

ECONOMIC SURVEY OF THE PORT OF MIAMIINTRODUCTION

The City of Miami owns and operates the existing port facilities fronting on Biscayne Bay. It has long been felt that these facilities should be overhauled and expanded to take care of the present and future traffic, and other economic needs of the area.

A series of studies have been carried out to analyze existing facilities as well as for suggesting ways and means of improving and enlarging the Miami port. These studies have dealt primarily with the problem of additional physical facilities to be erected, their location and their investment requirements. The number and size of recommended improvements are considerable, and the cost of such installations is therefore high.

Most reports dealing with the improvement of the Port of Miami have dealt essentially with the physical aspects of the problem. The economic aspects have so far been considered only superficially, in spite of their relevant importance in determining the need, size and nature of any of the physical improvements.

This study attempts to fill this existing gap, by providing the proper economic background upon which to determine the nature of the desired physical improvements.

Our survey, therefore, has been carried out strictly from the economic standpoint, and relates only to the physical and engineering aspects only insofar as it would help to determine such facility requirements. The detailed nature of such facilities as well as their location is an engineering problem to be considered apart.

One important aspect is that of location. Whether the facility requirements dictated by the economic analysis are placed in one location or another is immaterial to the objective of this study. However, the City of Miami, which sponsors this economic study, has decided to reallocate the existing facilities at Dodge Island. We have therefore, made use of this fact throughout our discussion and worked under the assumption that this economic study would help dictate the nature and size of the facilities to be erected at Dodge Island.

OBJECTIVES OF THE STUDY

This study has two primary objectives. First, it is designed to help indicate the size and nature of the physical facility requirements on the light of future trade traffic which they will be expected to handle.

Second, it is designed to indicate the need for these port facilities, in terms of the economic benefits to the area served by the port facilities, from the trade movement in the same. These benefits accrue largely to the City of Miami and Dade County. As part of our objective an effort has been made to establish their relative share.

OUTLINE OF STUDY

The study consists of five sections. The first one provides an economic analysis of freight traffic by inquiring into the trade volume, the nature of trade, the trends and projections of the same as well as the origin and destination of both imports and exports.

The second section includes an economic analysis of passenger traffic, and will discuss the total volume of passenger traffic, its nature and future development, its seasonality, and also the origin and destination of this traffic.

A third section consists of an estimate of the facility requirements at the projected Miami seaport. These estimates are based on the knowledge about freight and passenger trade and their potentials, as discussed in the previous two sections.

A fourth section attempts to list and estimate the total benefits to the port served area from the existence of the Miami sea port. The objective here is to determine the value of the port to the people of Greater Miami.

The fifth and final section tries to establish a breakdown of these benefits insofar as they accrue to either the City of Miami or the remaining sections of Dade County. An effort has been made to give an indication of the relative share of each on the total benefits derived from the sea port operations.

PART I - ECONOMIC ANALYSIS OF FREIGHT TRAFFIC1. Total Volume of Trade -

It is customary in port trade statistics to include local movement of freight. For our purposes this local movement of cargo can be disregarded entirely. This local movement takes place in considerable quantities within Biscayne Bay and the Miami River, and is largely composed of bulky commodities such as sand and gravel. Since this movement has no direct bearing on the port facilities (inasmuch as these cargoes do not touch the city port) there is no need to take them into account.

Port facilities thus relate to the freight movement entering or leaving the harbor. This may be classified as domestic or foreign, and the total volume of these cargoes moves through existing port facilities at Miami Harbor.

In Table I below, comparative tonnage figures are listed for the years 1938 and 1945 to 1954. The corresponding figures for nearby Port Everglades are also included.

