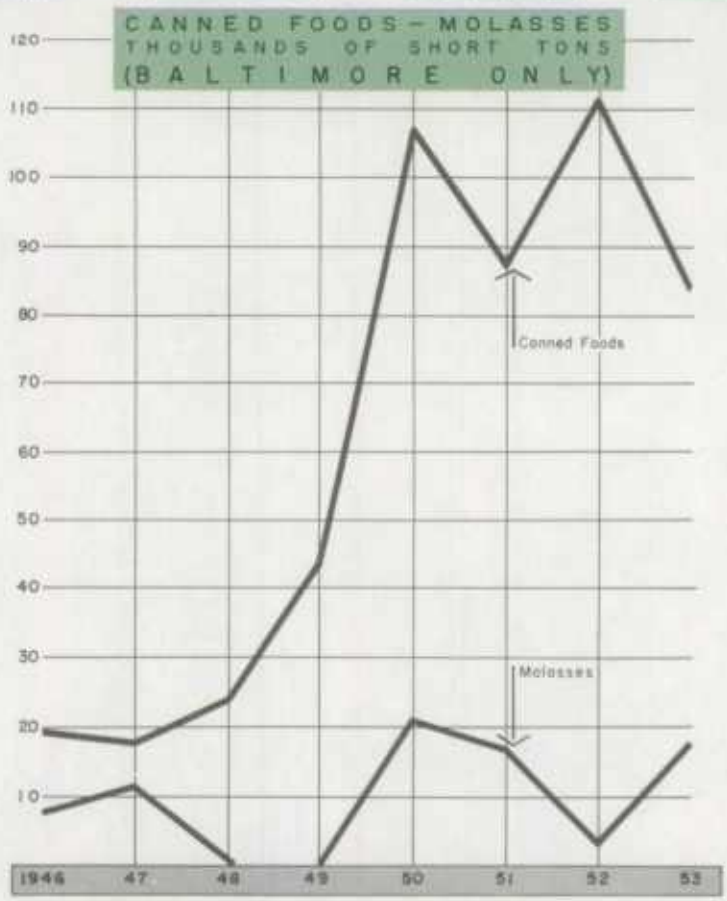
DECEMBER 1954

THE PORT OF BALTIMORE

COASTWISE RECEIPTS

KNAPPEN - TIPPETTS - ABBETT - McCARTHY
ENGINEERS NEW YORK





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DECEMBER 1954

THE PORT OF BALTIMORE

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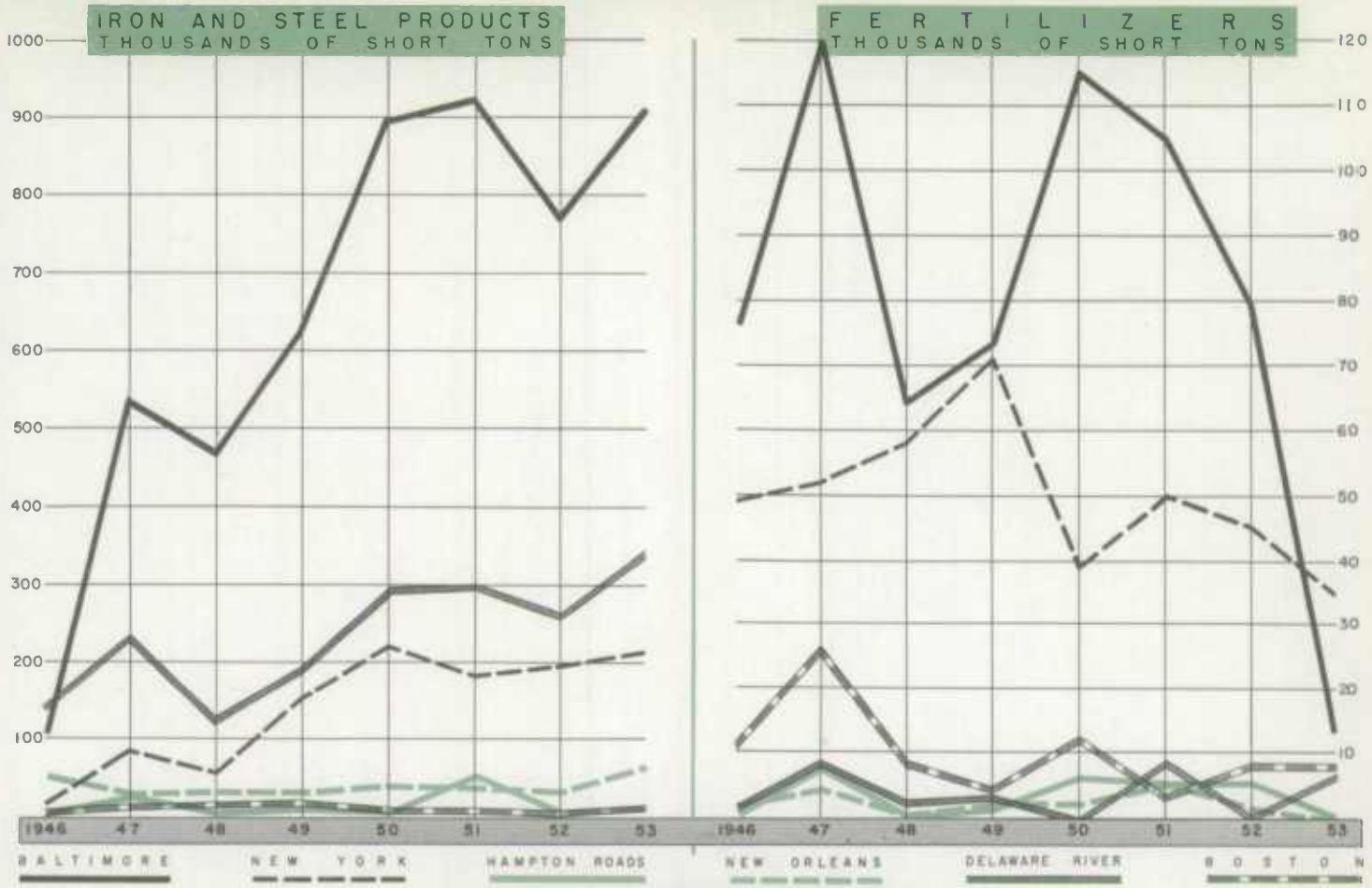
ENGINEERS NEW YORK

COASTWISE RECEIPTS



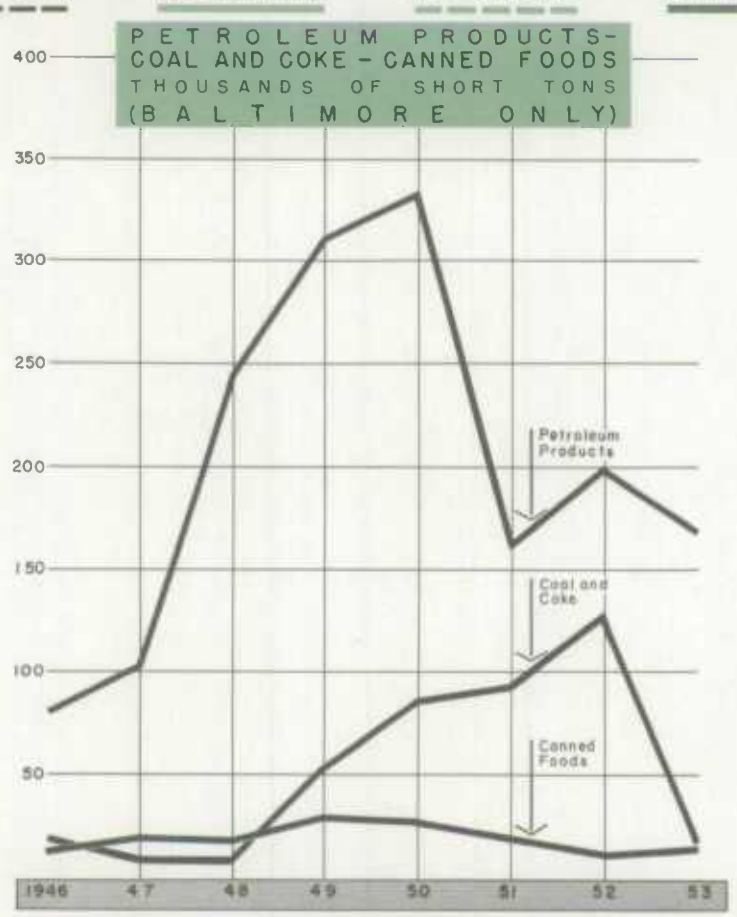


CHART IV-10

DECEMBER 1954

THE PORT OF BALTIMORE

KNAPPEN - TIPPETTS - ABBETT - McCARTHY

ENGINEERS NEW YORK

COASTWISE SHIPMENTS

CHAPTER V

FACILITIES AND SERVICES AT THE PORT

TERMINAL FACILITIES

Baltimore's position as a major port is largely attributable to its bulk cargo trade. Local interests constantly have been alert to the needs of bulk cargo commerce and have developed and improved extensive facilities to serve these needs as they arose in the past. Various interests are now concerned with a further expansion of ore handling facilities. Plans are being considered for the development of additional grain elevators at the Port. Although the future holds promise of substantial increases in the bulk cargo trade of Baltimore, various developments throughout the United States and abroad will have important bearings on Baltimore's share in this trade. Among these are the St. Lawrence Seaway, improvements in the processing of various domestic ores not hitherto extensively exploited, Interstate Commerce Commission action on differential freight rates affecting the Port's competitive position, and the availability of facilities at competing ports. As evidenced by the improvements made in bulk cargo terminals of the Port in the past and by plans being developed currently for the future, it seems probable that local private interests will continue to foresee and accept every reasonable opportunity to improve and expand Baltimore's share of this trade.

General cargo trade at Baltimore has not fared as well as the Port's bulk cargo trade. Baltimore's oceanborne commerce contains a smaller percentage of general cargo than does the trade from such important competing ports as New York and New Orleans. With a view toward improving this situation, emphasis should be placed on the adequacy, modernization and expansion of general cargo facilities, together with more extensive use of mechanized cargo-handling equipment. Although the existing facilities are adequate for the volume of general cargo commerce now passing through the Port, more economical operations could be achieved by improvements in terminal structures and equipment. Economies of this type could be used effectively for the promotion and stimulation of the Port's general cargo trade. As the Port obtains a larger share of the general cargo which is potential to it, expansion of general cargo terminals will be required.

PIER FACILITIES. With the completion of piers now under construction at the Port, 99 berths will be available for the accommodation of modern deep-draft general cargo vessels or bulk carriers drawing 30 ft. or more of water and requiring 500 ft. of pier per berth. With the exception of the Bethlehem Steel Company's facilities at Sparrows Point, all of the major general cargo terminals and bulk-handling facilities are located within the limits of the City of Baltimore on the various branches of the Patapsco River or at Curtis Bay (Plate 5).

The Municipal piers and important private non-railroad operated piers are located on the Northwest Branch of the Patapsco River. The primary function and ownership of all the existing piers and other major port facilities are summarized in Appendix V-A. The berths at these piers capable of accommodating modern deep-draft vessels are indicated in Appendix V-B.

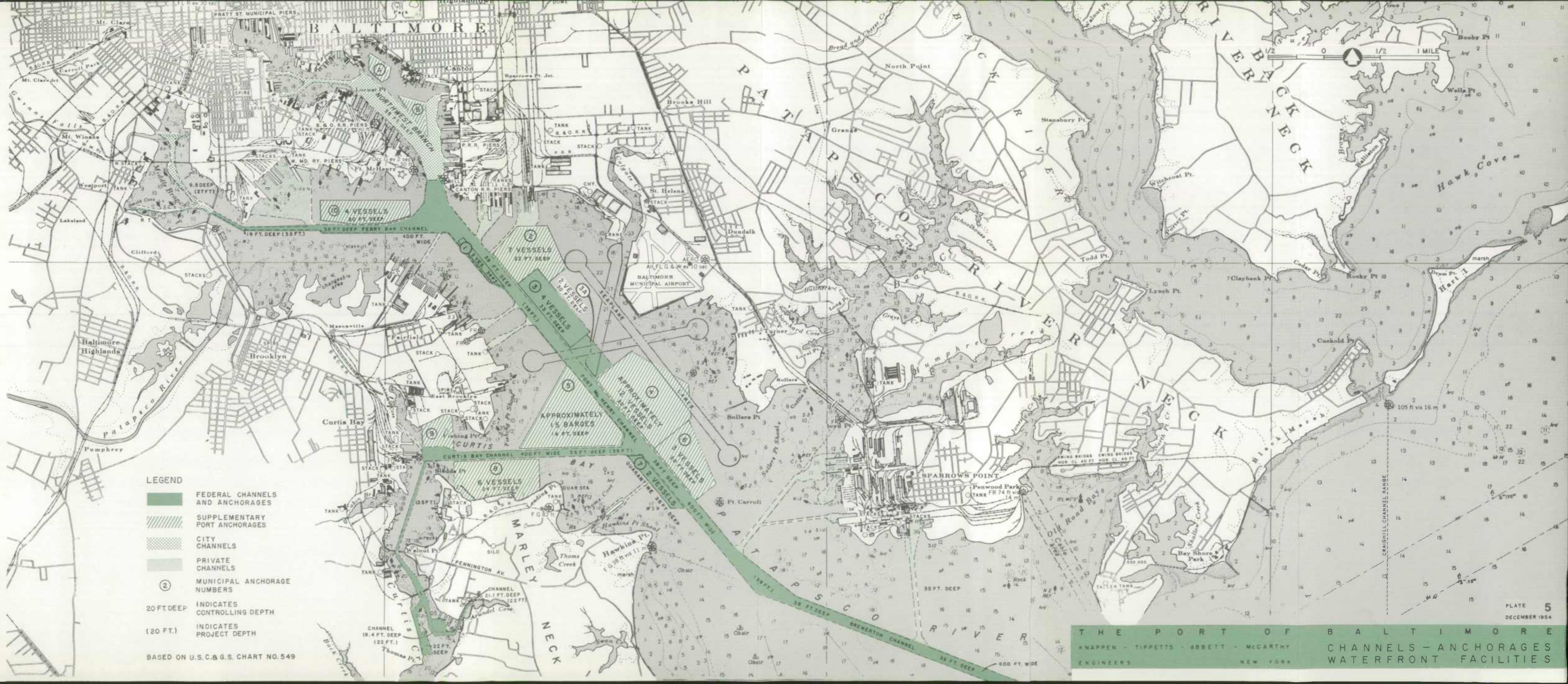
ORE TERMINALS. The ore-handling facilities of the Port have been extensively modernized and improved in recent years to meet steadily increasing imports. In 1951 the Baltimore and Ohio Railroad completed a marginal wharf at Stonehouse Cove in Curtis Bay. The wharf is 650 feet long and has 35 feet of water alongside. The cost of construction was approximately $5,000,000. Two traveling bridge cranes provide for direct transfer of ore from ships to railroad cars or to a belt which conveys ore to elevated weighing and carloading hoppers. The rated capacity of the equipment at this facility is 2400 tons per hour. Small quantities of ore are also handled at the railroad's piers located at Locust Point.

The Canton Railroad Company recently added an unloading tower and an elevated belt conveyor system at its ore pier at a cost of approximately $3,500,000. The Company also enlarged the aprons of the pier to support the conveyor, which serves a new storage and weighing hopper over the tracks north of the pier. Railroad yard and interchange trackage was also increased in support of the facility. A dust control system is being installed by the company for the new unloader and also for the two older unloaders on the pier. All three unloaders can discharge ore into rail cars on the pier as well as onto the conveyor. The capacity of the equipment at this terminal is rated at about 2600 tons per hour.

The Western Maryland Railway recently lengthened its ore pier from 832 feet to 1540 feet and increased its yard trackage, at a cost of $2,100,000. It also completely rebuilt a 9-ton gantry crane, equipping it with electrically operated weighing scales, and installed a traveling bridge crane with a 15-ton capacity bucket and a third unloader. The three unloaders with two existing box car loaders have a combined rated capacity of 2000 tons per hour.

The Pennsylvania Railroad recently added a belt conveyor and hopper for handling sulfate of ammonia and cement at their bulk cargo pier, but no major improvement has been made since 1949 in the railroad's ore handling facilities at Baltimore. Ore is unloaded from vessels at their bulk cargo pier by floating derricks and transferred to conveyors and car pits for loading rail cars. No appreciable tonnage of ore is handled at the Pennsylvania Railroad's facility. Its rated capacity is only 700 tons per hour and it is used only when quick turn-around of vessels is not important.

The Bethlehem Steel Company's private ore-handling facilities were expanded in recent years to provide three 40-foot deep berths for 28,000 d.w.t. ore carriers. Its marginal wharf was extended from 1200 feet to 2200 feet and new unloaders were installed on the wharf. The rated capacity of this facility is 4000 tons of ore per hour.


BALTIMORE
PATAPSCO RIVER
BACK RIVER
RIVERBACK NECK
MARLEY NECK
SPARROWS POINT
Curtis Bay
Brooklyn
Fairfield
Brooks Hill
North Point
Dundalk
Stansbury Pt.
Todd Pt.
Lynch Pt.
Claybank Pt.
Cuckold Pt.
Hawk Cove
Penwood Park
Bay Shore Park
Hawkins Pt.
Sollers Pt.
Turner
Pumphrey
Baltimore Highlands
Lakeland
Clifford
Westport
Mt. Winans
Mt. Clare
Mt. Clare Jct.
Carroll Park
Pratt St. Municipal Piers
Canton
Sparrows Pt. Jct.
St. Helena
Baltimore Municipal Airport
Fort Carroll
Old Road Bay
Craighill Channel Range
105 ft vis 16 m
Penwood Park Tank FR 74 ft 14 m
Hawkins Pt. Shoal FG 38 ft 11 m
Curtis Bay Channel 400 ft wide 35 ft deep (35 ft)
35 ft deep Fort McHenry Channel
35 ft deep Brewerton Channel
600 ft wide
Approximately 15 barges 14 ft deep
Approximately 20 vessels 30 ft deep
6 vessels 44 ft deep
2 vessels 38 ft deep
4 vessels 33 ft deep
2 vessels 30 ft deep
4 vessels 40 ft deep
9.5 deep (27 ft)
19 ft deep (35 ft)
35 ft deep ferry bar channel
400 ft wide
Channel 19.4 ft deep (22 ft.)
22 ft deep
Channel 21.1 ft deep (22 ft)
Pennington Av.
Curtis Bay
Middle Br.
Northwest Branch
Gwynns Falls
Patapsco River
Swing bridge hor cl 40 ft
Swing bridge hor cl 40 ft
LEGEND
Federal channels and anchorages
Supplementary port anchorages
City channels
Private channels
(2) Municipal anchorage numbers
20 ft deep Indicates controlling depth
(20 ft.) Indicates project depth
Based on U.S.C.&G.S. Chart No. 549
1/2 0 1/2 1 mile
Booby Pt.
Wells Pt.
Rocky Pt.
Drum Pt.
Hart I.
Bullitts Pt.
Broyles Pt.
Wilcocost Pt.
Turner Pt.
Cedar Pt.
Sellers Pt. Shoals
Fishing Pt. Shoals
Thoms Cove
Thoms Creek
Meadow Mt.
Black Marsh
Humphrey Creek
Bullitts Creek
Schnabrake Cove
Greys Creek
Jones Cr.
Loyd Pt.
Lazaretto Pt.
Walnut Pt.
Quarantine Area
Anchorage
Obstr
Rock
Tanks
Stacks
Spires
Silo
Marsh
Plate 5
December 1954
The Port of Baltimore
Channels — Anchorages
Waterfront Facilities
Knappen - Tippetts - Abbett - McCarthy
Engineers
New York

Most of the ore trade of the Port is handled over the facilities described above. In addition, some ore is handled at various local industrial piers. These include the National Gypsum Company pier which is equipped to receive gypsum ore; the Mutual Chemical Company facilities over which chrome ore is handled; the General Chemical Company pier which handles sulfur; and the Davison Chemical Company facility over which phosphate rock is received.

ORE TERMINAL CAPACITY. The rated capacity of an ore-unloading facility applies to "free digging" operations. Allowing for reductions in rated capacity resulting from vessel clean-out operations, it is estimated that the major ore-handling facilities of the Port have a total theoretical operating capacity of approximately 20,000,000 tons per year. About one-third of this capacity is accounted for by the Bethlehem Steel Company terminal. This estimate is based on the following assumptions:

1. Flow of ore carriers to the terminals in sufficient numbers to provide vessels for unloading at each of the major ore terminals during most working days of the year.
2. Continued use of operational procedures currently employed, including continuous unloading operations with more than one shift per day.
3. Use of the types of vessels now servicing this trade.