TABLE I

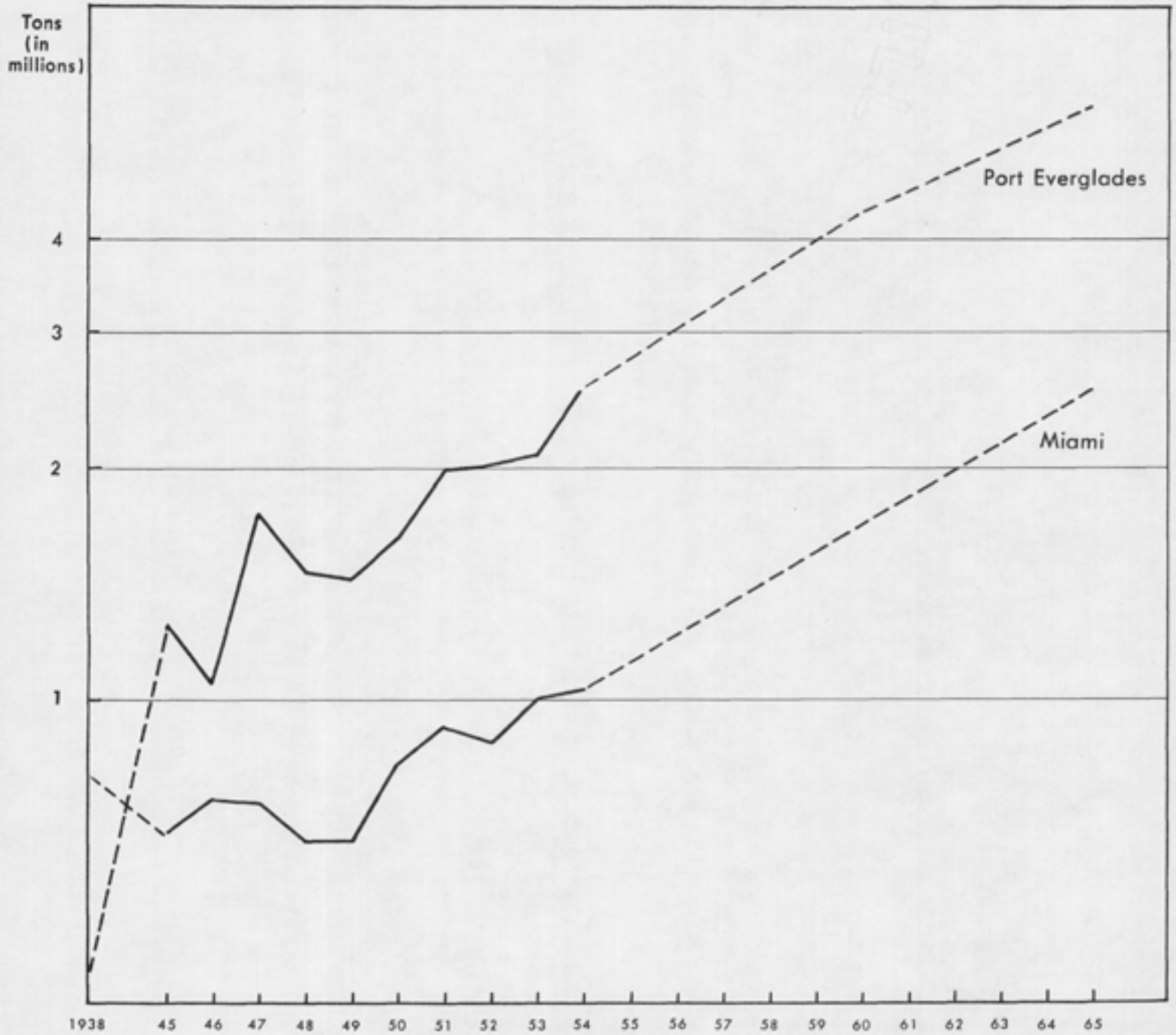
FREIGHT TRAFFIC*- MIAMI HARBOR AND PORT EVERGLADES
1938 AND 1945-1954

	Miami	Port Everglades
	(in thousands of tons)	
1938	801.0	440.5
1945	666.8	1252.4
1946	742.3	1042.8
1947	728.4	1739.0
1948	650.5	1458.8
1949	650.1	1428.5
1950	820.7	1621.8
1951	917.7	1975.3
1952	876.4	2022.2
1953	1011.8	2086.3
1954	1028.1	2529.0
Projected		
1960	1707.4	4279.9
1965	2525.1	5889.3

* Does not include local trade tonnage.