If these terminals were to be operated regularly on weedends and holidays, the theoretical operating capacity would be correspondingly increased.

It cannot reasonably be expected, however, that ore vessels will be available most working days throughout the year at each of the Port's principal ore terminals. Allowance must be made for disruption of shipping schedules due to storms, ship breakdowns, operational difficulties, etc. Thus, to obtain a reasonable estimate of the average practical operating capacity of these terminals over a period of years, the estimated theoretical capacity given above should be reduced somewhat to make allowance for delays of the type mentioned. These factors might reduce the aggregate capacity by 25 to 30 per cent, or to an estimated practical operating capacity in the order of 15,000,000 tons annually.

As discussed in the foregoing paragraphs, the operating capacities of the Port's ore terminals are influenced by a variety of factors, many of which are beyond the control of the terminal operators. One of the principal of these is the type and size of vessel employed in the trade. It is anticipated that many of the converted general cargo ships now commonly used in the bulk trade will be replaced progressively by larger, specially-designed ore carriers. Several of these special carriers have already entered the overseas ore trade and considerably more are either under construction or scheduled for construction during the next few years. The increased use of such vessels would act to reduce appreciably the unloading time per ton of ore and thus increase the capacity

of the Port's terminals. As more of these special bulk carriers enter the trade, the practical operating capacity of the ore terminals is expected to increase appreciably.

The capacity presently available was ample to meet the peak yearly ore volume of 12.2 million tons handled in 1953 at Sparrows Point and the railroad ore terminals, of which 7.8 million tons were iron ore. The existing facilities are also considered adequate for the normal increase in demand anticipated for the near future. In anticipation of the Port's longer-range future requirements, the Baltimore Port and Terminal Corporation has proposed to develop, with the participation of the Pennsylvania Railroad, a new $15,000,000 ore and general cargo terminal. A request for financial assistance from the City of Baltimore for this project in the amount of $11,000,000 was recently denied by the Port of Baltimore Commission.

COAL-HANDLING FACILITIES. The Baltimore & Ohio Railroad's coal-handling facilities at Curtis Bay and Locust Point can load 5400 tons and 600 tons per hour, respectively. The Pennsylvania Railroad's facilities in the Canton area can load 800 tons per hour, and the Western Maryland's facilities at Port Covington can load 3500 tons per hour. Except for construction of a new office at Western Maryland's coal pier and the addition of thawing equipment at the Pennsylvania Railroad's coal pier, no major improvement was made in the coal-handling facilities of the Port since 1949. As was found in 1949, those facilities are more than adequate to serve the present and prospective needs of the Port.

GRAIN ELEVATORS AND PIERS. There are in the Port three grain elevators and four grain piers which have a combined storage capacity slightly in excess of 12,000,000 bushels, or about 300,000 tons. With the recent addition of two grain unloaders of 200 tons per hour rated capacity at Western Maryland's grain pier and the addition of a new marine leg at the Baltimore and Ohio's Pier No. 7 at Locust Point, the aggregate delivery capacity of the Port's grain-handling facilities is rated in excess of 16,000 tons per hour. To date the elevators have had ample capacity to meet past and present export demands. With no indication of appreciable gains in exports in the near future, the grain-handling facilities of Baltimore are believed to be adequate.

OIL-HANDLING FACILITIES, PIPELINES AND REFINERIES. Thirteen oil-receiving stations are located at the Port. These include ten piers which are capable of accommodating ocean-going tankers, and one pier and several wharves for berthing smaller vessels. Most of the piers are of timber deck and open wood pile construction. This type of construction generally does not meet modern standards for oil terminals. However, these facilities are largely concentrated in the Canton, Fairfield and Curtis Bay areas away from the general merchandising piers, so that hazards of spreading oil fires to other facilities in the Port are slight.

All of the crude oil and part of the petroleum products received in the Port are brought in by deep-draft tankers. Some petroleum

products are received by barge from coastal ports, primarily from Marcus Hook, Penna. The Sinclair Oil Company also receives oil from Marcus Hook by the only pipeline serving the Port. Although no other pipelines are contemplated, one company has indicated that a pipeline to Washington for distribution of petroleum products might be advantageous.

There are two refineries in the Port which produce gasoline, fuel oil, bunker oil, diesel oil, and asphalt. The combined capacity of these refineries is approximately 70,000 barrels per day, which is generally considered adequate to meet the present needs of the market area of the Port. Distribution of petroleum products is made largely by trucks to the local market area in Maryland, the District of Columbia, parts of Virginia and Pennsylvania, and the easterly portion of West Virginia. There is also some distribution by rail to inland points and by barge to nearby coastal ports. Additional expansion of storage facilities is contemplated by several companies to meet anticipated demands. The Socony-Vacuum Oil Company is now constructing a modern pier for deep-draft tankers at its Curtis Bay Terminal and it is reasonable to expect that, when warranted, other companies will also provide satisfactory facilities for new tankers, some of which have drafts approaching 40 feet.

GENERAL CARGO FACILITIES. The piers and wharves used for trans-shipping general cargo in Baltimore comprise the following: Lower Canton Terminal of the Canton Railroad Company (including Pier 11, leased by the Pennsylvania Railroad); Upper Canton Terminal of the Pennsylvania Railroad; Locust Point Terminal of the Baltimore & Ohio Railroad; Port Covington Terminal, owned by the City of Baltimore and operated by the Western Maryland Railway; Pratt Street Municipal Piers, leased to private firms by the City of Baltimore; Rukert Terminals Corporation facilities; Belt's Wharf Warehouses, and several smaller terminals which are valuable supplements to the major installations.

With the exception of Rukert Terminals Corporation's new pier at Lazaretto Point and a new shed at Pennsylvania Railroad Pier No. 1, the principal features of cargo piers and sheds within the Port were not affected appreciably during the past five years. Accordingly, all of the features, dimensions, etc., of the general cargo facilities which were rated in the 1949 survey are not repeated, but the more important features are summarized in Appendix V-C. In recent years the standards for efficient general cargo piers, transit sheds, and cargo-handling facilities have necessarily changed with the increasing use of trucks in handling waterborne cargo, the development of larger and faster cargo vessels, and innovations in cargo-handling equipment and port practices. Realizing this and guided by recommendations made in the report of 1949, port interests have made or propose to make extensive improvements in various general cargo facilities of the Port. The improvements conform in part to Stage I of the modernization program formulated in 1949 and are briefly described below for each terminal of the Port.

At the Lower Canton Terminal of the Canton Railroad Company, the depressed railroad track area along the center of Pier 3 was paved

to afford truck access to the interior of the pier shed. The access road at the west side of the shed at Pier 8 was improved. Areas at the rear of pier sheds were paved, affording better truck access to the piers.

At the Upper Canton Terminal of the Pennsylvania Railroad, a one-story transit shed 140 feet long and 173 feet wide was constructed at the outshore end of Pier 1, and a 15-ton capacity revolving gantry crane was installed on the south apron of the pier. These improvements cost approximately $750,000.

At the Locust Point Terminal of the Baltimore & Ohio Railroad, extensive improvements were made at a cost of approximately $1,000,000 to afford better accommodations for trucks. A new road was constructed along the inshore end of the piers. Truck docks were constructed at several locations where space permitted. The truck loading platform along the west end of Pier 8 was covered with a canopy. Approaches to Pier 10 were paved to provide additional storage space. At Pier 4 East, two tracks along the east side of the pier were paved to afford better truck access; at Pier 4 West, two traveling gantry cranes of 10-ton capacity were installed. A gear shed and office buildings for use by shipping lines were built in the vicinity of Piers 7, 8 and 9. A large parking lot was built outside of the terminal's east gate and another lot was developed at the west gate for storage of automobiles for ocean shipment, as well as for parking of private vehicles. A restaurant for truckmen was also built by the railroad outside of the east gate. The Baltimore & Ohio Railroad is contemplating construction of two general cargo piers on the south shore of Locust Point when conditions warrant.

At the Port Covington Terminal of the Western Maryland Railway, a ramp was constructed at Pier 9 to afford direct truck access to the upper floor of the pier shed. Galleries had already been constructed to connect the upper decks of Piers 7, 8, 9 and the terminal warehouse, so that the new ramp also serves the upper decks of the other sheds and the warehouse. A loudspeaker system and a dispatcher's office were installed to regulate the movements of trucks within the terminal. At Pier 9 a custom scale was installed and a truck loading platform was built at the east end of the shed.

The Rukert Terminals Corporation recently completed a 500-foot marginal wharf at Lazaretto Point with a 34-foot depth of water alongside. The cost of this facility has amounted to $900,000 to date. Transit sheds and rail services are to be provided in the near future.

Within the Inner Harbor along Light Street, the City of Baltimore completed a bulkhead approximately 1300 feet long which replaced 14 very old shallow-draft berthing facilities. As part of this development, Light Street was widened and improved. This has greatly facilitated movement of vehicular traffic. No recent major improvements were made in the cargo-handling facilities at the Municipal Piers, but these piers and bulkhead structures have been maintained in good physical condition.

In recent years more extensive use was made of mechanized cargo-handling equipment at the Port's general cargo facilities. The railroad companies and stevedoring firms operating at the major terminals acquired or leased since 1949 numerous fork-lift trucks, tractors, trailers, roller conveyors, hand trucks, mobile cranes and other gear. This equipment has expedited handling of general cargo. The total expenditures made in the Port since 1949 for physical improvement of general cargo facilities and acquisition of cargo handling equipment are estimated to be approximately $4,500,000.

EVALUATION OF EXISTING GENERAL CARGO FACILITIES. A re-examination of the Port's facilities indicates that the cargo piers and transit sheds have been satisfactorily maintained and are in good physical condition. As mentioned above, improvements were made to expedite truck movements and cargo-handling operations. However, these improvements represent only part of the modernization program contemplated in the 1949 Master Plan. There are still deficiencies which need to be overcome to enable more efficient and economical functioning of the port. The physical improvements presently required for better efficiency of operations at each major cargo terminal are noted in the following chapter.

The operating capacity of a pier is not only dependent on the physical facilities available and the cargo-handling practices employed, but is also affected by the size and type of ships' cargoes and by the traffic pattern of ships. The operating capacity of a group of piers is largely determined by the ability of the group to accommodate ships during peak traffic periods.

At Baltimore many of the slips between piers are too narrow to permit simultaneous accommodation of modern cargo ships at opposite berths. Moreover, many ships come into port to load or discharge small amounts of general cargo, and idle vessels are often permitted to occupy berths as an accommodation to shipping companies. This does not permit effective utilization of berth space, but it is often necessary for the terminal operators to place the business value of service to shipping lines and shippers above efficiency of berth utilization.

As a practical matter, movement of ships cannot be scheduled to assure very high occupancy of berths for long periods of time. Studies were made of the traffic pattern during several representative months at the major cargo terminals of the Port. It was observed that a similarity exists between the actual distribution of berth occupancies and a theoretical random distribution. With this distribution, it is possible to predict the future traffic patterns that would accompany normal increases in trade activity and to determine the practical operating capacity of each of the Port's general cargo terminals.

Based on actual operating experience, evaluation of physical facilities and cargo-handling practices, and computed optimum berth occupancies, the combined practical operating capacity of the general cargo terminals in Baltimore is estimated to be approximately 3,300,000 tons annually, distributed as follows:

ESTIMATED PRACTICAL OPERATING CAPACITIES,
GENERAL CARGO TERMINALS AT BALTIMORE

General Cargo Terminal	No. of Berths Available		Total Estimated Capacity - Tons per Year
	Deep Sea	Coastwise	
Lower Canton Terminal	8	—	600,000
Pennsylvania R.R. Piers (Including Pier 11 at Canton)	8	2	650,000
Locust Point Terminal	18	6	1,400,000
Port Covington Terminal	7	2	650,000
Total Practical Operating Capacity - Tons per year			3,300,000

The Port's other general cargo facilities, which primarily serve the needs of private industries, handled about 1,100,000 tons of cargo during 1953, a volume considered to be approaching the maximum capabilities of these facilities.

The above estimate of the combined practical operating capacity of the general cargo terminals of the Port exceeds by about 900,000 tons the total of approximately 2,400,000 tons of general cargo type commerce handled at the railroad operated terminals in 1953. It should be noted, however, that at any time one or more of the terminals may be operating at peak levels while other terminals may be operating considerably below capacity. Thus, the combined annual capacity merely indicates a volume which might be handled if the trade is distributed to the terminals in proportion to their capacities. As discussed in Chapter IV, an analysis of present and prospective commerce indicates that the target increase in general cargo commerce by 1975 should be on the order of 2,400,000 tons annually over the railroad operated terminals and 700,000 tons over other facilities in the Port. To accommodate this additional cargo, the facilities of the Port will have to be expanded. A program for expansion of the Port's general cargo terminals is presented in Chapter VI.

WAREHOUSE FACILITIES. Warehouses are primarily intended for the storage of general cargo for lengthy periods of time, as contrasted with transit sheds which store cargo for short periods during transfer of that cargo between land and water carriers. For effective port operations, warehouse storage should be at or adjacent to the piers served. In this way the distance of movement to and from shipside will be kept to a minimum.

More than 250,000 square feet of storage space was added to the warehouse facilities in Baltimore since 1949, and further expansion is contemplated. However, there was no appreciable increase during recent years in warehouse space at the major general cargo terminals of the Port. Of approximately 4,000,000 square feet of space available in Baltimore for long-term storage, about 80% is located more than one half

mile from the general cargo piers and cannot be considered as fully effective pierside storage. Although the warehouse facilities are generally adequate in capacity for the volume of cargo passing through the Port, more economical operation would result if space were closer to the piers to be served. The improvements in pierside warehouse facilities required for better functioning of the Port are essentially the same as those found to be desirable in the 1949 Survey. The recommended additions to pierside warehousing are discussed in Chapter VI.

FERTILIZER FACILITIES. Baltimore is one of the most important fertilizer manufacturing and shipping points in the country. The facilities for this trade at the Port comprise twelve large waterfront fertilizer and chemical plants. Several plants have also been developed at nearby inland points. These facilities are adequate to serve the needs of the Port.

LUMBER FACILITIES. There are 15 wharves, piers and bulkheads designated in the Port for the receipt and storage of lumber. However, several of these facilities are located along bulkheads and at oil piers which are not suitable for berthing of ships. This necessitates expensive re-handling of lumber by lighter or truck from deepwater berths to storage yards.

For many years, increasingly large quantities of lumber have moved to Baltimore by water from Southeastern and Pacific Coast ports. The development of this trade has followed the growth of population and industry in Baltimore and its environs. The existing lumber-handling and storage facilities are now proving to be insufficient in capacity, and at least one leading lumber terminal operator contemplates expansion of pier and storage facilities. In light of these needs, additional pier and storage facilities should be developed for the handling of lumber.

BANANA TERMINAL. Baltimore has a modern banana import terminal located at Pier No. 1 at the Inner Harbor. This terminal is equipped with sheds, electric banana unloaders, and conveyor belts.

MISCELLANEOUS WATERFRONT FACILITIES. Industrial waterfront facilities at Baltimore are varied and the requirements of each industry are usually unique. In view of the past history of developments, it is reasonable to expect improvements will be made by industry as further needs occur. In recent years the Baltimore and Ohio Railroad installed pipelines at their Pier 4 for the transfer of liquid latex to the railroad's latex warehouse inshore of the pier, and constructed truck loading platforms at the warehouse to facilitate handling of the latex. The Canton Company recently increased the capacity of its facilities for the storage of nitrate of soda. The Consolidated Gas Electric and Power Company of Baltimore is now constructing a power-generating station, with an initial capacity of 125,000 kilowatts, and developing wharf facilities at a location two miles below Hawkins Point. A marginal wharf, warehouse and lithography plant for use by the National Can Co. is now being constructed at a cost of $3,200,000 under the financial assistance program of the City.

OTHER FACILITIES AND SERVICES

STEVEDORING. Fourteen firms at the Port engage in general stevedoring operations and three firms specialize in handling bulk cargoes. The local longshore labor pool is organized in the International Longshoremen's Association and is composed of personnel skilled in the handling of all types of cargo. It is sufficient in size to meet the peak demands of shipping through the Port. The Port has an exceptional record of freedom from labor disputes and controversies which contributes to the stability of the Port's operations and to the attraction of commerce. Union hiring halls are operated contiguous to the major areas of longshore operations. They make possible the quick dispatch of labor to piers to meet suddenly arising demands.

HOISTING FACILITIES. The harbor is well provided with shore-based mobile and stationary hoisting facilities ranging in lift capacity to 50 tons, and with floating cranes and heavy-lift floating derricks having capacities up to 150 tons.

FLOATING EQUIPMENT. There are available in the Port approximately 70 tugboats; 235 lighters, barges and scows; 20 tank barges; 35 car floats; various coal-bunkering machines; and floating machine shops and welding boats for ship-repair work. This floating equipment is generally adequate for the intended purposes. During certain periods of peak traffic, however, there have been heavy demands on the Port's lighterage facilities, so that it probably will be desirable to expand these facilities progressively as port commerce increases in the future.

SHIPBUILDING AND REPAIR. Baltimore's shipbuilding and repair facilities are extensive and diversified. They contribute directly and effectively to the overall economic welfare of the Port and have been influential in establishing Baltimore as a leading marine construction and repair center. There are 12 ship-building and ship-repair plants located throughout the harbor. In recent years these plants have employed as many as 12,300 persons. They include two graving docks, seven floating drydocks, eleven shipways, nine marine railways and numerous outfitting piers and shops.*

In order to keep pace with recent trends toward construction of larger and deeper-draft tankers and ore carriers, the shipbuilding and repair facilities of the Port have been expanded in recent years to accommodate vessels 600 feet or more in length. Bethlehem Steel Company lengthened its largest floating drydock from 600 feet to 690 feet, and its graving dock from 581 feet to 590 feet. The Maryland Drydock Company also lengthened its floating drydock, graving dock, and outfitting piers. The Oriole Ship Ceiling Company improved its storage yard at the shore end of its 400-foot timber pier. Although the Port's facilities appear to be adequate at present for the vessels now using the Port, further

* The graving docks are 590 ft. and 460 ft. in length with depth of water over keel blocks of 21 ft. and 20 ft., respectively. The floating drydocks have lifting capacities of 6,000 to 20,000 tons, the largest being 690 ft. long and 100 ft. wide with 22.5 ft. of water over keel blocks. The shipways are from 150 ft. to 650 ft. in length. The marine railways have capacities ranging from 100 to 1800 tons.

expansion will be needed to accommodate new bulk carriers over 700 feet in length, several of which are now in operation.

FUMIGATION FACILITIES. A modern 3700-cubic-foot fumigation chamber is now available at the Port for treatment of commodities requiring this service. It is operated by the Rukert Terminals Corporation with government supervision and inspection.

FIRE PROTECTION. Stationed at strategic locations throughout the Port are four fire-fighting vessels, a fireboat tender, and two foamite pumping engines, all operated by the Fire Department of the City of Baltimore. In addition, two harbor patrol boats operated by the Police Department, and a tugboat operated by the Bureau of Harbors are equipped for firefighting.

ICEBREAKERS. The municipally-operated icebreaking equipment serving Baltimore harbor and its approaches consists of the sidewheelers "Annapolis" and "F. C. Latrobe", both of which are more than sixty years old, and the tug "Baltimore". Two relatively modern Coast Guard vessels provide icebreaking services in the approaches to the Port.

The "Annapolis" is owned jointly by the State of Maryland and the City of Baltimore. In 1950 it underwent extensive repairs at a cost of approximately $56,000. Other than repair and maintenance, no improvements have been made in the icebreaking equipment of the Port since 1949, when it was found that acquisition of a new, modern icebreaker would be in the best interests of the Port. The situation has not changed. Improvements in icebreaking service would provide more expeditious passage to and from the Port and in Chesapeake Bay when ice conditions prevail. The resulting advantages to the Port would justify acquisition of a new icebreaker for the Port. It is estimated that a modern icebreaker would cost approximately $2,000,000.

SHIP-TO-SHORE COMMUNICATIONS. Radio-telegraph service for communication with ships within a 500-mile radius of Baltimore is provided on a 24-hour basis by radio Station WMH, operated by the City's Bureau of Harbors. The Bureau also operates Station WJY for local radio-telephone communication between the shore and the Bureau's floating equipment in the harbor. In an emergency, Station WJY can communicate directly with ships as far away as the Chesapeake and Delaware Canal to the north and Norfolk to the south.

For several years prior to 1951 the Port was equipped with an experimental radar control unit which was operated jointly by the Bureau of Harbors and an electrical equipment manufacturing company. Due to the demands of the national defense program, these services were discontinued. Such a radar installation is valuable as an aid to navigation during periods of poor visibility. The reactivation of this facility would be desirable in the interests of the Port.

SHIP-REPORTING SERVICES. Reporting of ship movements to and from a port is essential for efficient pilotage operations, the allocation of anchorage and berthing space for vessels, and numerous activities of shipping interests. The Steamship Trade Association recently undertook the sponsorship of the Maritime Exchange, which acts as a clearing house for ship-reporting services in the Port. Due to budgetary limitations, the Exchange does not operate at night and, except for lookout service at North Point, does not provide services during Saturdays and Sundays. At such times, radio Station WMH and the Association of Maryland Pilots are called on for information regarding ship movements. For the best interests of the Port, it is desirable that a central ship-reporting agency be operated on a 24-hour-a-day basis.

WATERWAYS OF THE PORT

NAVIGATION CHANNELS AND ANCHORAGES. The channels and anchorages within Baltimore Harbor are shown on Plate 5, and both project and actual dimensions of the waterways are summarized in Appendices V-D and V-E. Access to the harbor from Chesapeake Bay is afforded via the Craighill Entrance of the Main Channel and also via the connecting or cut-off channel from the Inland Waterway.

The quantities and expenditures involved for maintenance dredging and for deepening of the harbor and its approaches since 1949 are shown in Appendices V-F and V-G. There has been no appreciable increase in silting of the Harbor in recent years.

Since 1949, the main channel from Chesapeake Bay to Fort McHenry was deepened by the Federal Government to 39 feet. Previously, the depth varied between 32 feet and 38 feet. The Federal Government also deepened Riverview Anchorage No. 2 (designated by the City as Anchorage No. 3-A) from 22 feet to 30 feet. These improvements conform in part to the requests made by local shipping interests in 1949 and to the recommendations made in the 1949 Survey. However, all of the improvements recommended at that time have not been scheduled. In light of recent trends towards construction of large bulk carriers ranging upward to 40 feet in draft, further channel improvements will be required.

In June 1953, a public hearing was held by the U. S. Corps of Engineers in Baltimore relative to improvements desired by maritime interests. Extensive improvements, covering the main channel in Chesapeake Bay, the main and branch channels in the Harbor, and the Port's anchorage areas, were requested at that time. The specific channel dimensions which were sought are noted in Appendix V-D.

Maritime interests also requested that the U. S. Corps of Engineers give serious consideration either to deepening part of the Northwest Branch to 39 feet, or to maintaining this part of the harbor if and when it is deepened to 39 feet by the City of Baltimore. In addition they asked that a new deepwater anchorage 39 feet deep, 2000 feet

wide and 4000 feet long be provided on the north side of the main channel opposite the Quarantine Anchorage. A review report on the requested improvements is now being prepared by the U. S. Corps of Engineers' office in Baltimore. A detailed presentation of facts providing financial justification for the requested improvements should be made as soon as possible by local maritime interests. This would aid the District Engineer in his review by furnishing him information not otherwise available.

As indicated in Appendix V-H, there has been an increase during recent years in the number of vessels of 35-foot draft or more which have visited the Port. While it might be found that present traffic is insufficient to justify all of the improvements recently requested, future requirements of the Port must be considered in planning these improvements. To permit more frequent calls by deeper-draft vessels, the waterways of the Port will have to be widened and deepened generally in accordance with the improvements requested. Accordingly, representation for improvement of the Port's waterways should be intensified.

In order to provide safe and expeditious passage for large vessels at present, it is recommended that the following improvements be made:

1. The main channel in Chesapeake Bay from the Virginia Capes to Fort McHenry should be deepened to at least 40 feet.
2. The main harbor channel from Craighill Entrance to Fort McHenry should be widened to at least 800 feet.
3. The connecting channel to the Inland Waterway should be widened to 500 feet and deepened to 35 feet. When the Chesapeake and Delaware Canal is widened and deepened, the connecting channel should be widened to 600 feet.
4. Certain anchorages should be deepened and extended, as outlined in the following paragraphs, to accommodate additional deep-draft vessels.

IMPROVEMENTS TO ANCHORAGES. At present, there are no public anchorages in the Port capable of accommodating vessels having more than 33-foot drafts. Most of the existing anchorages were established originally for vessels of a smaller size than those now in general use. Congestion at Quarantine Anchorage and inadequate depths in that area for modern deep-draft tankers and ore carriers emphasize the need for a new deepwater anchorage in close proximity to the Quarantine Station. Such a location would also be convenient for vessels docking in the Curtis Bay area. This new anchorage should be 2000 feet wide, 4000 feet long, and 39 feet deep.

The Port's deepwater anchorage facilities could be further improved by extending and deepening Anchorage No. 5 or Anchorage No. 6. Since only one side of Anchorage No. 5 is bordered by shallows, less maintenance dredging would be required at this anchorage than at Anchorage No. 6. To enter the former, however, incoming vessels would have to

cross the main channel, a maneuver which may prove at times to be hazardous in the face of outgoing traffic. Anchorage No. 6 lies at the east side of the main channel for incoming vessels, which constitute the majority of those seeking anchorage berths. However, the enlargement of this anchorage may have to be limited because of its proximity to the main seaplane lane within the harbor. Inasmuch as recent developments in large jet-powered seaplanes indicate the probable increased usage of this type of air transport in the near future, the area presently designated for seaplane operations should be reserved for that purpose.

Considering the advantages to navigation at Anchorage No. 6 as compared to Anchorage No. 5, it is recommended that the former area be deepened to 39 feet and enlarged to provide the additional deepwater anchorage needed in the Port. However, in planning its extension, consideration should be given to the present and future requirements of air transport. If it will not be possible to enlarge Anchorage No. 6 to the desired width of 2000 feet and length of 4000 feet, additional deepwater areas should be created at Anchorage No. 5.

CHESAPEAKE AND DELAWARE CANAL. The depth of the Chesapeake and Delaware Canal at present is only 27 feet and its effective width is reduced to 165 feet at some points by encroaching bridge abutments. Improvement of the Canal, its approaches, and the connecting channel to Baltimore is necessary to accommodate deep-draft vessels and to allow Baltimore to realize fully its potential in domestic and foreign commerce. Sailing distances from Baltimore to European ports, as well as to North Atlantic U. S. ports, are considerably shorter via the Canal than by way of the Virginia Capes. Improvement of the Canal to permit transit of fully-loaded deep-draft vessels would result eventually in an increase in the number of direct sailings between Baltimore and Europe, thus enhancing the foreign trade of the Port. Coastwise trade would be similarly benefited.

Based on representations of maritime interests and governmental agencies, the Congress of the United States recently authorized improvement of the Canal to permit utilization by modern deep-draft vessels, but funds have not as yet been appropriated to initiate the improvements. Under the plan approved by Congress, the Canal is to be deepened to 35 feet and widened to 450 feet; alignment of the Canal is also to be improved. The planned reconstruction of bridge crossings would provide vertical clearances of 135 feet and a horizontal clearance at least 500 feet. Every effort should be made to have funds allocated for these improvements at the earliest possible time.

POLLUTION IN THE HARBOR. Pollution is a deterrent to the expansion and development of certain types of facilities, particularly of industries requiring clean salt water. Pollution of Baltimore Harbor by drift and oil sludge has been effectively minimized by regular inspection of sources of such pollution, enforcement of regulations to prevent dumping of wastes, and removal of drift and oil by the U. S. Corps of Engineers and the municipal Bureau of Harbors. The interests of the Port require that these activities be continued.

Pollution by domestic sewage has not been of serious concern in recent years. Pollution of the Harbor will be further reduced with completed and scheduled improvements of facilities for collection and treatment of domestic sewage and some industrial wastes.

Although many industrial firms treat their waste, some do not. Harmful industrial wastes cannot be handled in the municipal sewage system because of the adverse effects on the operation of treatment plants. A detailed study of pollution in Baltimore Harbor by Johns Hopkins University was completed recently under the Patapsco Research Project, which was sponsored by the State of Maryland with grants from industrial organizations. It is understood that the results of that survey are being considered with a view to controlling discharge of harmful industrial wastes into the Harbor.

HIGHWAYS AND STREETS SERVING THE PORT

The existing highways and major thoroughfares serving the Port and those proposed for development by city, county and state agencies are shown on Plate 2. The major additions made since 1949 to the intercity arterial network are the Chesapeake Bay Bridge and the Baltimore-Washington Expressway. U. S. Route 40 to the west is being relocated and converted to a dual highway. The Jones Falls Expressway, joining the Baltimore-Harrisburg Expressway, will soon be under construction. Improvement of roads and bridges throughout the State is progressing under the State's twelve-year road improvement program.

A new State road paralleling and supplementing U. S. Route 140 to the northwest, and a circumferential road outside of the city limits of Baltimore have been recommended by the Baltimore County Planning Commission, but at present these improvements have been subordinated to other needs. Recommendations have also been made in recent years for the construction of a new expressway to Philadelphia. Through the sale of toll revenue bonds, financing was recently arranged for the construction of a vehicular tunnel under the Patapsco River with approach connections to the principal highways serving the Port.

Considerable improvements have been made since 1949 to the thoroughfares within the City of Baltimore. The more important of these which have expedited the flow of traffic in the Port are:

1. Improvement and widening of Light Street.
2. Construction of a bridge at Potee Street over the Middle Branch of the Patapsco River.
3. Construction of railroad grade crossings and underpasses at Asquith Avenue, Pulaski Highway, Russell Street, Mulberry Street, Hanover Street, and other major highways serving the Port.
4. Completion of the Edmunson Avenue-Hilton Street interchange and channelization of the Pulaski Highway. Monroe

Street was extended from Washington Boulevard to the Washington Expressway. Work was initiated on the O'Donnell Street viaduct.

5. More than 700 miles of streets have been built or resurfaced in Baltimore during the past five years.

Since 1949, approximately 30 miles of streets directly contiguous to the waterfront facilities of the Port were resurfaced. As recommended in the 1949 Survey, various major thoroughfares serving the piers were repaved, including Frankfurst and Chesapeake Avenues in the Curtis Bay area, access roads to the Locust Point Terminal of the Baltimore and Ohio Railroad, Pratt Street and Boston Streets along the north side of the Inner Harbor, Clinton Street, and other streets in the Canton area. Newkirk Avenue, serving the Canton area, was widened six feet and repaved. In addition, almost all of the existing approach streets from the center of the city to the waterfront have been repaved. The one-way traffic pattern and staggered signal lighting system established in the commercial district, together with a ban on vehicular parking in these areas, have relieved traffic congestion in the Port.

RECOMMENDATIONS FOR STREET AND HIGHWAY IMPROVEMENTS. Plans should be developed for a wide and efficient thoroughfare close to and paralleling the entire waterfront, with initial improvements being made along the Northwest Branch of the Harbor. The program of improving and resurfacing streets in the port area should be continued. Grade crossings should be constructed, railroad tracks relocated and new routes established where necessary to eliminate interference of truck and railroad traffic, particularly where prolonged switching operations are likely to occur. Improvement of highway facilities in the Hawkins Point and Sollers Point areas should be provided for potential industries and new housing developments.

Further improvements will be required to facilitate truck traffic. Of primary importance is the extension of Newgate Avenue in the Canton Area to Broening Highway. Representations to allow truck traffic to use the Federal portion of the Baltimore-Washington Expressway should be intensified. In the selection of routes for approaches to the proposed Patapsco River tunnel crossing, care should be taken to minimize disruption of existing waterfront facilities and to prevent misuse of waterfront properties which are needed for future development of the Port.

The proposed improvements to highways and thoroughfares are for the general public benefit and should properly be financed from general highway and street funds.

CHAPTER VI

MASTER PLAN FOR DEVELOPMENT OF PORT TERMINAL FACILITIES

The terminal improvements required to enhance the Port's competitive position can be accomplished most effectively through the development and use of an approved long-range plan of modernization and expansion. A plan of this type would provide a broad and comprehensive framework which would encompass and coordinate plans of individual terminal owners and, in general, serve to direct future development to the best advantage of port interests and the Port as a whole. It would comprise a general program which would serve as a sound base for all future detailed plans for improvements and development, and yet retain sufficient flexibility to permit periodic readjustment without jeopardizing its fundamental integrity. To be effective, however, the Master Plan must recognize existing conditions and limitations (some of which are not susceptible to change) and must receive the cooperative support of waterfront interests.

The Master Plan for Port Development established in the 1949 survey was re-examined in the light of present needs. Based on the findings of the current survey, the present and future requirements of the Port are, with some exceptions, substantially the same now as in 1949. The primary deficiencies to be overcome are in the general cargo facilities of the Port. A decrease in general cargo trade was evidenced in recent years at Baltimore as well as at other ports, but there is still a need for improvements in order to enhance the competitive position of the Port. The decrease of trade affects only the degree of urgency for some of the improvements which were found to be essential in the first stage of the 1949 program.

RECENT AND PROPOSED IMPROVEMENTS OF GENERAL CARGO FACILITIES AT COMPETING PORTS

Realizing that many existing general cargo piers are becoming obsolete due to new developments in ship, rail and truck transport, port interests throughout the United States are improving these facilities in accordance with specific master plans to perpetuate and enhance their competitive trade positions.

Expenditures made during recent years and those proposed for future construction of major general cargo facilities at competing East Coast and Gulf Coast Ports are described briefly below:

The Port of Boston Authority financed through sale of bonds $13,500,000 of new construction, and proposes further development of general cargo facilities at an estimated cost of $14,300,000.

The Port of New York Authority financed, through bond issues totaling $38,000,000 since 1948, extensive improvements and rehabilitation of existing facilities at Port Newark and Hoboken. The City of New York completed construction of Pier 57 at a cost of $12,000,000 as part of a long-range plan to improve the City's 180 miles of waterfront.

The City of Philadelphia's Pier 80 was completed in 1951 at a cost of $6,600,000. Other improvements estimated to cost $2,200,000 are proposed for the near future and a $5,000,000 three-berth marginal wharf is proposed as part of the City's six-year port improvement program.

The Georgia Ports Authority completed construction of the Savannah State Docks in 1952 at a cost of $6,000,000. This project was financed through State-supported bonds.

Six new state docks were completed at Mobile, Alabama, at a total cost of $5,400,000 provided from state funds.

At New Orleans, four wharves were constructed between 1948 and 1952 at a cost of $3,800,000; a commodity warehouse and wharf were completed in 1953 at a cost of $3,500,000, and a wharf estimated to cost $2,500,000 is now under construction. The reconstruction of several existing wharves is now under way at an estimated cost of $4,500,000. All of the recent improvements at this Port have been financed by cash reserves and bonds of the Board of Commissioners of the Port of New Orleans.

Extensive improvement and construction of new general cargo facilities were either recently completed, are under way, or are proposed at Morehead City and Wilmington, N.C.; Charleston, S.C.; Gulfport, Miss.; and Brownsville, Texas. Expenditures for improvements at each of these ports will range from $1,000,000 to $8,000,000.

As noted in the previous chapter, expenditures made for improvements in the general cargo facilities at Baltimore during the past five years have amounted to $4,500,000, only $900,000 of which was for new pier or wharf construction. Although new piers are contemplated by some port interests, none has yet been programmed.

REQUIREMENTS OF MODERN GENERAL CARGO TERMINALS

Increased attention is being given to joint rail and truck transportation, joint truck and ship transportation, "sea-train" transport, and use of shipping containers, as described in Chapter IV. Sea-train and trailer-ship services require special terminal facilities. Ample waterfront sites exist at Baltimore for new developments of this type, especially at Hawkins Point, Sollers Point and the Arundel area. The layout of new general cargo terminals of the conventional type should be sufficiently flexible to accommodate such evolutionary changes as can be handled at those facilities, including trailer-rail operations, larger cargo vessels, and similar prospective developments in equipment and methods. The basic criteria for modern marine terminals of the conventional type provide considerable flexibility for innovations. As stated in the 1949 report, a modern and efficient general cargo pier should meet the following requirements:

1. Berths should be at least 550 feet long and preferably 600 feet long, with a depth of water alongside of at least 35 feet.
2. Slips should be at least 300 feet wide.
3. Aprons should be wide enough to accommodate at least two railroad tracks.
4. The transit shed opposite any berth should be adequate for the storage of one complete outbound and one complete inbound cargo for the vessel using the berth. For modern cargo vessels carrying 9,000 tons of freight, a transit shed should have at least 90,000 square feet of floor space, allowing one-third of the area for aisles, roadways, etc. Floors should be designed for loads of at least 600 pounds per square foot.
5. Pierside warehouse space should be capable of accommodating at least 5% of the annual tonnage of general cargo commerce which lends itself to long-term warehousing.
6. Depressed tracks and truck docks should be provided for easy loading of railroad cars and motor trucks.
7. Good access should be available to railroad yards and highway networks.
8. Each terminal should be provided with sufficient quantity and variety of mechanical cargo handling equipment to carry, stack and load the anticipated types and volumes of cargo.
9. Where feasible, designs should facilitate remodeling and expansions to accommodate future changes in land and sea transport.

The type and amount of cargo handling equipment required for optimum efficiency in pier operations depends on the traffic pattern of ships, the size of ship's cargoes, the various types of cargo to be handled, and the types of land and sea transport to be served. The criteria for cargo-handling equipment cannot be generalized and can only be determined on evaluation of the particular needs of each terminal facility.

In the United States, the use of ship's gear has generally proven more economical than shore-based gantry cranes in normal general cargo handling operations. However, for special cargoes such as steel products, pipe, etc., gantry cranes of medium lift capacity (6 to 10 tons) afford savings in operating costs at terminals handling large, and fairly consistent movements of these commodities.

With efficient physical layouts, optimum operating conditions, maximum use of mechanized cargo-handling equipment, and more or less constant occupancy of berths, the general cargo terminals can attain capacities as high as 250,000 tons annually per berth for finger piers, and up to 400,000 tons annually per berth for marginal wharves. As a practical matter, however, berth occupancies can rarely be maintained at very high levels for sustained periods, except at a terminal which possesses a large number of berths and if, during peak periods of berthing, vessels can afford to wait at anchor for berth assignments. Consequently, practical operating capacities will vary from terminal to terminal and are usually considerably less than the optimum values given above.

Only four of the 23 general cargo piers of the Port substantially meet the requirements for modern piers (Appendix V-C). The practical operating capacities of the existing piers are considerably less than the optimum capacities possible at modern facilities.

MASTER PLAN - CONSTRUCTION STAGES

Included in Stage I of the plan presented below are the improvements in transit and warehouse storage, vehicular access, and use of mechanized handling equipment which are required at this time to permit more efficient operations of the Port. It is anticipated that these improvements would be immediately effective in the promotion and stimulation of trade. In Stage II, existing structures would be further improved and expanded to provide a greater capacity to handle the additional general cargo commerce which might be secured. Recommendations are made in Stage III for long-range development of modern marine terminals which would not only meet the increasing requirements of waterborne trade in the future but would also attract new commerce by affording modern and efficient facilities for new types of shipping. Rigid adherence to the stage plan of port improvement is not necessary nor is it essential to follow in detail the pattern of improvements proposed in the Master Plan (Plates 6 and 7).

STAGE I IMPROVEMENTS. To improve the efficiency of Port operations, the following recommendations are made for alterations and improvements to general cargo facilities during Stage I:

a. Lower Canton Terminal

1. Improve the access road along existing transit sheds.
2. Erect a new transit shed with 90,000 square feet of space on Pier No. 10 of the Retainer Pier.

3. Provide additional mechanical cargo-handling equipment for operations in the new shed.
4. Widen Newgate Avenue, Leland Avenue and Haven Street.

The Canton Terminal Pier No. 10, which is currently operated at a low level of capacity, is the only major general cargo pier in the Port where transit shed facilities can be developed without construction of new berthing structures. Based on the actual traffic pattern of ship arrivals as they would normally be expected, the improvements recommended above will add approximately 150,000 tons to the annual practical operating capacity of the Lower Canton Terminal. High berth occupancies would, of course, increase this amount.

b. *Pennsylvania Railroad Piers at Upper Canton*

1. Construct a storage warehouse of 15,000 tons capacity on the east side of Clinton Street adjacent to Pier No. 1.

This would permit economical movement of stored goods to and from the pier by mechanical handling equipment.