Source: The Board of Engineers for
 Rivers and Harbors
 Corps of Engineers, U.S. Army

Freight Traffic* — Miami Harbor & Port Everglades, 1938 & 1954 - 1954



* Does not include local trade tonnage.

It may be seen from the preceding figures that trade at both ports has been expanding since 1950. This expansion may be readily visualized in the chart where the tonnage figures in Table I are plotted.

Port Everglades is presently handling over twice as much trade tonnage as the Port of Miami. Since 1950, its rate of expansion is roughly similar to that of Miami. Under prevailing trends one may expect that both ports may handle considerable additional tonnage by 1960 and 1965. The projections for these two years appear both in Table I and its related chart. These projections for total tonnage are the sum total of individual projections made for separate commodity categories. The individual projections for Miami appear in the appendix of this report.

The possibility of either port realizing this trade potential would, of course, depend on their ability to improve their present facilities for handling additional cargo.

2. Commodity Characteristics of Trade -

It is an important characteristic of both ports, Miami and Port Everglades, that the bulk of the trade moves into the area rather than from the area. Foreign imports and coastwise receipts annual average for the five year period ending 1954 was 863,176 tons for Miami and 1,801,647 for Port Everglades. The annual average for the same period for foreign exports and coastwise shipments was 67,790 tons for Miami and 245,266 tons for Port Everglades.

TABLE II
TRADE MOVEMENT
MIAMI HARBOR AND PORT EVERGLADES

	Annual Average Miami		1950 - 1954 Port Everglades	
	000's tons	% Total Trade	000's tons	% Total Trade
Foreign Imports	267.6	28.7	323.4	15.8
Coastwise Receipts	595.5	64.0	1478.2	72.2
Total	863.1	92.7	1801.6	88.0
Foreign Exports	55.5	6.0	108.7	5.3
Coastwise Shipments	12.3	1.3	136.6	6.7
Total	67.8	7.3	245.3	12.0
Total Trade	930.9	100.0	2046.9	100.0

The Port Everglades outgoing picture is somewhat misleading inasmuch as most of this tonnage consists of transshipments of molasses and oil products which are temporarily stored at that port.

In terms of commodity groups one encounters a definite pattern whereby Port Everglades is a highly specialized port and Miami is considerably less so. The bulk of Port Everglades trade movement consists of oil products, molasses and cement. All three commodity categories are handled in bulk with the aid of special installations. The extent to which these three commodity groups comprise the Port Everglades trade movement is indicated in the following chart. It may be seen from the chart that the remaining commodity trade is relatively small in the overall picture.

In contrast with the Port Everglades picture we find that Miami tends to attract trade of a miscellaneous nature, usually small volumes of each commodity. The pattern of the Miami trade is indicated in Appendix I where tonnage for the major commodity groups is listed.

One should note that Miami does not handle any molasses. It does handle some cement (in bags) and the harbor has some special installations for oil products. Most of these oil installations are now located on Fisher's Island. Belcher Oil Company, however, does have some improvements in that part of the port presently operated by the city.