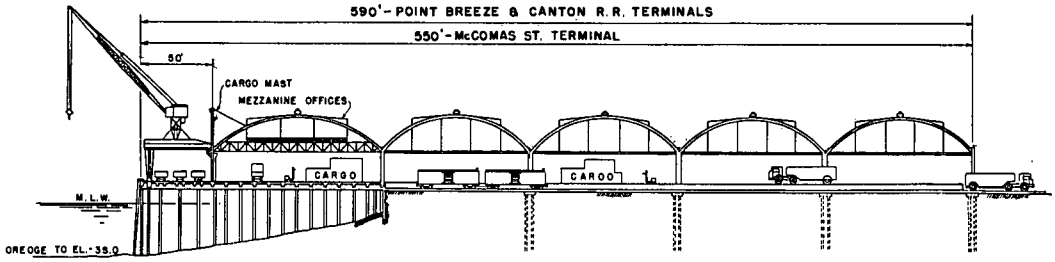
c. *Locust Point Terminal*

In the 1949 survey it was recommended that during Stage I, extensive improvements be made in the truck loading facilities and access roads at the Locust Point piers. Substantially all of the improvements programmed for these piers in the 1949 survey have been completed during recent years and other improvements will be completed soon. Further improvement of physical facilities to increase efficiency of cargo-handling operations to the extent of razing existing structures and constructing new piers is neither warranted nor necessary at this time. However, more extensive improvements will be required in the future and these are programmed in Stages II and III.

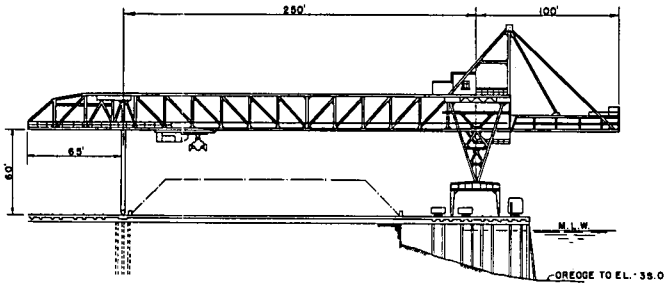
d. *Port Covington Terminal (McComas Street Piers)*

1. Provide a loading platform at Pier No. 7.
2. Remove the fire hydrants from the roadway behind Warehouse "A".
3. Widen the roadway at the rear of Pier No. 9.
4. Build a warehouse of 12,000 tons-capacity adjacent to existing Warehouse "A".

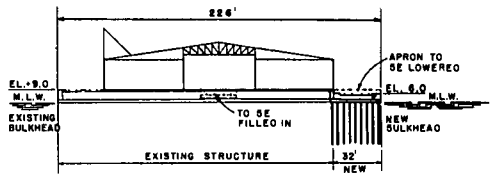
Upon the removal of the Light Street Piers, the companies which had used them were able to transfer their operations to the Pratt Street Piers and to other existing facilities within the Port. The Municipal Piers Nos. 1 through 6 are currently used for the import of bananas, storage of construction materials, warehousing, mooring of excursion boats, and terminal operations of coastwise passenger-cargo ships. Although old, the municipal piers appear to serve reasonably well the special purposes of most of their occupants. It is therefore recommended that improvement of the Pratt Street facilities be made in Stage II, being deferred in favor of improvements to the major general cargo facilities of the Port.



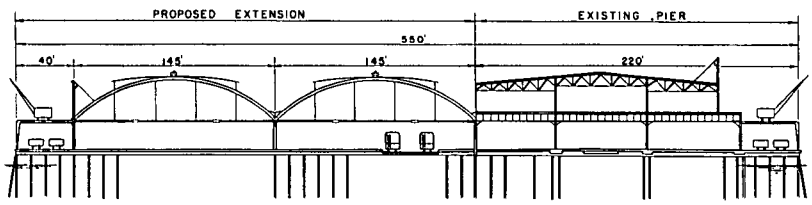
POINT BREEZE, CANTON R.R., & McCOMAS ST. TERMINALS



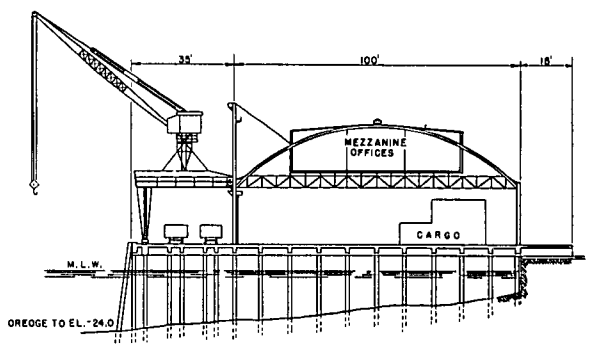
POINT BREEZE ORE TERMINAL



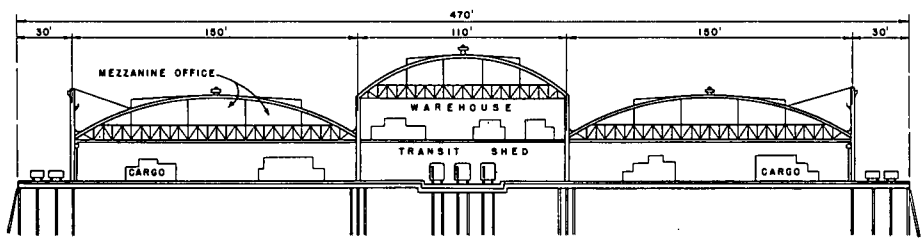
WESTERN MARYLAND RY. - PIER 8



PENNSYLVANIA R.R. - PIER 1



PRATT ST. TERMINAL



BALTIMORE & OHIO R.R. PIERS

PLATE 6

DECEMBER 1954

THE PORT OF BALTIMORE

PROPOSED PIER IMPROVEMENTS
TYPICAL SECTIONS

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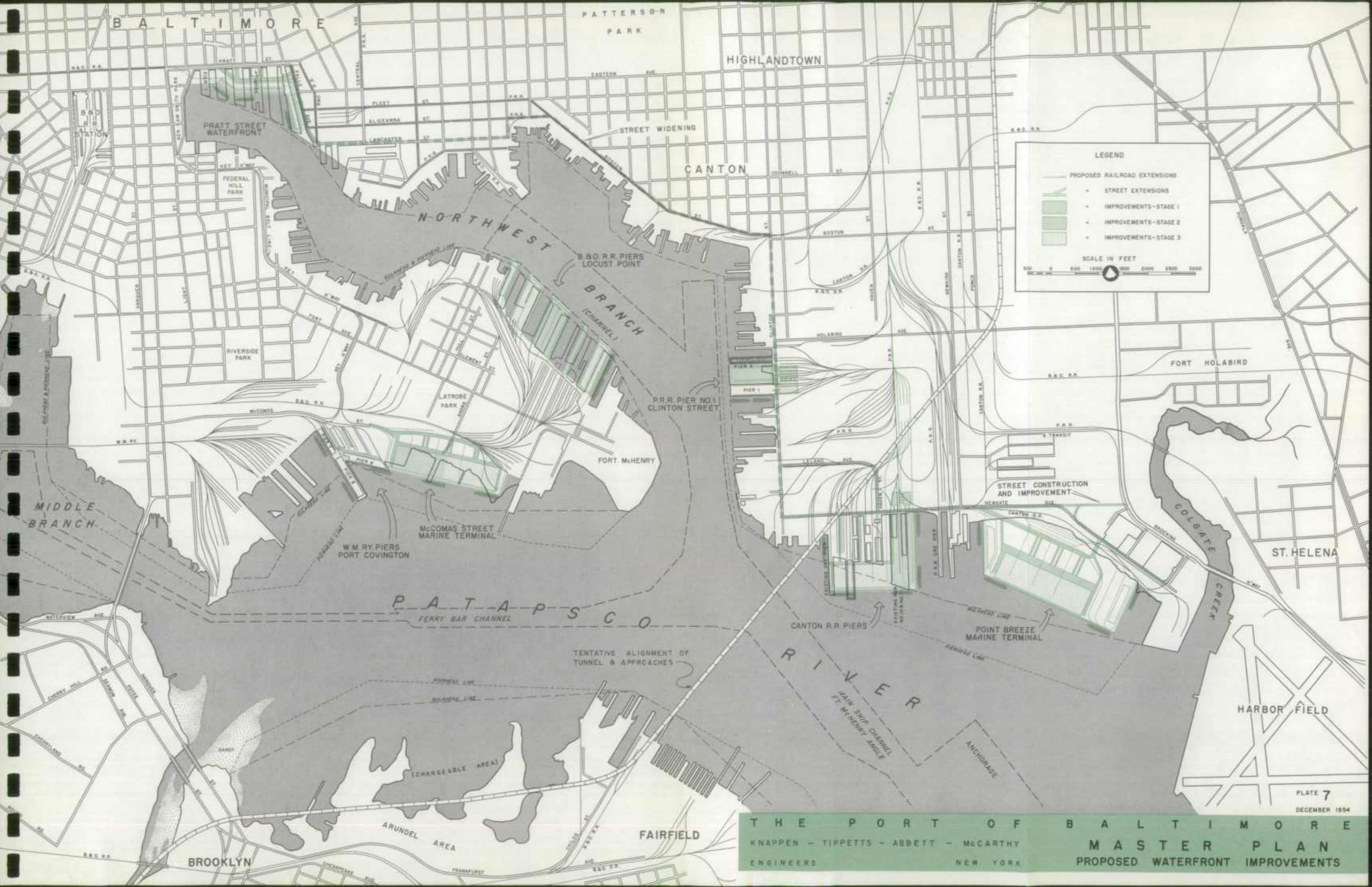

PLATE 7

DECEMBER 1954

THE PORT OF BALTIMORE

KNAPPEN – TIPPETTS – ABBETT – McCARTHY

ENGINEERS NEW YORK

MASTER PLAN

PROPOSED WATERFRONT IMPROVEMENTS

The cost of the improvements recommended for Stage I is esmated at approximately $7,100,000 (Table VI-1).

In addition to physical improvements, modifications in port practices and procedures are desirable to improve further the efficiency and economy of cargo-handling operations in the Port. More extensive use should be made of mechanical cargo-handling equipment and palletization. In particular, there is a need for additional fork-lift trucks, tractors and trailers at those piers where trucks are accommodated only at the inshore end of the piers. Greater use of gravity roller conveyors should be made by truck transport in handling of packaged goods.

Trucking firms and local industrial firms engaged in truck transport should provide a helper, in addition to the driver, to facilitate loading and unloading operations. Consideration should be given to establishing a labor pool for this purpose and to revising existing regulations to permit stevedores to handle cargo to and from trucks.

The pier numbering system of the Port, with its many repetitions is confusing and frequently the cause of misdirection of trucked cargo. Consideration should be given to establishing a consecutive numbering system in accordance with the pier designations of the U. S. Corps of Engineers.

Narrow streets and lack of adequate vehicular parking facilities are causes of serious traffic congestion. This situation should be improved and more truck parking facilities should be developed adjacent to piers, particularly along the Northwest Branch.

STAGE II IMPROVEMENTS. The first step in the expansion of the Port's general cargo facilities to accommodate increases which may be secured in commerce should be the construction of terminal facilities conforming as fully as possible to the criteria established previously for a modern and efficient terminal. Construction of a new and efficient terminal, as compared to modification and improvement of existing facilities, would result in operating economies to shippers and carriers, thereby stimulating the solicitation of new commerce. The new facilities and improvements recommended in Stage II are as follows:

a. *Port Covington-McComas Street Terminal*

1. Construct a new marginal wharf approximately 1100 feet long.
2. Construct a transit shed having at least 250,000 square feet of storage area. (Provision should be made in the layout for future expansion of the transit shed on the inshore side to provide additional transit and warehouse storage as may be needed.)
3. Provide cargo-handling equipment for operation of the proposed wharf and shed.

Of all the terminals in the Port, that at Port Covington has been operated most consistently during recent years

at or near capacity. There will be a need for expansion of facilities at the Port Covington area in the near future. It is recommended therefore that the development of new facilities in the Port to accommodate anticipated increases in commerce be initiated in this area. The facility proposed would increase the annual practical operating capacity of the Port Covington-McComas Street Terminal by approximately 500,000 tons.

The area along McComas Street adjacent to Pier No. 9 of the Port Covington terminal is ideally suited for this purpose. It is in close proximity not only to the rail facilities of the Western Maryland Railway and the Baltimore & Ohio Railroad, but also to the developed waterways of the Port. Plans have been developed by the Western Maryland Railway for the construction of a marginal type wharf in this area comparable to the facility recommended above. It is understood that negotiations are now under way with the City of Baltimore, owners of the McComas Street property, for the development of the proposed improvements.

b. *Lower Canton Terminal*

1. Widen the Retainer Pier (Pier Nos. 10 and 11) 168 feet eastward to a total width of 540 feet and erect 550,000 square feet of additional transit sheddage.
2. Construct a storage warehouse of 30,000 tons capacity on Newgate Avenue opposite the Retainer Pier.

Upon completion of the expanded pier and the new warehouse, the number of berths at the Retainer Pier would be increased to seven (three on each side and one at the outer end). The practical operating capacity of the Retainer Pier would be increased by at least 750,000 tons annually.

c. *Pennsylvania Railroad Piers at Upper Canton*

1. Remove Pier No. 6 and widen Pier No. 1 from its present 223 feet to a total of 550 feet, and construct 320,000 square feet of sheddage.
2. Add a warehouse of 15,000-ton capacity opposite the Pier No. 1 extension.

Pier No. 6 is an old timber pier and the slip between Pier No. 1 and Pier No. 6 is too narrow to permit effective use of all berths by modern cargo vessels. The widening of Pier No. 1 would be a better investment than attempting to replace Pier No. 6. Upon completion of the Pier No. 1 improvements, the number of berths would be increased to seven and the practical operating capacity at this terminal would be increased by about 400,000 tons annually.

d. *Locust Point Terminal*

1. Remove existing superstructures of Piers Nos. 6 and 7 and construct a single, large, modern pier (see Plates 6 and 7).

The existing piers are extremely narrow and inefficient for modern vessels. The new pier would be 1200 feet long and 470 feet wide, providing four 600-foot long berths. Its

main deck would be supported by the present substructures. New grain galleries connecting to the existing elevator would supplant the existing grain-loading facilities. This improvement would provide an increase of 500,000 tons in practical general cargo capacity.

e. *Municipal Piers Nos. 1 through 6 along Pratt Street*

1. Construct marginal wharves and transit sheds to replace the Municipal Piers along Pratt Street.
2. Construct a marginal wharf and transit shed along the bulkhead parallel to Falls Avenue.
3. Improve the bulkheads and streets in these areas.

The usefulness of the Pratt Street piers for coastwise trade is severely restricted by the narrowness of slips, lack of adequate upland area for warehousing and roadways, and the inadequacy of maneuvering area for ships in the approaches to the piers. Many of the piers are antiquated, requiring continual excessively costly maintenance. The construction of a marginal wharf to replace these piers would overcome these conditions and permit the transshipment of a much larger volume of coastwise trade than can be handled at the proposed facilities. This capacity is vastly greater than can now be achieved at the Pratt Street piers.

The proposed improvements would also furnish more suitable facilities than are now available for excursion boats and coastwise passenger vessels which, in order to render efficient and satisfactory service, must be provided with accommodations convenient to the center of the City. The new facilities would also enhance the appearance of the "downtown area" of the City.

The cost of improvements recommended for Stage II is estimated at approximately $64,700,000 (Table VI-1). Based on actual ship traffic patterns and operating expenses, the increase in practical operating capacity for general cargo afforded by the Stage I and Stage II improvements would be on the order of 2,700,000 tons annually. Under optimum operating conditions and with a continual flow of vessels to the Port in sufficient numbers to provide ships at all berths during most working days in the year, the increase in capacity would be appreciably greater. However, ideal conditions rarely are maintained over a long period of time and, as a practical matter, optimum capacities are seldom achieved. Exclusive of the facilities of private industries which are capable of handling in excess of 1,000,000 tons of general cargo annually at present, the Port's general cargo terminals would have a capacity of approximately 6,000,000 tons when the Stage I and Stage II improvements are completed.

STAGE III IMPROVEMENTS. The principal unoccupied areas within the Port which appear to be suitable for development of marine terminals are shown on Plate 8 and are as follows: the Arundel area, the McComas Street waterfront, the Point Breeze area, the area along the east side of Harbor Field, Sollers Point, and Hawkins Point. Contiguous to the Port, the waterfront lands along the south shore of Back River, the various

inlets of Chesapeake Bay in Anne Arundel County, and other possible sites should also be considered for the development of marine facilities.

The areas most suitable for the economic development of new marine terminal facilities are at the McComas Street and Point Breeze waterfronts. The close proximity of these sites to good rail and highway connections and to the developed waterways of the Port favor their selection. The expansion of the Lower Canton Terminal as an outgrowth of the improvements proposed in Stages I and II would also provide for relatively economic development of modern marine terminal facilities. Like the Lower Canton Terminal, the Baltimore & Ohio piers at Locust Point are among the oldest of the Port's major general cargo facilities. Due to their layouts they do not afford efficient operations.

The re-examination of the Port indicated that the Master Plan formulated in 1949 for the long-range future development of marine terminals is substantially applicable at present. The following improvements are now recommended under Stage III to accommodate long-range future increases in the Port's general cargo and bulk cargo trade (Plates 6 and 7).

a. *Port Covington-McComas Street Terminal*

After completion of new facilities at this terminal during Stage II, additional marginal type wharves providing two general cargo berths, and about 750,000 square feet of transit and warehouse sheddage should be constructed.

Piers Nos. 7, 8 and 9 of the existing terminal at Port Covington would be further improved in this stage by increasing transit shed capacity as described in the 1949 Survey.

It is estimated that the Stage III improvements will increase the overall practical operating capacity of the Port Covington-McComas Street Terminal by about 600,000 tons annually, provided that all berths (existing and proposed) are operated as a single terminal unit. The total capacity of this terminal would then be approximately 1,600,000 tons per year.

b. *Lower Canton Terminal*

The existing Piers Nos. 3 to 9, inclusive, at this terminal would be replaced with modern wharf facilities which, combined with the extensions and improvements to be made at the Retainer Pier during previous stages, would provide six berths for the largest type of cargo ships now in use. A seventh berth for bulk cargoes and an eighth for bottom clean-out of bulk cargo vessels would be provided at the west apron. With these improvements the total practical operating capacity of this terminal would probably approach 2,000,000 tons of general cargo per year.

c. *Point Breeze Terminal*

A new terminal would be constructed affording both general cargo and bulk cargo facilities. Two berths would be provided at the western side of the terminal with 200,000

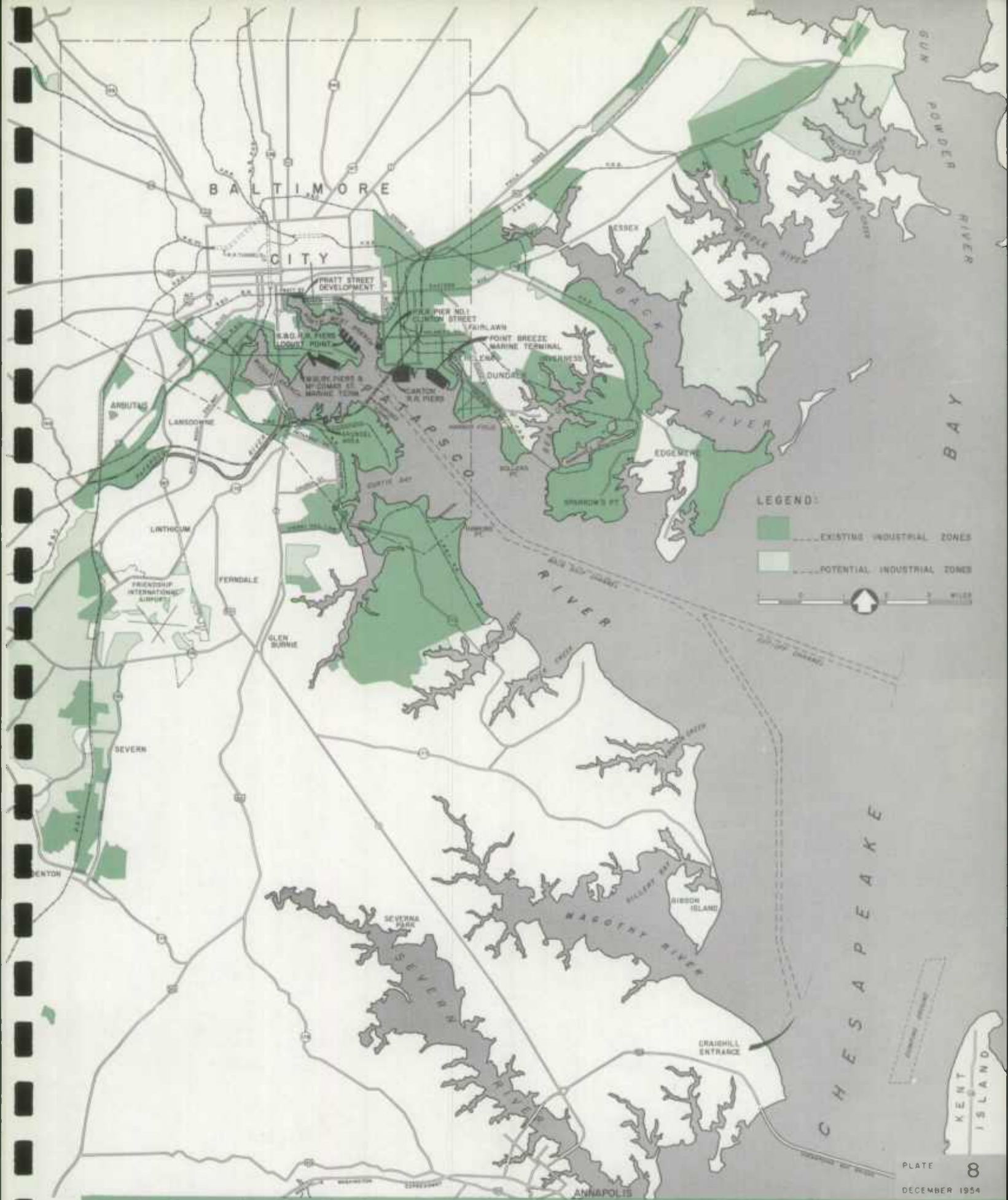

PLATE 8

DECEMBER 1954

THE PORT OF BALTIMORE

KNAPPEN - TIPPETTS - ABBETT - McCARTHY

ENGINEERS NEW YORK

INDUSTRIAL ZONES AND PROPOSED MARINE TERMINALS

square feet of open storage space for accommodation of heavy cargoes, such as steel, machinery, and lumber.

Along the southern bulkhead of the marginal type wharf, four berths would be available for modern deep-draft general cargo vessels. With these improvements, the general cargo facilities at this terminal would be capable of handling in excess of 1,200,000 tons of cargo per year. Along the eastern bulkhead, there would be constructed an ore-unloading facility of 5,000,000-ton annual capacity with adjacent berth space for clean-out of bulk cargo vessels.

d. Locust Point Terminal

The existing Baltimore & Ohio Railroad piers at Locust Point would be combined and developed into modern finger piers. The practical capacity of the new piers proposed at this terminal under Stages II and III would be in excess of 2,800,000 tons of general cargo annually. The existing bulk cargo piers (Nos. 4E and 4W) should be replaced with a new pier to accommodate heavy cargoes. Bulk cargo activity should be transferred to the railroad company's contemplated new facilities at Curtis Bay.

The estimated increase in annual practical operating capacity for general cargo which would be afforded to the entire Port by the improvements under Stage III would be approximately 3,000,000 tons. With the completion of Stage III, the total capacity of all general cargo terminals of the Port would be about 9,000,000 tons annually.

The cost of construction of the facilities and improvements recommended in Stage III would be approximately $65,000,000. The aggregate cost of all of the improvements and new facilities programmed in Stages I, II and III of the Master Plan would be approximately $137,000,000.

TABLE VI-I

SUMMARY

PRELIMINARY ESTIMATE OF COST

PROPOSED IMPROVEMENTS - STAGES I, II & III

GENERAL CARGO & MARINE TERMINALS

TERMINALS	IMPROVEMENTS	COST
	STAGE I	
Lower Canton Terminal	Transit Shed, Roads, etc.	$ 1,700,000
	Cargo-Handling Equipment	300,000
Upper Canton Terminal	Warehouse	2,700,000
Port Covington	Truck Docks, Roads, etc.	180,000
	Warehouse	2,220,000
	TOTAL STAGE I	$ 7,100,000
	STAGE II	
Port Covington-McComas Street Terminal	Marginal Wharf, Transit Shed, Cranes	$ 8,700,000
	Cargo-Handling Equipment	500,000
Lower Canton Terminal	Extention to Piers 10 & 11, Sheds, Cranes	12,560,000
	Cargo-Handling Equipment	860,000
	Warehouse	5,400,000
Upper Canton Terminal	Pier 1 Extenaion, Shed, Cranes	12,000,000
	Cargo-Handling Equipment	480,000
	Warehouse	2,700,000
Locust Point Terminal	Reconstruction of Piers 6 & 7, Cargo Handling Equipment	13,000,000
Municipal Piers	Warehouses, Sheds, Bulkheads, Roads	8,500,000
	TOTAL STAGE II	$ 64,700,000
	STAGE III	
Port Covington-McComas Street Terminal	Marginal Wharf, Transit Shed, Cranes	$ 17,000,000
	Cargo-Handling Equipment	500,000
Pier 7	Increase Transit Shed Area	1,350,000
Pier 8	Increase Transit Shed Area & Relocate Tracks on Pier	720,000
Pier 9	Increase Transit Shed Area & Relocate Tracks on Pier	1,130,000
Locust Point Terminal	Reconstruction of Piers 3, 4, 5, 8, 9, & 10	29,600,000
Lower Canton Terminal	New Marginal Wharves & Transit Sheds	14,600,000
	TOTAL STAGE III	$ 64,900,000
	TOTAL ESTIMATED COST STAGES I, II, & III	$136,700,000

CHAPTER VII

PRESENT ADMINISTRATION OF THE PORT OF BALTIMORE

Under present conditions a variety of public and semi-public agencies have numerous functions at the Port of Baltimore. These agencies include the Port of Baltimore Commission, various departments of the City of Baltimore, agencies of the State of Maryland, the U.S. Corps of Engineers, the U.S. Coast Guard and several semi-official and private agencies. Many conflicting port functions and some omissions of services result. Moreover, none of the agencies is in a favorable position to foster the improvement and development of marine terminal facilities by private enterprise, or if private sponsorship cannot be aroused, to improve or develop essential facilities under its own auspices.

THE PORT OF BALTIMORE COMMISSION

The Port of Baltimore Commission was created in 1951 as an agency of the Mayor and City Council of Baltimore, succeeding the Port Development Commission established in 1921. Its formation was an outgrowth of a desire to provide for aggressive development and administration of the Port, but the powers which it was given are wholly inadequate for that objective.

The present Commission has little authority. Its functions are limited primarily to negotiations on behalf of the Mayor and City Council of Baltimore in connection with financial assistance furnished by the City to private interests for port improvements. A total of twelve million dollars has been authorized by the voters of Baltimore City for such use. Under the program, the City constructs specific marine facilities approved by the Commission and the City's Board of Estimates for the use of private interests which guarantee the amortization of the investments through long-term leases.

Three facilities have been developed in this manner under the two Commissions. The first facility developed was negotiated through the predecessor organization, the Port Development Commission, with the Western Maryland Railroad in 1929. It provided for the construction of the McComas Street Terminal at a cost of $8,450,051. The investment was to be amortized by thirty uniform annual payments of about $507,000 to the City with the last payment due in 1959.

The second project, also negotiated through the predecessor organization, provided in 1944 for the construction of the National Gypsum Company's marine facilities at a cost of $1,773,662. This investment is being amortized by thirty uniform annual payments of about $80,000 to the City with the last payment due in 1974.

The third project, the only one negotiated through the present Commission, was adopted in 1954 and provided for the construction of a warehouse for the National Can Company at a cost of $3,200,000. This investment will be amortized by thirty uniform annual payments of about $160,000, the last payment of which will be due in 1984.

The Port Commission has seven members, representing various port interests as follows:

Appointee of the Governor
Ex-Officio, Director of Public Works of Baltimore City
Representative of Baltimore Association of Commerce
Representative of Steamship Trade Association
Representative of Railroads
Representative of Labor
Representative of Maryland Motor Truck Association

The five last-named commissioners are chosen by their respective organizations for appointment by the Mayor. All seven members serve overlapping 4-year terms without compensation. The staff of the Commission consists of a Port Director and a secretary. Its budget is dependent upon annual appropriation by the Mayor and City Council of Baltimore.

PRESENT BALTIMORE CITY FUNCTIONS AT THE PORT

The City functions relating to the Port are handled through the departments described briefly below.

DEPARTMENT OF PUBLIC WORKS. This Department has the City's major responsibility for the Port. All of its bureaus become involved in affairs of the Port at one time or another, but its Bureau of Harbors is exclusively devoted to the waterfront. The Bureau's functions include inspection, construction and maintenance of the City's marine facilities, sounding and dredging, control of vessel movements, control of pollution, operation of scavenger boats and icebreakers, operation of the municipal radio station and radar unit, and operation of City-owned drawbridges.

COMPTROLLER. The Comptroller of the City of Baltimore manages all fiscal activities of the City, including those related to the port. Leases are negotiated and rentals are collected for major City-owned harbor properties, such as the McComas Street Terminal and the National Gypsum Company facility. The Harbor Master acts as agent for the Comptroller in negotiating numerous other leases, in collecting rentals and dockage, and in supervising the public harbor facilities.

FIRE AND POLICE PROTECTION. The Marine Divisions of the Fire Department and the Police Department are charged with protection of the harbor. They have available the necessary floating equipment for discharging their duties.

In addition, nearly every other department and commission in the City Government occasionally must deal with matters concerning the port, usually in regard to functions incidental to their principal operations.

STATE OF MARYLAND FUNCTIONS RELATED TO PORTS

Until recently the State had little statutory concern in the affairs of its ports. It enacted the somewhat restricting enabling legislation in 1951 for the creation of the Port of Baltimore Commission. Recently the State Legislature has taken the initiative in seeking improved administration of the Port of Baltimore, recognizing the influence of the Port's activities on the economy of the entire state.

Incidental functions in the Port area are performed by the State Board of Natural Resources and the Department of Tidewater Fisheries, which regulate state waters and fishing in Chesapeake Bay and its tributaries; the State Planning Commission, which provides advice on developmental undertakings; the State Board of Public Works, which approves various construction projects; and the State Roads Commission, which is responsible for key highway approaches to the Port area.

FEDERAL AGENCY FUNCTIONS RELATED TO PORTS

The U.S. Army Corps of Engineers, through the Baltimore District Engineer, is responsible for the maintenance and improvement of waterways outside the pierhead line. The Baltimore District includes all of the waterways of the State of Maryland except the Chesapeake and Delaware Canal (which is in the Philadelphia District) and the Patuxent and Potomac Rivers (which are in the Washington District).

The U.S. Coast Guard is responsible for ship inspection, licensing of operating personnel, port security, oil pollution control, and icebreaking outside the pierhead line. Because of budgetary limitations, Coast Guard tugs actually break ice at the Port of Baltimore only when needed to augment the municipal operations.

Other federal agencies affecting the State's port areas to a lesser degree include U.S. Customs, Public Health, Immigration and Naturalization Service, Coast and Geodetic Survey, and the Interstate Commerce Commission.

PRIVATE AGENCY FUNCTIONS AT THE PORT

The Baltimore Association of Commerce is a promotional agency supported by private contributions and, to a small degree, by public appropriations. It has played a leading role in the promotion of port commerce at Baltimore. Its Export and Import Bureau actively solicits

new shipments through the Port. For this purpose it maintains, in addition to its Baltimore office, regional offices in New York, Pittsburgh and Chicago, which provide the services to shippers that are usual in this type of promotion. The Association's Traffic and Transportation Department provides information on freight rates and port charges and protects Baltimore's interests at hearing on those matters. Its Industry Department solicits new business for the metropolitan area, including port-related industries, and otherwise promotes the growth of Baltimore's industrial activity. Thus the Association, on behalf of the City's business interests, is dedicated to publicizing the area as a center of industry and as a seaport.

The Junior Association of Commerce is an organization of young businessmen supported by private contributions. It has a Port Development Committee which takes an active interest in the problems of the Port of Baltimore.

The Steamship Trade Association is an organization of local marine transportation interests devoted to the promotion and improvement of the Port. Among other activities it sponsors the Maritime Exchange which operates a ship reporting service in close cooperation with the Maryland Pilots Association.

The Port Dispatch Committee was formed in 1950, partly as a result of the 1949 survey of the Port, to investigate difficulties in port operation as they arise and to recommend corrective action. The membership is composed of representatives from the four railroads serving the Port, the Steamship Trade Association, the motor carrier industry, the Baltimore Customhouse Brokers and Forwarders Association, the Industrial Traffic Managers' Association, and the Maryland Warehousemen's Association. The Transportation Director of the Baltimore Association of Commerce serves as permanent secretary.

DEFICIENCIES OF THE PORT'S PRESENT DIVERSIFIED CONTROL

While there is widespread interest in the development of the Port, overall coordination is absent. This leads to costly duplication of some functions and omission of others.

The Port of Baltimore Commission is so restricted in its authority and jurisdiction that it has the power to do little more than to represent the City in connection with the City's financial assistance program for marine improvements. This function is hampered to the extent that only one organization has successfully negotiated a loan since the present Commission was organized in 1951. Among other things, the Commission lacks autonomy, adequate operating funds, control of physical port operations where appropriate, and authority to issue its own bonds. It cannot initiate new port improvements. Furthermore, its geographical jurisdiction is critically limited.

The various departments of the City of Baltimore concerned with the Port operate independently; such an arrangement inherently results in duplication of functions and lack of a unified program. In addition, the City has undertaken certain functions which might logically be handled by other agencies. For example, icebreaking outside the pierhead line should be performed by the U.S. Coast Guard, scavenger service should be provided primarily by the U.S. Corps of Engineers, and the conduct of excursions could well be handled by private boat operators.

The Baltimore Association of Commerce is limited in its port promotion work by the extent of the funds available to it. Approximately twice the budget now allocated to the Export and Import Bureau of the Association could be effectively applied to this work. It is believed also that the budget for the promotion of port-related industries and similar matters should be increased.

EXPENSES AND REVENUES OF PRESENT PORT ADMINISTRATIVE AGENCIES

CITY PORT FACILITIES AND OPERATIONS. Expenditures and revenues of existing port agencies at Baltimore, exclusive of the three self-sustaining port facilities which are under long-term leases, are shown in Table VII-1 and are described briefly below.

TABLE VII-1

BALTIMORE CITY REVENUES AND EXPENSES FROM PORT FACILITIES AND OPERATIONS (Annual average for 1948-1953)

Port of Baltimore Commission		
Expenditures (a)		$ 19,000
Bureau of Harbors		
Receipts		
Radio station and misc.	11,000	
State appropriation (b)	32,000	
Total		43,000
Expenditures		
Three bridges	$ 82,000	
All other	487,000	
Total		569,000
Net loss		$526,000
Public Service Enterprises (c)		
Receipts		245,000
Expenditures		35,000
Net Revenue		$210,000
Harbor Security		
Expenditures		$530,000
Total Cost		$865,000

(a) Average appropriation during first two full years
(b) State appropriation to City toward maintenance of icebreaker "Annapolis"
(c) Excludes three port facilities under long-term lease.

The Port of Baltimore Commission depends on annual appropriations from the City to cover its expenses. These include the salaries of the Director and his secretary and all other administrative costs. Although the actual expenditures in 1953 were about $29,000, annual appropriations to the Commission have averaged only about $19,000.

The Bureau of Harbors' expenses average about $569,000 annually as shown in Table VII-2. Of this total, almost $82,000 is chargeable to the operation and maintenance of three highway bridges and approximately $132,000 is chargeable to icebreaking. The personnel of the Bureau averaged 105 in 1953 (Appendix VII-A); this number included increases in personnel for the manning of icebreakers when required. The City is reimbursed approximately $32,000 annually by the State for part of the maintenance costs of the icebreaker "Annapolis" (Appendix VII-B). In addition, the Bureau receives about $11,000 revenue from the municipal radio station and miscellaneous sources (Table VII-3).

TABLE VII-2

EXPENDITURES FOR BALTIMORE CITY PORT FACILITIES AND OPERATIONS

	Port of Baltimore Commission	Bureau of Harbors	Broadway Pier	Harbor Master
1949		$609,667	$21,960	$10,011
1950		556,365	22,673	10,322
1951		524,089	25,853	11,143
1952	$ 5,383	598,192	24,800	11,778
1953	29,626	556,125	24,406	12,177
1954 (appropriation)	19,180	633,920	37,675	

Source: Annual Reports of the Comptroller of Baltimore City

TABLE VII-3

RECEIPTS FROM BALTIMORE CITY PORT FACILITIES AND OPERATIONS

	1949	1950	1951	1952	1953
Bureau of Harbors:	9,714	8,982	10,868	11,569	13,433
Municipal Radio Station	5,876	7,093	7,848	9,312	10,841
Miscellaneous Revenue	3,838	1,889	3,020	2,257	2,592
Public Service Enterprises:	253,376	206,514	211,592	284,162	271,708
Pratt Street Piers and Docks	163,981	127,755	110,603	147,478	136,809
Wharfage	61,795	56,625	71,811	97,219	93,657
Broadway Pier	27,600	22,134	29,178	39,465	41,242

Source: Annual Reports of the Comptroller of Baltimore City

Public Service enterprises at the Port come under the jurisdiction of the City Comptroller, assisted by the Harbor Master, and include the McComas Street Terminal, National Gypsum pier, Pratt Street piers, and Broadway pier. The first two of these are self-sustaining entities and therefore presently incur no net revenue or expense. The Pratt Street and Broadway piers, however, produce annual revenues of about $245,000 and require annual expenditures of about $35,000.

Harbor Security provided by the City Fire and Police Departments costs approximately $530,000 yearly (Appendix VII-C).

BALTIMORE ASSOCIATION OF COMMERCE. Two bureaus of the Baltimore Association of Commerce are directly concerned with port matters. These are the Export and Import Bureau, which has a staff of twelve and operates on a budget of approximately $90,000, and the Traffic and Transportation Bureau, which has a staff of four and operates on a budget of about $40,000. Of the annual appropriations from the State and the City to the Association, $11,000 provided by the State and $10,000 provided by the City are specifically designated for port activities. The remaining $109,000 of the $130,000 expended annually by the two bureaus is met by contributions from private business sources.

CHAPTER VIII

RECOMMENDED ADMINISTRATIVE AGENCY

The prime purposes of a port agency are the promotion of waterborne commerce, the development of port facilities and the provision of port services. Most major world ports are administered by centralized agencies. The extent of each agency's duties varies condiserably from port to port, as do its powers, but the value of centralizing the port administration has been demonstrated repeatedly. Present methods of administration at other ports are summarized below.

CLASSIFICATION OF PORT ADMINISTRATIVE AGENCIES BY POLITICAL UNITS

Most port administrative bodies in the United States are branches of local governments (municipal or county) such as the port of Baltimore Commission and the Norfolk Port Authority (Appendix VIII-A). About 30% are state or multi-state agencies. Alabama, Georgia, North and South Carolina and Virginia have state authorities with no district boundaries. Port districts having state administrations are Camden, N. J.; Lake Charles and New Orleans, La.; New London, Conn.; Portland, Me.; and San Francisco, Calif. At three localities where port operations directly transcend state boundaries, bi-state agencies have been instituted; these agencies are the Port of New York Authority, the Delaware River Port Authority, and Bi-State Development Agency at St. Louis.

TYPES OF ADMINISTRATIVE ORGANIZATIONS

PUBLIC CORPORATIONS. Public corporations today constitute the most prevalent form of port administrative agency. They have the advantage of being legal entities independent of political ties, although they are indirectly subject to democratic controls. Like a private corporation, such a port agency can sue and be sued, make long-term contracts, and incur debts, although it is exempt from most taxes. The three bi-state authorities mentioned above are public corporations, as are eight of the state authorities and many of the local port agencies (Appendix VIII-A).

INDEPENDENT COMMISSIONS. Independent commissions combine legislative, judicial and administrative powers and are generally removed from politics. While an independent port commission usually can condemn property, plan and construct facilities, and even regulate private terminals, it cannot issue securities and cannot sue or be sued. The present Port of Baltimore Commission is an example of a restricted independent port commission.

DEPARTMENTAL AGENCIES. A form of port administration which is becoming less prevalent because of its political involvements is the government departmental agency. The Bureau of Harbors of the City of Baltimore is such an administration.

PRIVATE CORPORATIONS. A private port corporation is a private company which administers virtually all of the port, such as the Port of Texas City and the Port of Richmond, California. Little possibility for this rare type of control exists at Baltimore.

The public corporation is the most suitable type of organization. Freedom from detailed government control of its operations allows this form of administration to pursue independently its assigned objectives with maximum effectiveness.

TYPES OF FACILITIES AND AREAS ADMINISTERED

The jurisdiction of port agencies usually includes waterfront facilities for cargo handling, rail access and interconnection, and waterfront industrial sites. Supplementary facilities sometimes controlled by the port administration are warehouses, marginal highways, harbor or river crossings, and foreign trade zones. Port authority responsibility for warehouses is usually confined to waterfront storage facilities. Marginal roads are ordinarily maintained by the local municipality and coordinated with port administration policy, and the control of river and harbor crossings by port organizations is not usual. Foreign trade zones may be included, but there are only five such zones in the United States.