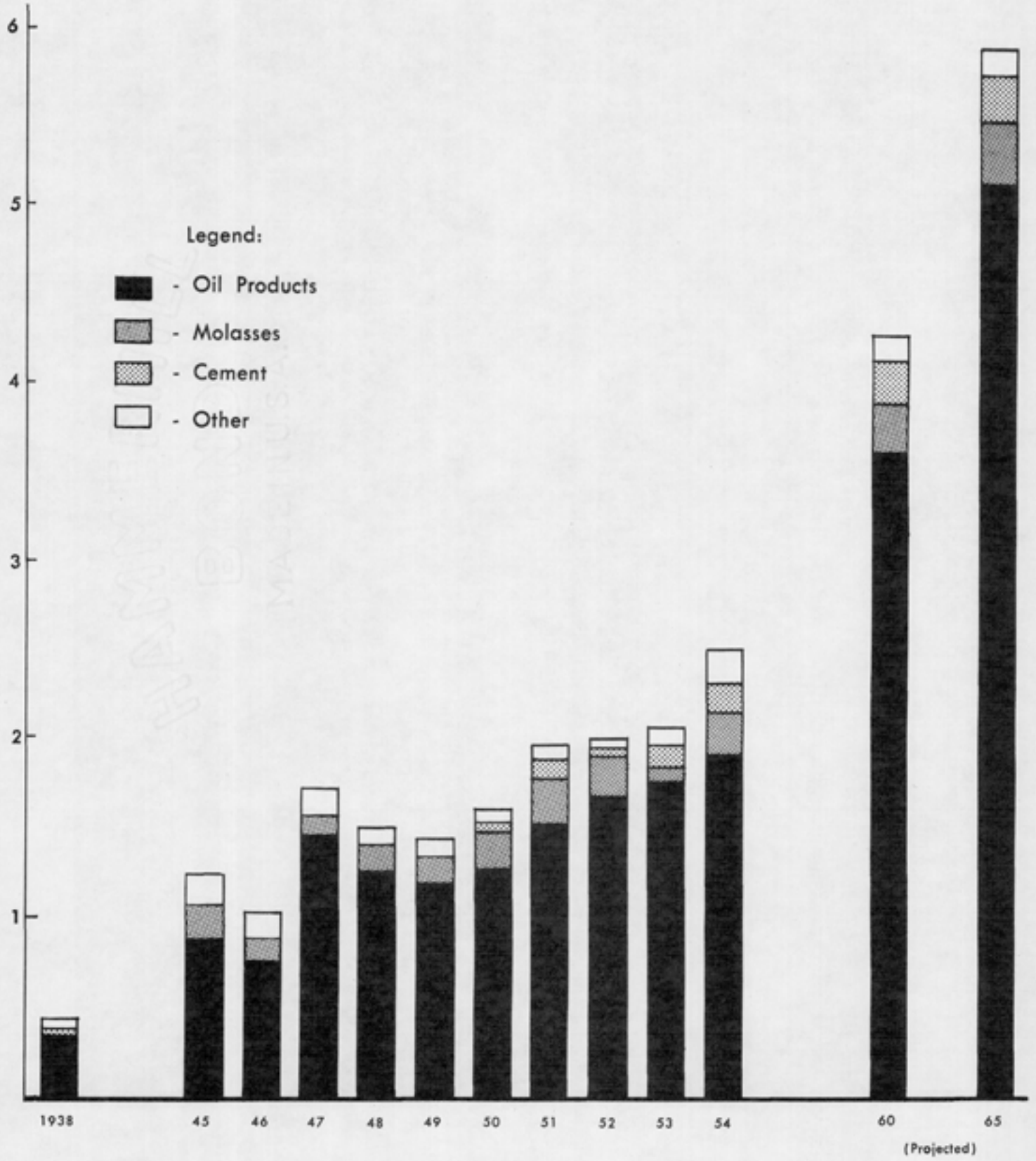
The plans for the new Dodge Island port do not provide for any special installations for handling oil products. The present movement of these products will therefore be shifted somewhere else, either to Fisher's Island or Port Everglades.

The movement of cement (in bags) through the Port of Miami reached its peak in 1951. Since then it has been declining rapidly. The decline may be attributed largely to the special installations provided at Port Everglades for handling that product in bulk. There are some recent indications that the cement trade movement has increased at Miami in recent months. This is due largely to the following reasons. There is presently a shortage of domestic produced cement which has stimulated imports. Because the special facilities for handling cement in bulk at Port Everglades are operating at capacity the increased imports have been coming to a large extent in bags. Miami, therefore, has been able to attract additional tonnage. This situation, however, may be regarded as temporary in nature. The two new cement plants to be built in Dade County will increase the supply of domestic cement eliminating the existing shortage, and therefore reducing the need for imports. At the same time it is possible that expanded facilities for handling bulk cement cargo may become available in the future. Since the Dodge Island port project does not plan to include any such facilities one should not anticipate very large movements of cement at Miami in the more distant future. In all probability the volume handled at the City of Miami port will decline considerably by 1960 and 1965.