FUNCTIONS OF PORT ADMINISTRATIVE AGENCIES

Numerous functions are performed by port agencies. These functions broadly cover responsibility for negotiations with other agencies and private interests in connection with general port matters, promotion of commerce, administration of waterfront facilities and jurisdiction over specific metropolitan transportation facilities (Appendix VIII-B). Usual functions include the following:

1. Maintenance of port statistics and accounts.
2. Leasing of publicly owned facilities, and establishing and collecting charges for those facilities.
3. Assignment of berths at publicly-owned facilities.
4. Maintenance of publicly-owned waterfront facilities and dredging of slips.
5. Public relations, and promotion of commerce through the Port.
6. Planning and coordination of port development projects, and construction of needed facilities.
7. Purchasing of land and facilities for port development, with power to condemn when necessary.
8. Purchasing, developing, and leasing of industrial sites.
9. Raising capital for improvements.

BOARDS OF COMMISSIONERS OF PORT ADMINISTRATIVE AGENCIES

The membership of U. S. port administrations varies from one to sixteen commissioners, (Appendix VIII-C). Boards of five members are most prevalent. The bi-state agencies have boards ranging from ten to sixteen members. State-wide corporations and commissions have the following boards:

	Number of Commissioners
Georgia Ports Authority	3
Alabama State Docks Board	5
South Carolina State Ports Authority	5
North Carolina State Ports Authority	7
Virginia State Ports Authority	7

The number of board members of state agencies having only local jurisdiction are distributed in much the same pattern.

In a few cases commissioners are elected. Appointments are usually authorized to be made by the Governor in the case of state agencies and by the Mayor or County Commissioners in the case of local agencies. Sometimes the appointees must be selected from a slate of nominees provided by various port interests. At New Orleans, for example, two nominations are made by each of five business associations, while at Boston each of the twenty members of the Port of Boston Advisory Council recommends three candidates.

Typical terms of office of port commissioners range from one to ten years, with four years being most frequent (Appendix VIII-C). It is customary to provide overlapping terms in order to assure continuity of administration.

Usually commissioners receive no compensation for their work in port administration, although their expenses are often covered. This arrangement tends to assure the choice of public-spirited persons and minimizes the influence of politics on appointments.

MANAGEMENTS OF PORT ADMINISTRATIVE AGENCIES

The paid staff members ordinarily are chosen by the commissioners, usually acting on the director's recommendations in the case of junior staff members. In some cases these employees come under a civil service system which may somewhat restrict their selection.

A functional type of organization is the most common, headed by a port director who is responsible to the board. A typical agency would have departments under the manager charged with engineering and maintenance, operations, port promotion and protection, and finance.

THE PROPOSED PORT ADMINISTRATION

The Port of Baltimore and all other port areas in the State of Maryland should be administered by a central agency similar in this respect to the State authorities in Virginia, North Carolina, South Carolina and Alabama. The proposed authority will be referred to hereafter as the Maryland Ports Authority or, for brevity, the Authority. The principal reasons for a statewide administration are as follows:

1. Benefits from increased port activity on Maryland's waterfront accrue to the entire state.
2. Financial participation of the entire state is essential for an effective and comprehensive port development program.
3. The Authority would be able to undertake the required port functions wherever in the State the need dictates.
4. The Authority could derive its powers from the State in the broadest form possible, without danger that subsequent needs for additional powers would become subject to political vicissitudes.

New state legislation will be required to accomplish these ends by rescinding the present applicable legislation and providing the Authority with all necessary powers through the enactment of new and adequate legislation. Individual counties and Baltimore City should not be vested with legal controls in regard to the Authority which might hamper its capacity to negotiate and operate in the interests of the State port areas collectively.

COMMISSIONERS OF THE PROPOSED AUTHORITY

It is recommended that policies of the authority be administered by a board of nine commissioners who would be appointed by the Governor according to their places of residence, as follows:

	Number of Commissioners
Baltimore City	1
Baltimore County	1
Anne Arundel County	1
Eastern Shore Counties	1
All other counties	1
At large	4
Total	9

The five members from specific areas would be directly appointed by the Governor without nominations. The four members at large, however, would be appointed by the Governor from a list of nominations provided by the following cross-section of port interests:

1. Baltimore Association of Commerce.
2. Steamship Trade Association.
3. Railroads serving the State (collectively).
4. Maryland Motor Truck Association.
5. Labor organizations of the State (collectively).

Initially, each of these five interests would be asked to make four nominations, providing the Governor with a maximum of twenty names from which to select the four members at large.

Nominations and appointments should be made on the basis of civic leadership and capability and not on the basis of direct representation of the various interests. The careful selection of civic-minded leaders will avoid the concern for individual interests and the slighting of overall port welfare.

Terms of port commissioners should be for five years so as to transcend political terms, and should overlap in order to afford continuity of administration. This will require that the first commissioners be assigned varying terms ranging as follows:

	NUMBER OF APPOINTMENTS		
Term	By Areas	At Large	Total
1 year	1		1
2 years	1	1	2
3 years	1	1	2
4 years	1	1	2
5 years	1	1	2
Total	5	4	9

Appointments to fill vacancies would also be made by the Governor. Each year that a commissioner at large is to be appointed, the five port interests should offer two nominations each, thus providing a maximum list of ten names. These nominations would be screened by the remaining commissioners and reduced to five names from which the Governor would appoint one.

No commissioner should be appointed to serve more than two successive terms in order to prevent self-perpetuation of the board and so as to allow fresh leadership to enter the administration. As is customary, commissioners would receive no remuneration other than expenses. Meetings would be scheduled by the chairman as frequently as circumstances dictate, but at least once a month.

FUNCTIONS AND POWERS OF THE PROPOSED AUTHORITY

The Maryland Ports Authority should have the following corporate powers:

1. To have perpetual succession.
2. To sue and be sued.
3. To adopt and use a common seal.
4. To elect its own officers.
5. To employ a director and staff.
6. To enter into contracts and to hire services.
7. To acquire, own, mortage, hire, use, operate and dispose of personal property.
8. To acquire, own, mortage, operate and dispose of real property and interests in real property, and to make improvements thereon.
9. To grant the use of, by franchise, lease or otherwise, and to make charges for the use of any property or facility owned or controlled by it.
10. To borrow money, but in no way to obligate the State.
11. To condemn property for port development purposes if payments in lieu of taxes are guaranteed by the Authority.
12. To determine the exact location, system and character of all other matters in connection with any and all improvements or facilities which it may be authorized to own, construct, operate or control.
13. To exercise all other powers, not inconsistent with the Constitution of the State, which may be reasonably necessary to effect its authorized purposes and, in connection with property within its control, to exercise all powers which might be exercised by a private corporation with similar property and affairs.

Additionally, the following supplementary powers are customary and should be delegated to the new Authority:

1. To carry on all types of surveys, investigations, inquiries and studies.
2. To promote the commerce of the ports in the broadest possible way.
3. To represent the interests of the ports before Federal and State agencies in all matters affecting their physical condition.
4. To represent the interests of the ports in cases affecting their business.
5. Subject to the paramount authority of the Federal Government, to regulate navigation in the harbors and subsidiary waters of the ports and to regulate the construction of structures in navigable waters.
6. To set up a master plan for port development.
7. To construct new port facilities.
8. To operate facilities constructed under its authority and also to lease such facilities from private or public owners and to operate them.
9. To build and operate yacht basins.
10. To own and operate maintenance and construction equipment.

11. To operate a Foreign-Trade Zone when authorized by the Federal Government.
12. To establish an "International House" and associated activities.
13. To own and develop waterfront industrial sites.

It should be an assigned duty and a principal objective of the Authority to encourage private enterprise at the port in every way, leaving the construction and operation of physical facilities to independent private initiative unless private enterprise declines to undertake those improvements even with reasonable inducements.

MANAGEMENT OF THE PROPOSED AUTHORITY

In organizing the Authority's staff, every effort should be made to utilize the experience and knowledge of personnel now engated in port activities with those agencies whose functions would be assumed by the Authority.

A functional organization with six departments is recommended as shown on Chart VIII-1. The department heads would be directly responsible to the General Manager who, in turn, would be the only member directly accountable to the Board of Commissioners. The responsibilities of the General Manager clearly require the superior experience of an able administrator. He should have a competent assistant who can act as his deputy, and an appropriate office staff.

SOLICITATION AND PROMOTION. A Solicitation and Promotional Department would be headed by a director, who would form the overall policies of his department and coordinate its many activities. Even though the Baltimore Association of Commerce should be encouraged to continue its important work in port promotion and protection, as described subsequently, the Solicitation and Promotional Department should be given an adequate budget to provide for a broad solicitation program of its own. In addition to coverage of the local trade area, this program should provide for extensive activity in other trade areas through operation of various regional and foreign offices. The department should also assume the responsibility for providing traffic and transportation information and protecting the Ports' interests in rate cases, with the assistance of the Traffic and Transportation Bureau of the Baltimore Association of Commerce. A Public Relations Bureau would disseminate information about the Authority's activities and keep interested officials and private agencies abreast of developments in the port field.

PLANNING AND PORT DEVELOPMENT. A Planning and Port Development Department would plan the long range development program of port areas in close cooperation with the many Federal, State, and municipal agencies concerned.

PORT OPERATIONS. A Port Operation Department would operate the Authority's various public facilities and provide harbor services and internal security. Piers, warehouses, terminals, and concessions would be either operated directly under Authority management or leased to private operators. The department would enforce regulations at these facilities and collect rentals and other charges. Harbor services furnished should include control of anchorages, operation of radio station WMH for communication with commercial vessels, and operation of the radio telephone WJY for communication with Authority vessels and for Civil Defense. Security would be confined to internal guarding and fire protection, supplemented by liaison with municipal Police and Fire Departments.

ENGINEERING AND MAINTENANCE. An Engineering and Maintenance Department would have extensive responsibilities. Harbor maintenance duties would include dredging, scavanger service, tug and launch services, and icebreaking. It may be possible for the Authority to transfer responsibility for breaking ice outside pierhead lines to the U. S. Coast Guard, which is under executive orders to assist in this function, although Federal funds for this purpose have been limited in recent years. Other duties of the department would include maintenance of structures and utilities, engineering related to design and construction of new facilities, inspection and safety, surveys, and pollution control.

FINANCE. A Finance Department would handle all routine accounting and budgeting for the Authority. In addition it would arrange details of financing new facilities or improvements, whether those facilities are to be constructed by the Authority itself or through the financial assistance of the Authority to private developers.

ADMINISTRATION. An Administration Department would provide various routine services for the Authority's internal operations. Included would be legal, personnel, procurement, supply and clerical affairs.

It is suggested that all personnel below the level of department heads be included under State Civil Service so that those employees would derive the same benefits as would other State employees.

EXPENSE BUDGET OF THE AUTHORITY

The compensation for staff members of the new Authority must be sufficient to attract and hold experienced men with superior administrative and technical abilities who can administer effectively the extensive functions outlined above. With this criterion and with experience of the present port operations at Baltimore as a guide, the following estimates were prepared as the expense budget for early years of the Authority's operations:

PROPOSED FUNCTIONAL ORGANIZATION OF MARYLAND PORTS AUTHORITY

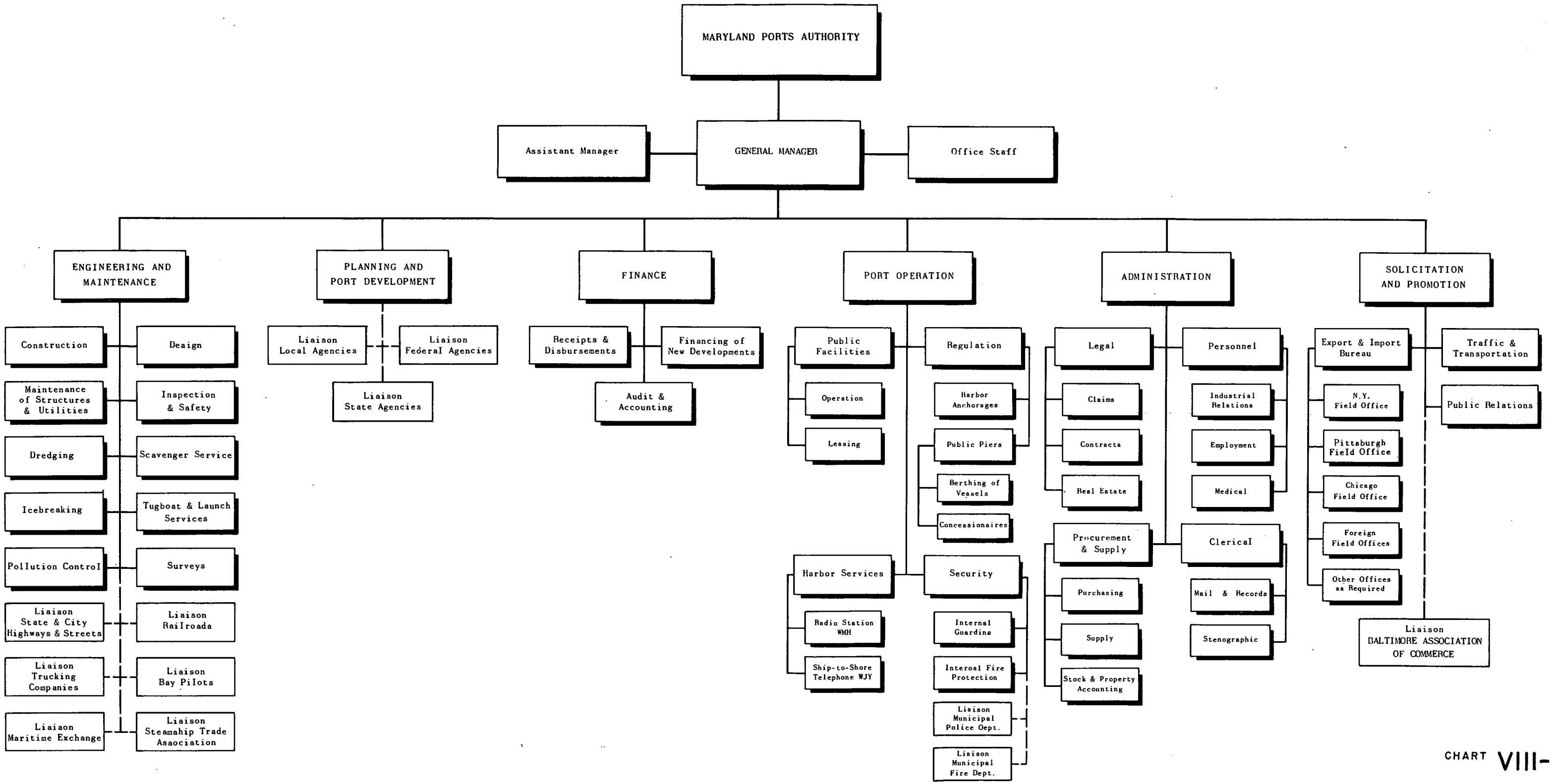

CHART VIII-1

KNAPPEN-TIPPETTS-ABBETT-McCARTHY
ENGINEERS NEW YORK

DEPARTMENT	ANNUAL BUDGET
Executive Office	$ 50,000
Solicitation and Promotion	245,000
Planning and Port Development	25,000
Port Operation	110,000
Engineering and Maintenance	410,000
Finance	30,000
Administration	30,000
TOTAL	$900,000

Although it would be safe to assume that many economies will be achieved by the centralized management in accomplishing the duties now performed by existing agencies, these savings will undoubtedly be off-set by expanded obligations of the new Authority.

TRANSFER OF CITY FUNCTIONS TO THE PROPOSED AUTHORITY

At the time of the formation of the new Maryland Ports Authority, legislation should provide for the dissolution of the Port of Baltimore Commission. The advice and counsel of the Authority should be made available if desired by the City in connection with processing future applications for the development of projects under the City's financial assistance program and with related matters.

Present functions of the Bureau of Harbors should be transferred to the Authority with the exception of drawbridge operations and maintenance. These latter functions should remain the responsibility of the City Department of Public Works.

As discussed in the succeeding chapter, arrangements should be made with the City of Baltimore for the transfer of the McComas Street Terminal and the National Gypsum pier to the Authority, and the City should be reimbursed for this transfer by the State. In addition, the National Can Company project, and any others which may be initiated subsequently by the present Port Commission, should be transferred to the Authority with the latter assuming responsibility for the rental collections and the completion of the amortization of the City's investments. The City should also relinquish its municipal piers to the Authority. With these transfers the functions of the Harbor Master's office would be assumed by the Authority.

The marine divisions of the Fire and Police Departments should be retained within the City Departments for best operating efficiency. Traditionally, fire and police harbor security is a municipal responsibility.

RELATION OF AUTHORITY'S FUNCTIONS WITH FUNCTIONS OF LOCAL AGENCIES

The useful functions of the Steamship Trade Association and the Junior Association of Commerce should not be affected by the formation of

the Maryland Ports Authority. The Port Dispatch Committee should continue its valuable work as a clearing house for all port difficulties, with a responsible executive of the new Authority serving as permanent secretary.

The Authority would assume duties similar to those now performed by the Export and Import, and Traffic and Transportation Bureaus of the Baltimore Association of Commerce, but with considerably enlarged scopes. In cooperation with the Authority, the Association could continue its valuable work in port promotion and protection, utilizing the contributions received by the Association from private interests for that purpose. The small proportion of financial support the Association now receives from the State toward this function would be discontinued. The overlapping of responsibility of the two agencies in these respects will require careful coordination in order to derive maximum value from their combined efforts. Other functions of the Association would not be affected, but liaison should be maintained between the Association and the Authority in connection with all port matters with which the Association may be concerned, including the promotion of port-oriented industries.

RELATION OF AUTHORITY'S FUNCTIONS WITH FUNCTIONS OF STATE AGENCIES

The State board of Natural Resources and the State Department of Tidewater Fisheries would not be affected by creation of the Maryland Ports Authority, but liaison between these various state bodies should be maintained on a continuing basis.

LEGISLATION

Present State legislation relating to port administration is in the form of the Enabling Act, which authorized the City of Baltimore to establish the Port of Baltimore Commission. It is recommended that new State legislation be enacted which would rescind completely the present Enabling Act and at the same time establish the proposed Maryland Ports Authority with all the powers and responsibilities previously described.

CHAPTER IX

FINANCING PORT ADMINISTRATION

THE FINANCIAL PROBLEM

It is in the interests of the community and in accord with sound policy for a port administrative agency to perform some services at rates which do not return their entire costs. The long-range economic consequence of such a policy in attracting business and stimulating profitable activity may far outweigh the fact that the net financial effect of the operation is to incur a moderate deficit. There are, also, numerous and important functions of a port agency which are not of an income-producing nature. The various regulatory and promotional activities fall in this class. So do the preparation and presentation of cases before the Interstate Commerce Commission and similar bodies. These activities are necessary. They are of great benefit to the ports and also to the surrounding areas which profit from the prosperity of the ports and the resulting growth of industry, business and population.

SOURCES OF SUPPLEMENTARY INCOME FOR PORT AGENCIES

Many existing port bodies receive supplementary income from quite a number of different sources. One is by direct legislative grant. In some instances this is a continuing grant, the legislature concerned appropriating a fixed subsidy each year. In others the governmental agencies involved have appropriated the initial funds necessary to construct certain projects and put them in operation with the expectation that thereafter the projects would be self-supporting. In still other cases the port agency applies annually to the legislature concerned for an appropriation. Sometimes the sponsoring agencies have placed the proceeds from the sale of state bonds at the disposal of the port agency. In other instances the port agency is authorized to issue bonds pledging the credit of the sponsoring governmental agency.

Another source of supplementary income is local taxes. Under this system a port district is set up embracing the area which is considered to be directly benefited by the existence and activities of the port. Within this district the port agency is authorized to levy taxes. The maximum rate of the levy is usually fixed and the expenditure of the proceeds may be limited to certain purposes.

One very prosperous and successful port agency receives each year a definite proportion of the state gasoline tax which has enabled it to undertake an unusual number of large projects. Another is fortunate enough to own port property under which large deposits of petroleum have been found.

States and municipalities have sometimes turned over to port agencies valuable real estate which they owned and profitable port installations which they had developed. Such transfers may be outright gifts or may be in the form of leases at rates low enough to permit operation to yield substantial profits.

Various financial procedures are briefly illustrated below:

The ports at Oakland, Calif.; Gulfport, Miss.; and Port Everglades, Fla. receive annual subsidies from the remission of state ad-valorem taxes and/or the levy of special assessments.

At Mobile, Ala. an original capital subsidy came from a ten million dollar issue of bonds backed by the credit and taxing power of the State. In the earlier years of the terminal's existence, the State paid all or part of the interest on these bonds. Recently, however, the State Docks Board has taken over the entire debt service and it is expected that no further subsidy will be required.

At New Orleans, La. the major source of capital has been the issue of bonds by the State of which sixty million dollars have been authorized. Although the operations of the port are now profitable, the retirement of bonds is being met through allocations from the State's tax on gasoline. The Board receives nine-twentieths of a cent per gallon for each taxable gallon of gasoline sold in Louisiana. This subsidy amounted to about $2,600,000 in 1953.

At Houston, Texas the port facilities administered by the Harris County Houston Ship Channel Navigation District were financed by bonds which are a charge against the taxing power of the district. The district has the power to levy taxes on the property within Harris County. In recent years, the tax rate has been reduced gradually from 2.16 mills to 1.01 mills, the latter yielding about $700,000 annually.

At Galveston, Texas the public port facilities received a capital subsidy amounting to one-third of the value of the property of its privately owned predecessor, the Galveston Wharf Company.

The municipal docks at Jacksonville, Fla. were financed through general revenue bonds of the City. Operation and maintenance costs are met through the revenues of the docks.

The public terminal at Tampa, Fla. receives financial support through a tax levy by the Hillsborough County Port District.

The Port of New York Authority's principal function for many years after its creation was the operation of vehicular toll bridges, tunnels and other public utilities. The overall profitable operation of these facilities enabled the Port Authority to take a direct role in port matters.

FINANCING OF PORT IMPROVEMENTS

Development of both general cargo terminals and industrial bulk facilities by private enterprise using private capital is the most desirable method of financing and should be encouraged in every way possible by the Authority. Many ports, however, have been forced to use public funds to maintain their competitive standings particularly in connection with foreign general cargo terminal developments. Public funds for the assistance of private undertakings in port development have long been available at Baltimore, and it is presently a responsibility of the Port of Baltimore Commission to negotiate for the City in this connection.

It has already been noted that the construction of new publicly owned marine terminal facilities should be undertaken by the Authority as public enterprises only to the extent that the accomplishment of needed developments are neglected by private interests. The Authority should encourage the continual improvement of existing marine facilities and the development of new ones with private capital. Although at present the improvement and modernization of various marine terminal facilities in Baltimore is recommended, it is not expected that the Authority would find it necessary to undertake the construction of waterfront improvements requiring major capital expenditures in the near future.

PORT AUTHORITY BONDS

Normally a port authority's bonds based solely on marine terminal revenues are not considered to be a good investment and are not marketable at reasonable interest rates. Port authority bonds, therefore, are usually supported by a guaranteed income in addition to or in place of port terminal revenues. In general, there are three ways by which this is done.

The first is by the issuance of general obligation bonds secured by the port agency's power to levy and collect taxes within its district. Where this means is used, the port agency is usually required to submit projected bond issues to the vote of the taxpayers within the port district.

The second means employed is the issuance of "revenue" bonds secured by the revenues of the port agency but backed by the faith and credit of the city, county, or state, or a guaranteed revenue of some form. In some instances, an important element of a port's revenues is a guaranteed annual cash subsidy from the state or a local public agency, or from both.

The third means used to finance the capital improvement of a public port agency is by turning over to that agency a strong revenue-producing public facility which can be used as a credit base for future port agency revenue bonds. The income-producing facility is sometimes given to the port agency free and clear of all debt, so that all of its

revenues, other than those needed for maintenance and possibly depreciation, are available to support port bonds issued for other necessary improvements.

It would appear that through legislative action any or all of these methods of supporting bond issues could be developed at Baltimore when such issues may be required.

REVENUES FOR PORT DEVELOPMENT FROM FACILITIES NOT RELATED TO THE PORT

Many port agencies at their inception have been endowed with unimcumbered sources of regular income from facilities which are not a direct part of the port, such as bridges, tunnels, and industrial land. Unfortunately, no such source of assured revenue is available in Maryland. The revenues of the projected Patapsco Tunnel, together with those of the other three highway-toll crossings under the jurisdiction of the State Roads Commission, are exclusively pledged to the interest and retirement of the Bridge and Tunnel Revenue Bonds of the State. Similarly, toll road revenues must be devoted exclusively to State road purposes. The only physical facilities from which income for the port program may be secured are port terminals and industrial properties on the waterfront.

TAXATION BY THE AUTHORITY

Although direct taxation by port agencies is sometimes utilized as a source of port revenue, it is not recommended for the State corporate body contemplated for Maryland. Such an arrangement would remove the incentive on the part of the Authority to maintain its self-sufficiency, one of its greatest values.

TAXATION BY THE STATE ON BEHALF OF THE AUTHORITY

State or local governments sometimes levy a special tax, the proceeds of which are specifically assigned to a port administrative agency. Special levies in Maryland might consist of one or more of the following:

INCOME TAX. A personal income tax is presently collected by the State at the rate of 2% on earned income and 5% on unearned income. Strong public resistance would mitigate against an allocation of any of the existing funds or an increase in the present rates for port administration.

SALES TAX. A sales tax is also levied by the State at the rate of 2%. A portion of these collections could be assigned to the Authority's budget, but the State government even now is seeking ways to increase this source of revenue, among others, in order to cover growing expenditures from its general funds.

BUNKER FUEL TAX. A tax is presently assessed on heating fuels, but the sale of bunker fuel is specifically exempt. The removal of that exemption would be undesirable as it would tend to discourage ship operators from utilizing fueling services in Baltimore.

MOTOR VEHICLE FUEL TAX. A state motor vehicle fuel tax is now assessed at the rate of 6¢ per gallon, having been increased 1¢ per gallon in mid-1953. In the fiscal year ended June 30, 1954, the State collected 38 million dollars through this tax. The income derived must be divided as follows:

State Roads Commission	50%
City of Baltimore	30%
Other Areas in the State	20%

An increase in motor fuel tax of one mill per gallon in Maryland would have produced an additional revenue of $635,000 in Fiscal 1954, but truckers and the general public would strongly oppose such an increase for use on port projects.

MARINE GASOLINE TAX. Refunds are required to be made of taxes paid on marine gasoline sales and on sales of fuel used in motor vehicles which generally do not use public roads. Refunds for taxes on marine gasoline sales have steadily mounted in recent years and totaled over $210,000 in the fiscal year ended June 30, 1954 (Appendix IX-A). Tax refunds to boat users could be withheld by the State and diverted to the Authority as a supplementary source of revenue. The principal contributors would be pleasure boat owners and fishermen. Assessment of the latter group may be justified by the many benefits now received by their industry through the services of the State's Department of Tidewater Fisheries. There is not equally sufficient justification, however, for withholding for port development uses any of the refunded gasoline taxes from non-marine sources.

STATE TAX ON MANUFACTURERS' TOOLS AND MACHINERY. The State personal property tax on manufacturers' tools and machinery is exempt in Baltimore City and in nine counties. In 1952 the four counties not so exempted provided $20,712 to the State from this source, while the State tax which might have been collected but was exempted is estimated to total about $145,000. Thus the total revenue from the State personal property tax on machinery and tools, if no exemptions had been allowed, would have been about $165,000 in 1952. With increasing assessed values this total amount should also increase in future years. The revocation of the exemption clause in the State tax law which applies to tools and machinery, and the allocation of all revenue derived from this State tax to the Authority could be merited on the grounds that manufacturing represents a segment of the State's economy which will greatly benefit from increased port commerce. Since the State personal property tax rate is negligible in comparison to local rates, removal of the State exemption in Baltimore City and the nine counties now exempt would not noticeably affect the attractiveness of these ares to industry.

REVENUE FOR THE AUTHORITY FROM CITY-OWNED PORT FACILITIES

It is recommended, as discussed in the preceding chapter, that all City port properties be transferred to the Authority. This would relieve the City of Baltimore completely of any detailed responsibilities for port facilities, except fire and police protection, and prevent conflicting responsibilities between the Authority and the City.

The City should not be called upon to furnish an annual subsidy to the Port after harbor responsibilities have been transferred to the Authority. Being relieved thus of a financial burden approximately $253,000 yearly, as shown in Table IX-1, the City should transfer (1) the Pratt Street and Broadway pier facilities without specific consideration in return, (2) the McComas Street Terminal and the National Gypsum Company pier in return for payment approximating the unamortized investment in those two facilities, and (3) the National Can Company project, and any others which may be initiated, in return for the assumption of obligations for amortization of the applicable investments which were made by the City.

TABLE IX-1

PROPOSED ALLOCATION OF BALTIMORE CITY REVENUES AND EXPENSES FROM PORT FACILITIES AND OPERATIONS

		PRESENT	PROPOSED	
		City(a)	City	Authority
Port of Baltimore Commission				
Expenditures		$ 19,000(b)		
Bureau of Harbors				
Receipts				
Radio station and miscellaneous	11,000			
State appropriation	32,000(c)			
Total		43,000		11,000
Expenditures				
Three bridges	$ 82,000			
All other	487,000			
Total		569,000	82,000	487,000
Net Loss		$526,000	$ 82,000	$476,000
Public Service Enterprises(d)				
Receipts		245,000		245,000
Expenditures		35,000		35,000
Net Revenue		$210,000		$210,000
Harbor Security				
Expenditures		$530,000	$530,000	
Total Cost		$865,000	$612,000	$266,000

(a) Annual average for 1948-1953.
(b) Average appropriation for two years; would be discontinued.
(c) State appropriation to City toward maintenance of icebreaker "Annapolis"; would be discontinued.
(d) Excludes three self-sustaining port facilities under long-term lease.

As unemcumbered properties the McComas Street Terminal and the National Gypsum Company's pier would provide about $560,000 annually to the Authority until 1959. In that year the Western Maryland Railway lease for the McComas Street Terminal will expire. The renewal rate will have been negotiated prior to that time. The National Gypsum Company lease will provide a yearly rental of about $80,000 until 1974, after which the income from that lease would drop to about $44,000 under the existing renewal agreement. The transfer to the Authority of the National Can Company project, and any others which may be initiated by the present Port of Baltimore Commission, would provide no net revenue to the Authority in the near future.

As described in Chapter VII and indicated in Table IX-1, the total revenue derived from functions of the City's Bureau of Harbors and from the City's Public Service Enterprises averaged approximately $256,000 during the five years from 1949 through 1953. It is anticipated that receipts from those functions will gradually increase as the volume of commerce through public port facilities grows and could provide a reliable source of income to cover partially the Authority's budget.

In total, the City owned facilities could provide revenues of approximately $816,000 yearly until 1959, leaving an annual deficit of about $84,000. The level of subsequent receipts is dependent upon the results of the negotiations of lease renewals and upon the rate of increase of port commerce at public facilities.

OTHER REVENUE FOR THE AUTHORITY

As a supplementary source of income the State should allocate revenues to be derived either from presently refunded taxes on marine gasoline sales or from generally exempted State taxes on manufacturers' tools and machinery. The estimated potential annual incomes from these sources at current levels are $210,000 or $150,000, respectively.

In total, therefore, the Maryland Ports Authority would receive during its first years of operation an annual revenue of $1,000,000 more or less, the exact amount depending on the tax means selected. This income would provide a small but desirable annual surplus. The total income after 1959 would be affected by the results of negotiations in connection with the renewal of the lease for the McComas Street Terminal. Subsequently, in 1974, it would be affected by adjustments in connection with the lease for the National Gypsum Company's pier. The legislation which will authorize the supplementary income from State sources should include provisions for adjustments to meet the anticipated changes in other sources of income to the Authority.

APPROPRIATIONS FROM THE STATE

The State of Maryland presently appropriates an average of about $43,000 yearly for activities at the Port of Baltimore. This consists of funds given to the Baltimore Association of Commerce for port promotion and protection and funds given to the City for a share of the maintenance costs of the icebreaker "Annapolis".

It is proposed that these annual appropriations be discontinued but that initially the State appropriate a sum which would be adequate to cover the transfer from the City to the Authority of the McComas Street Terminal and the National Gypsum Company pier. The size of this initial appropriation would depend upon the payment agreed to by the City, but it should be sufficient to cover the unamortized investment of the City in the two facilities, estimated at about 2.0 million dollars for the McComas Street Terminal and about 1.5 million dollars for the National Gypsum Company pier. If the appropriation available from the State would not be adequate to cover the transfer of both of these facilities to the Authority, it would be desirable as a minimum to transfer the McComas Street Terminal. Such a lump-sum appropriation by the State toward establishing the Maryland Ports Authority on a self-sufficient basis would be well justified.

THE PORT OF BALTIMORE

A RE-SURVEY FOR

THE MARYLAND LEGISLATIVE COUNCIL

PORT COMMITTEE

APPENDICES

APPENDIX I-A

ACKNOWLEDGMENTS

United States Department of the Army, Corps of Engineers, Baltimore District

Col. Stephen E. Smith, District Engineer
Mr. John J. Reynolds, Chief, Rivers & Harbors Division
Mr. C. F. Pfrommer, Chief, Engineering Division
Mr. M. A. Koleasar, Navigation & Reports Section
Mr. Frederick M. Lucey, Commercial Statistics

United States Department of the Treasury

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United States Department of the Interior

Mr. Norwood B. Melcher, Chief, Ferrous Metals and Alloys Branch, Bureau of Mines

St. Lawrence Seaway Development Corp.

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Steamahip Trade Asaociation

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Mr. Paul Amundaen, Director

Asaociation of American Railroads

Mr. E. P. Miller, Manager, New York Office

American Iron and Steel Institute

Dr. John W. W. Sullivan, Director of Reaearch

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Mr. H. E. Simpson, President
Mr. Douglas Turnbull, Assistant to the President
Mr. John Edwards, Jr., General Manager
Mr. H. L. Exley, Aaaistant to General Manager
Mr. Frank White, Foreign Freight Traffic Manager
Mr. Joseph Stanton, Assiatant Public Relations Director

Pennsylvania Railroad Company

Mr. F. B. Kraus, Supervisor of Exports
Mr. E. D. Zeigler, Foreign Freight Traffic Manager
Mr. J. A. Robb, Jr., Pier Agent

Western Maryland Railway Company

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Mr. C. L. Pfeiffer, Assistant to Foreign Freight Traffic Manager

Canton Railroad Company

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Mr. S. T. Kelsey, Jr., Executive Assistant

Waterman Steamship Corp.

Mr. Albin Davis, Traffic Manager
Mr. J. V. Guthrie, Assistant Manager

Individuals Having Business and Civic Interest in the Ports

Mr. R. B. Allen, The Texas Company
Mr. Carlisle Barton, Niles, Barton, Yost & Dankmeyer
Mr. Daniel Brewster, Member of House of Delegates
Mr. Herbert M. Brune, Jr., President, Baltimore Port & Terminal Corp.
Mr. W. C. Burns, President, Atlantic Coast Terminals Inc.
Mr. A. H. Carpenter, District Sales Manager, Olin Mathieson Chemical Corp.
Mr. William J. Casey, Chairman of the Board, Maryland Trust Co.
Mr. J. W. Cohen, Assistant Traffic Manager, Olin Mathieson Chemical Corp.
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Mr. Ernest T. Gartner, American Sugar Refining Co.
Mr. Charles Garland, Alexander Brown & Sons
Mr. Robert J. George, Industrial Development Engineer, Consolidated Gas Electric Light and Power Co.
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Mr. Edward L. Johns, American Federation Of Labor
Mr. A. G. Janney, President, Baltimore Cold Storage Co.
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Mr. Samuel Shapiro, Samuel Shapiro & Co.
Mr. R. T. Smith, Davison Chemical Co.

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Mr. J. T. Wilson, Jr., Manager, Sun Oil Company
Mr. E. B. Wright, Vice President, A. H. Bull & Co.
Mr. C. M. Wrightson, Manager, Camden Warehouses
Mr. S. A. Wuchter, Esso Standard Oil Co.
Mr. Marion E. Wynn, Manager, United Fruit Co.

APPENDIX IV-A

TOTAL FOREIGN TRADE OF SELECTED U.S. COASTAL PORTS, 1948-1953
(1000 Short Tons)

Port		1948	1949	1950	1951	1952	1953	% Change 1953/1948
Boston:	Total	3,154	3,882	5,538	5,483	5,186	4,991	+58.2
	Imports	2,834	3,449	5,299	5,101	4,850	4,757	+67.8
	Exports	320	433	239	382	336	234	-26.9
New York:	Total	29,938	29,619	32,482	34,960	35,898	35,559	+18.7
	Imports	19,678	20,320	25,481	25,157	27,799	28,838	+46.5
	Exports	10,260	9,299	7,001	9,803	8,099	6,721	-34.5
Delaware River Ports:	Total	16,576	21,004	25,151	27,879	25,769	27,247	+64.0
	Imports	12,712	16,780	23,587	22,244	22,204	25,551	+101.0
	Exports	3,864	4,224	1,564	5,635	3,565	1,696	-56.2
Baltimore:	Total	16,595	17,283	15,059	22,458	21,416	21,374	+28.7
	Imports	10,325	11,297	12,144	14,498	14,843	16,537	+60.0
	Exports	6,270	5,986	2,915	7,960	6,573	4,837	-28.1
Hampton Roads:	Total	16,505	12,833	4,473	32,427	26,217	16,363	- 0.9
	Imports	2,144	1,812	1,836	2,922	3,012	2,874	+39.0
	Exports	14,361	11,021	2,637	29,505	23,205	13,489	- 6.1
FIVE ATLANTIC PORTS:	Total	82,768	84,621	82,703	123,207	114,486	105,534	+27.5
	Imports	47,693	53,658	68,347	69,922	72,708	78,557	+64.7
	Exports	35,075	30,963	14,356	53,285	41,778	26,977	-23.1
New Orleans:	Total	8,385	8,410	8,239	10,283	10,658	10,492	+25.1
	Imports	3,511	3,165	3,619	4,256	4,241	4,467	+27.2
	Exports	4,874	5,245	4,620	6,027	6,417	6,025	+23.6
ALL U.S. COASTAL PORTS:	Total	133,481	142,893	139,939	199,416	193,746	184,375	+38.1
	Imports	68,077	71,153	96,299	101,813	108,674	120,595	+77.1
	Exports	65,404	65,740	43,640	97,603	85,072	63,780	- 2.5

Source: U.S. Army, Corps of Engineers

APPENDIX IV-B

FOREIGN TRADE OF SELECTED PORTS BY COMMODITIES, 1953
(1000 Short Tons)

Commodity	Boston	New York	Delaware River Ports	Baltimore	Hampton Roads	New Orleans
GRAND TOTAL:	4,991	35,559	27,247	21,374	16,363	10,492
TOTAL IMPORTS:	4,757	28,838	25,551	16,537	2,874	4,467
Ores	74	1,152	2,091	12,186	595	895
Petroleum & Products	3,062	18,497	20,547	2,700	1,221	—
Gypsum	205	987	325	275	307	—
Sugar	430	1,143	360	347	2	1,020
Molasses	61	76	593	68	24	799
Bananas	—	610	—	192	17	412
Woodpulp	137	88	159	46	2	11
Rubber	58	508	1	70	1	44
Misc. Cargo	730	5,777	1,475	653	705	1,286
TOTAL EXPORTS:	234	6,721	1,696	4,837	13,489	6,025
Coal & Coke	—	109	173	1,577	12,399	5
Grain	116	243	620	2,031	530	2,285
Iron & Steel Products	3	861	107	627	15	181
Petroleum & Products	—	470	264	7	—	994
Wheat Flour	—	343	5	36	5	344
Fertilizers	3	30	5	188	37	3
Canned Foods	—	98	6	29	22	37
Misc. Cargo	112	4,567	516	342	481	2,176

Source: U.S. Army, Corps of Engineers

APPENDIX IV-C

BALTIMORE'S OCEANBORNE TRADE* BY COMMODITIES, 1948-1953
(1000 Short Tons)

Commodity	1948	1949	1950	1951	1952	1953
GRAND TOTAL:	24,187	24,706	24,302	31,153	30,040	29,802
TOTAL RECEIPTS:	16,907	17,385	19,622	21,636	22,030	23,563
Ores	6,358	6,823	7,414	9,548	10,523	12,192
Petroleum & Products	7,932	7,431	8,600	8,481	8,345	8,251
Gypsum	254	250	312	306	292	275
Sugar	321	538	493	487	527	546
Molasses	96	21	43	42	42	86
Bananas	199	189	162	188	167	192
Woodpulp	98	46	97	64	33	46
Rubber	61	46	62	62	61	70
Fertilizer Materials	630	665	801	892	766	712
Sulfur	301	330	434	336	299	297
Lumber	59	61	106	85	106	161
Iron & Steel Products	175	523	521	515	141	124
Canned Foods	30	51	122	107	124	95
Coffee	52	68	46	50	47	38
Misc. Cargo	341	343	409	473	557	478
TOTAL SHIPMENTS:	7,280	7,321	4,680	9,517	8,010	6,239
Coal & Coke	3,520	1,391	433	4,207	3,173	1,600
Grain	1,189	1,510	1,194	2,567	2,199	2,036
Iron & Steel Products	1,317	1,617	1,450	1,399	1,549	1,531
Petroleum & Products	287	319	341	181	204	178
Wheat Flour	25	76	50	35	19	28
Fertilizers	228	369	535	295	257	200
Canned Foods	45	44	45	41	47	53
Motor Vehicles	25	22	14	39	20	13
Machinery	102	93	70	72	72	100
Misc. Cargo	542	1,880	548	681	470	500

*Including foreign, intercoastal, coastal, and insular movements.

Source: U.S. Army, Corps of Engineers

APPENDIX V-A

PORT OF BALTIMORE

SUMMARY OF EXISTING PIERS AND MAJOR HARBOR FACILITIES

Based on Data in Port Series 10: U.S. Corps of Engineers & Guide to Port of Baltimore published by Baltimore Association of Commerce

	PRIVATE COMPANIES	RAILROAD TERMINALS				MARYLAND & U.S. GOVT.	TOTAL
		B&O	P.R.R.	W.MD.	CANTON COMPANY	CITY OF BALTIMORE	
General Cargo	6	7	4	1	5	5	28
Ship Repairs	30	1	1		1	4	37
Special Industry	30						30
Moorings	10		3	1		4	5 23
Not Used	11	2			1	6	1 21
Bulk Cargo	11	1	1			1	14
Petroleum	18				1		19
Fertilizer	18						18
Lumber	9		1			5	15
Coal	3	2	1	1		1	8
Car Float Bridges	1	3	1	6	1		12
Ore	6	1	1	1	1		10
Grain	2	2	1	1			6
Fruit	1					1	2
Storage	15					2	17
TOTAL	171	19	14	11	10	29	6 260

APPENDIX V-B

PORT OF BALTIMORE

SUMMARY OF DEEP WATER BERTHS

FOR MODERN VESSELS

Based on Data in Port Series 10: U.S. Corps of Engineers & Guide to Port of Baltimore published by Baltimore Association of Commerce

	PRIVATE COMPANIES	RAILROAD TERMINALS					MARYLAND & U.S. GOVT.	TOTAL
		B&O	P.R.R.	W.MD.	CANTON COMPANY	CITY OF BALTIMORE		
General Cargo	1	12	6	2	11	5		37
Ship Repairs	7							7
Special Industry	2							2
Moorings	2						4	6
Bulk Cargo	1	7	3	2		1		14
Petroleum	6							6
Lumber	1		3					4
Coal		2	2	2				6
Ore	4	1	3	6	3			17
TOTAL	24	22	17	12	14	6	4	99

APPENDIX V-C

GENERAL CARGO PIERS AT PORT OF BALTIMORE

U.S.E.D. No.	Pier or Wharf Designation	Type	No. of Berths Deep Sea	No. of Berths Coastwise	Transit Shed Area Per Berth - Sq. Ft. Deep Sea	Transit Shed Area Per Berth - Sq. Ft. Coastwise	Apron Width Downstream	Apron Width Upstream	Number of Tracks Apron	Number of Tracks Int.	Number of Tracks Rear
	Lower Canton Terminal										
19*	Pier 11	Wharf	2		83,300		20'		1S		2D
20*	Pier 10	Wharf	1		25,000			33'	2S		2D
21	Pier 6,7,8	Wharf	3		73,900		39'	30'	1S		2D
22	Piers 4,5	Wharf	2		30,000		32'		1D		2D
23	Pier 3	Pier	2		54,600		20'	21'	1S	2D	
	Upper Canton Terminal										
41	Pier 1	Pier	4		80,440		32'	18'	2S,1S	2D	
42	Pier 6	Pier	2	2	35,130		6'	6'		2D	
	Rukert Piers										
33	Lazsretto Point	Wharf	1		Construction Proposed			Varies			
105	Main Rukert Pier	Pier		1	6,800			5'		None	
123	Municipal Pier 5	Pier		2	26,200			Varies		None	
124	Municipal Pier 4 East	Pier		1	12,000		Open	None		None	
126	Municipal Pier 3	Pier		2	16,000		2'	2'		None	
	Locust Point Terminal										
172	Pier 10	Pier	1	1	16,000	9,000	11'	13'	1D		2S
173	Pier 9	Pier	2	1	44,000	22,000	14'	14'	1S,2S	2D	
174	Pier 8	Pier	2	1	51,000	26,000	8'	14'	1S	2D	
175	Pier 7	Pier	3	1	9,000	6,000	15'	16'	1D		
176	Pier 6	Pier	4		32,500		14'	14'	1S,1D	2D	
177	Pier 5	Pier	2	2	9,300	4,600	6'	29'	2S		
180	Pier 3	Pier	4		29,900		14'	14'	1S,2S	2D	
	Port Covington Terminal										
191	Pier 9	Wharf	1	1	88,000	44,000	20.5'		1S	2D	
192	Pier 8	Pier	3		47,000		20.5'	32.5'	1S,2S	2D	
193	Pier 7	Wharf	1		108,000		32.5'		2S		2D
197	Pier 5	Wharf	2	2		27,000	20'	5'	2S	2D	

*Pier Nos. 19 & 20 are the East and West sides respectively of a single pier.

Abbreviations: S - Surface tracks, D - Depressed tracks

APPENDIX V-D

PORT OF BALTIMORE - NAVIGATION CHANNELS

SECTION	IMPROVEMENTS REQUESTED June 1953		AUTHORIZED FEDERAL PROJECT			PRESENT DIMENSIONS 1954			
				1945		Depth		Width	
	Depth	Width	Depth	Width	Length	Dredged	Controlling	Dredged	Controlling
MAIN CHANNEL									
York Spit Section	41	1000	39	1000	6.7 mi.	39		1000	
Craighill Entrance to Sparrows Point	41	1000	39	600	12 mi.	39	38	600	500
Sparrows Point to Fort McHenry	41	800	39	600	8 mi.	39	39	600	600
BRANCH CHANNELS									
Curtis Bay	41	600	35	400	2.2 mi.	35	35	400	400
Curtis Creek To:									
Below Pennington Ave.	35	200	35	200	4530 ft.		35		200
U.S. Ordnance Depot.		None	22	200	6305 ft.		22		200
Arundel Cove		None	22	200	2780 ft.		19.4		200
Arundel Cove		None	22	100	2120 ft.		21.1		100
MIDDLE BRANCH									
To Port Covington	41	600	35	400	8000 ft.		35		400
To Ferry Bar	32	100	35	400	4000 ft.		19		170
Spring Garden	32	100	27	250	5100 ft.		9.5		250
NORTHWEST BRANCH	39		35 min.	650	Varies		35		950
CONNECTING CHANNEL	35	600	27	400	5.8 mi.		25		400

NOTE: Unless otherwise specified, dimensions noted above are in feet.

APPENDIX V-E

PORT OF BALTIMORE - ANCHORAGES

NAME	MUNICIPAL ANCHORAGE NUMBER	PRESENT DIMENSIONS 1954			AUTHORIZED FEDERAL IMPROVEMENTS				BERTHING CAPACITY	
		Depth	Width	Length	Depth	Width	Length	Type	Number	Regulations
General	A	35	Dredged by city		35	Maintenance only		Large		12 hour limit
General	B									
Yacht Club	C							Yachts		
Fort McHenry	1	34	400	3500	35	400	3500	Large	2	Overnight (12 hrs.)
General	2	22						Under 24'	7	4 days
Riverview No. 1	3	33	1500	4500	35	1500	4500	Over 24'	4	4 days
Riverview No. 2	3a	30	1200	2400	30	1200	2400	Large	2	
General	4	20						Under 20'	12	Special Permit
General	5	19						Barges	15	4 days
Explosives	6	20						Under 20'	3	Explosives (only)
Quarantine	7	35	600	3500	35	600	3500	Large	2	Quarantine Inspection
Dead	8	24						Under 24'	6	Permit
General	9	22						Under 24'	2	12 hours
General	10	20						Under 20'	4	

APPENDIX V-F

MAINTENANCE AND DEEPENING OF CHANNELS AND ANCHORAGES AT BALTIMORE BY THE FEDERAL GOVERNMENT DURING FISCAL YEARS 1949 TO 1953

Based on Annual Reports of U.S. Corps of Engineers

YEAR ENDING 30 JUNE	REACH OF CHANNEL	QUANTITIES CU. YDS. MAINTENANCE	QUANTITIES CU. YDS. NEW WORK	COST MAINTENANCE	COST NEW WORK
1949	Craighill-cutoff Angle	17,880	512,688		
1949	Cutoff-Brewerton Angle & Brewerton Section		1,147,800		
1949	Craighill Entrance Section, Cutoff Section	1,119,169			
1949	TOTAL	1,137,049	1,660,488	$323,905	$1,055,484
1950	Cutoff-Brewerton Angle		25,341		
1950	Riverview Anchorage No. 2		65,000		
1950	Craighill & Brewerton Anglea alao Cutoff Section & Northwest Harhor	1,340,649			
1950	TOTAL	1,340,649	90,341	$445,014	$82,364
1951	Riverview Anchorage No. 2		739,623		
1951	Brewerton Section to Sparrowa Pt.		201,878		
1951	Brewerton Section	11,410	599,428		
1951	Brewerton-Fort McHenry Angle	40,572			
1951	TOTAL	51,982	1,540,929	$42,072	$1,029,700
1952	Brewerton-Fort McHenry Angle	70,317	289,421		
1952	Fort McHenry Section	6,642	603,358		
1952	Craighill-Cutoff Angle, Cntoff Section, Brewerton Section, Riverview Anchorsge No. 1, Curtia Bay, snd Ferry Bar Channela	2,053,234			
1952	TOTAL	2,130,193	892,779	$698,355	$619,380
1953	Brewerton-Fort McHenry Angle	15,868	573,275		
1953	Fort McHenry Section	72,540	367,080		
1953	Craighill-Cutoff Angle, Cut-off Section, Brewerton & Craighill Sections	1,270,460			
1953	TOTAL	1,358,868	940,355	$345,932	$709,960
	TOTAL FOR FISCAL YEARS 1949 THRU 1953	6,018,741	5,124,892	$1,855,278	$3,496,888
	TOTAL FOR ALL YEARS PRIOR TO 1953			$7,266,067	$16,660,464

APPENDIX V-G

MAINTENANCE OF CHANNELS AND ANCHORAGES IN BALTIMORE
LOCATION, QUANTITY AND COST OF MAINTENANCE DREDGING 1949 TO 1953 BY CITY OF BALTIMORE

from
Annual Reports of Bureau of Harbors
City of Baltimore

YEAR	INNER HARBOR		JONES FALLS		SPRING GARDENS		*MISCELLANEOUS		TOTALS	
	CU. YDS.	COST	CU. YDS.	COST	CU. YDS.	COST	CU. YDS.	COST	CU. YDS.	COST
1949	18,552	$11,687.76	24,740	$12,864.80	30,171	$15,688,92	87,485	$49,926.21	160,948	$90,167.69
1950	49,675	33,779.00	42,020	21,850.40	34,509	17,944.68	-14,146	- 15,163.56	140,350	$88,737.64
1951	50,487	34,331.16	46,479	25,563.45	37,136	20,424.80	30,512	18,728.60	164,614	$99,048.01
1952	31,682	22,177.40	48,587	29,152.20	55,024	33,014.40	1,679	1,679.00	136,972	$86,023.00
1953	10,034	7,023.80	40,615	27,212.00	89,100	53,460.00	41,278	28,481.82	181,027	$116,177.62
						TOTAL FOR PERIOD FROM 1949 TO 1953			783,911	$480,153.96

*Includes dredging at Anchorage 3 and at Smallwood Park during 1949;
dredging at Bush Street dock and at Consolidated Gas and Electric Co. Dock during 1950;
dredging at Light St. and Consolidated Gas and Electric Dock during 1951 and 1952;
dredging at Light Street during 1953.

In addition, approximately $4,600,000 has been spent by private interests during the period from 1949 through 1953 for maintenance of private channels, anchorages, and berthing space in the Port.

APPENDIX V-H

PORT OF BALTIMORE

VESSEL TRIPS AND DRAFTS

DRAFTS (Feet)	1948	1949	1950	1951	1952	1953
37	-	1	-	2	1	-
36	4	9	53	40	26	41
35	48	59	61	96	116	109
34	60	44	4	15	11	19
32 to 33	25	22	112	128	110	134
30 to 32	349	354	409	487	402	380
28 to 30	507	512	425	788	819	680
26 to 28	569	456	284	463	476	491
24 to 26	440	464	482	660	637	740
22 to 24	707	803	959	994	963	1,184
20 to 22	986	1,102	1,416	1,265	1,430	1,084
18 to 20	1,154	1,408	819	801	1,859	778
Under 18	130,275	110,924	114,188	79,498	94,085	94,722
TOTAL	135,124	116,158	119,412	85,228	100,935	100,694
TOTAL NET REGISTERED TONNAGE	55,436,915	58,015,434	66,822,628	69,465,825	60,654,356	58,032,577

Source: U.S. Army, Corps of Engineers

APPENDIX V-I

CHESAPEAKE AND DELAWARE CANAL
VESSEL TRIPS AND DRAFTS

Based on Annual Reports of U.S. Corps of Engineers

Draft in Feet	1949	1950	1951	1952	1953
27					
26					
24 to 26	119	82	87	55	34
22 to 24	331	337	498	311	307
20 to 22	488	569	694	415	454
18 to 20	720	819	834	729	770
16 to 18	767	832	937	749	*14,983
14 to 16	777	933	912	725	
12 to 14	750	909	903	810	
12 and under	9,243	10,025	11,934	11,206	
TOTAL	13,186	14,506	16,835	15,000	16,548
Total Net Registered Tons	13,561,800	15,269,891	18,563,230	14,601,326	16,926,486

*Includes vessels with drafts 18 feet and under

APPENDIX VII-A

BALTIMORE BUREAU OF HARBORS PERSONNEL (1953)

Administrative and Engineering	5
Clerical	2
Supervisors	4
Radio	6
Inspection	1
Total Bi-Weekly	18
Shop Mechanics and Dock Repairmen	19
Boat Crews	28
Bridge Crews	17
Laborers	23
Total Per-Diem	87
GRAND TOTAL	105

APPENDIX VII-B

REIMBURSEMENTS RECEIVED BY BALTIMORE CITY FROM STATE OF MARYLAND FOR MAINTENANCE OF ICEBOAT "ANNAPOLIS"

Fiscal Year Ending June 30	
1949	$17,500.00
1950	47,960.38*
1951	35,000.00
1952	23,779.50
1953	26,827.27
1954	10,000.00
Five Year Average	32,213.43

*Includes $28,478.75 special repairs

Source: Baltimore City Bureau of Accounts and Disbursements

APPENDIX VII-C

SECURITY EXPENSES OF BALTIMORE'S FIRE AND POLICE DEPARTMENT MARINE DIVISIONS

	MARINE FIRE FIGHTING	POLICE HARBOR PATROL
1949	$444,919	$51,879
1950	427,885	30,201
1951	489,006	32,643
1952	527,096	50,994
1953	522,142	72,889

Source: Baltimore City Bureau of Accounts and Disbursements and Police Department

APPENDIX VIII-A

CLASSIFICATION OF PORT ADMINISTRATIONS IN THE UNITED STATES BY POLITICAL UNITS AND TYPES

BI-STATE

Public Corporations

Bi-State Development Agency, Missouri and Illinois
Delaware River Port Authority
Port of New York Authority

STATE

Public Corporations

Board of Commissioners for the Lake Charles Harbor Terminal Docks
Board of Commissioners of the Port of New Orleans
Georgia Ports Authority*
Maine Port Authority, Portland
North Carolina State Ports Authority*
South Carolina State Ports Authority*
South Jersey Port Commission, Camden
Virginia State Ports Authority*

Independent Commissions

Alabama State Docks Board*
Board of Harbor Commissioners Territory of Hawaii
Commissioners of Steamship Terminals of Connecticut, New London
Port of Boston Commission
Board of State Harbor Commissioners for San Francisco Harbor

LOCAL

Albany Port District Commission
Board of Harbor Commissioners, Los Angeles
Brownsville Navigation District
Brunswick Port Authority, Georgia
Hillsboro County Port Authority, Tampa
Norfolk Port Authority
Pensacola Port Authority
Port of Coos Bay Commission, Oregon
Port of Beaumont, Navigation District
Port of Long View, Washington
Port of Seattle
Port of Tacoma
Port of Vancouver, Washington
Port of Willapa Harbor, Raymond, Washington
Savannah District Authority

Independent Commissions

Board of Commissioners of Redwood City
Board of Harbor Commissioners, Port of Long Beach
Board of Port Commissioners, Oakland, California
Broward County Port Authority, Port Everglades
Commission of Public Docks of Portland
Fort Pierce Port Authority, Florida
Harbor Commission, City of San Diego
Harris County Houston Ship Channel Navigation District
Port Authority of St. Paul
Port of Astoria, Oregon
Port of Baltimore Commission
Port of Corpus Christi
Port of Detroit Commission
Port of Gulfport
Port of Port Angeles, Washington

Government Departmental Agencies

Board of Harbor Commissioners, City of Milwaukee, Wisconsin
Bureau of Harbors of Baltimore
Bureau of Port Operations, Department of Commerce of Philadelphia
Department of Marine and Aviation of the City of New York
Department of Port Operations and Development of Miami
Department of Public Works, Chicago
Jacksonville City Commission
Port and Harbor Commission, Cleveland

Private Port Corporations

Parr Richmond Terminal Company, Richmond, California
Texas City Terminal Railway Company

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* Govern all ports in State

APPENDIX VIII-B

FUNCTIONS PERFORMED BY SIXTY-ONE PORT AUTHORITIES IN THE UNITED STATES (1951)

	NUMBER OF AUTHORITIES	PERCENT OF SAMPLE
Record traffic and financial data	59	97
Represent port for federal aid	59	97
Construct facilities	53	87
Port accounts	53	87
Plan development of port	52	85
Rules and regulations on handling	51	84
Public relations, general promotion	51	84
Promote traffic	48	79
Maintain wharves	47	77
Condemn property	47	77
Port statistics	47	77
Collect charges	46	75
Own and develop industrial sites	45	74
Assign berths	42	69
Lease wharf facilities	40	66
Float own securities	40	66
Bulkhead construction	39	64
Handling equipment	34	56
Dredge channels and slips	33	54
Police docks	33	54
Operate bulk terminals	29	48
Survey and sound harbor	28	46
Operate public wharves	28	46
Operate harbor craft	19	31
Lease rail facilities	18	30
Operate rail facilities	15	25
Operate airports	13	21
Regulate private terminals	13	21
Regulate ferries, tunnels or bridges	10	16
Approve or license pilots	9	15
License stevedores	5	8

Source: Adapted from, "Port Administration in the United States", by M.L. Fair

APPENDIX VIII-C

DISTRIBUTION OF PORTS BY NUMBER OF COMMISSIONERS

SPECIFIED NUMBER OF COMMISSIONERS	NUMBER OF PORTS
1	4
3	15
5	26
7	4
9	1
10	2
11	1
12	1
16	1

DISTRIBUTION OF PORTS BY COMMISSIONERS' TERMS

SPECIFIED TERM IN YEARS	NUMBER OF PORTS
1	1
2	3
3	7
4	17
5	10
6	12
7	2
10	1

Source: "Port Administration in the United States", by M.L. Fair

APPENDIX IX-A

DISTRIBUTION OF MOTOR VEHICLE TAX REFUNDS
STATE OF MARYLAND

	Fiscal Year Ended June 30			
	1951	1952	1953	1954
Agriculture	$1,034,246	$1,028,147	$1,058,126	$1,273,496
Boats	153,272	155,312	162,957	210,323
Commercial and Industrial	462,269	453,389	476,321	572,821
Sales Outside of State	317,196	299,855	308,505	230,817
Aircraft	106,379	112,533	193,394	247,889
Domestic and Institutional	6,476	4,856	7,491	12,925
United States Government	6,168	7,974	9,989	13,119
Volunteer Fire Department	2,497	2,732	2,876	4,173
Total	$2,088,503	$2,064,796	$2,219,660	$2,565,563

Source: Comptroller of the Treasury, State of Maryland