Because the Dodge Island port will not be handling oil products or molasses, and only limited quantities of bagged cement it would seem as if the room for competition between this port and Port Everglades will be considerably small. All indications are that the two ports will tend to complement each other and only in minor instances would they be competing for cargo between themselves.

Port Everglades — Commodity Distribution of Freight Traffic 1939 and 1945-1954

Tons
(in millions)



In 1954 Port Everglades handled 2,529,011 tons of cargo. Of this total 2,331,125 or 92.2% corresponded to petroleum products, molasses and cement, leaving 197,886 tons or 7.8% for other general cargo. Even the residual figure is misleading for two items lumber and rolled steel products account for 101,351 tons. Only 96,535 tons or 3.8% of total cargo as of that year was distributed among a miscellaneous number of commodities.

For 1954 the Port of Miami handled 1,028,075 tons of cargo of which oil products accounted for 681,358 tons, leaving 346,717 tons for dry cargo. Unlike the case of Port Everglades this remainder is not concentrated in a few items, but tends instead to be distributed among a large number of commodities. The list appearing in Appendix 1 indicates the general nature of this trade by commodities or commodity groups. It is significant to note that the volume for the category "commodities not elsewhere classified" amounted in 1954 to 29,712 tons for Miami, while the corresponding figure for Port Everglades was 8,632 tons.

All indications are that the future will see a continuation of the prevailing system together with a stronger tendency for specialization at Port Everglades and diversification at Miami. Moreover, the elimination of oil shipments at the Dodge Island port proposal would greatly increase diversification at Miami.

3. Composition of Imports

It has been indicated above that imports and coastwise receipts comprise the bulk of the trade movement at Miami. They amounted to 92.7% of total trade over the five-year period 1950-1954. (See Table II)

Within this import movement the largest concentration took place in the oil products category. Oil products amounted to about two thirds of all imports during the 1950-54 five-year period.

Dry goods imports reveal less concentration. Nevertheless, there exists within them a certain amount of concentration among commodities of related nature, which might be grouped under two major categories: construction materials and foodstuffs.

The very large amount of building activity in the Miami area generates a large demand for the products required in construction. Thus import items such as lumber and shingles; rolled steel mill products; glass and glass products; and building cement consist essentially of products utilized in the building industry. These four items amounted to 11.9% of total imports over the 1950-54 five-year period.

Among imports there exists a very large number of various items which might be classified, in general, as foodstuffs. This grouping consisting of eight items appearing in the Appendix 1 to this study amounted to 10.7% of the total imports over the 1950-54 five-year period.

Table III indicates the volume and relationship of these major import categories to total imports for the 1950-54 period as well as the year 1954 alone. It may be seen that the remaining commodity items not falling within any of the first three major groupings constituted only 11.4% of total imports in the 1950-54 five-year period.

TABLE III
PORT OF MIAMI
COMPOSITION OF IMPORTS*
BY MAJOR COMMODITY CATEGORIES

	Annual Average 1950-54 Tons	%	1954 Tons	%
		<u>Distribution</u>		<u>Distribution</u>
Oil Products	570,531	66.0	661,882	70.4
Construction Materials	102,425	11.9	89,898	9.6
Foodstuffs	92,784	10.7	89,944	9.6
Other Commodities	97,436	11.4	98,520	10.5
Total	863,176	100.0	940,244	100.0

* Imports - Foreign imports plus coastwise receipts

4. Composition of Exports

Exports at the Port of Miami are considerably less important than imports in terms of volume. Their composition is also different whereby the major export items tend to be of a different nature from that of imports.

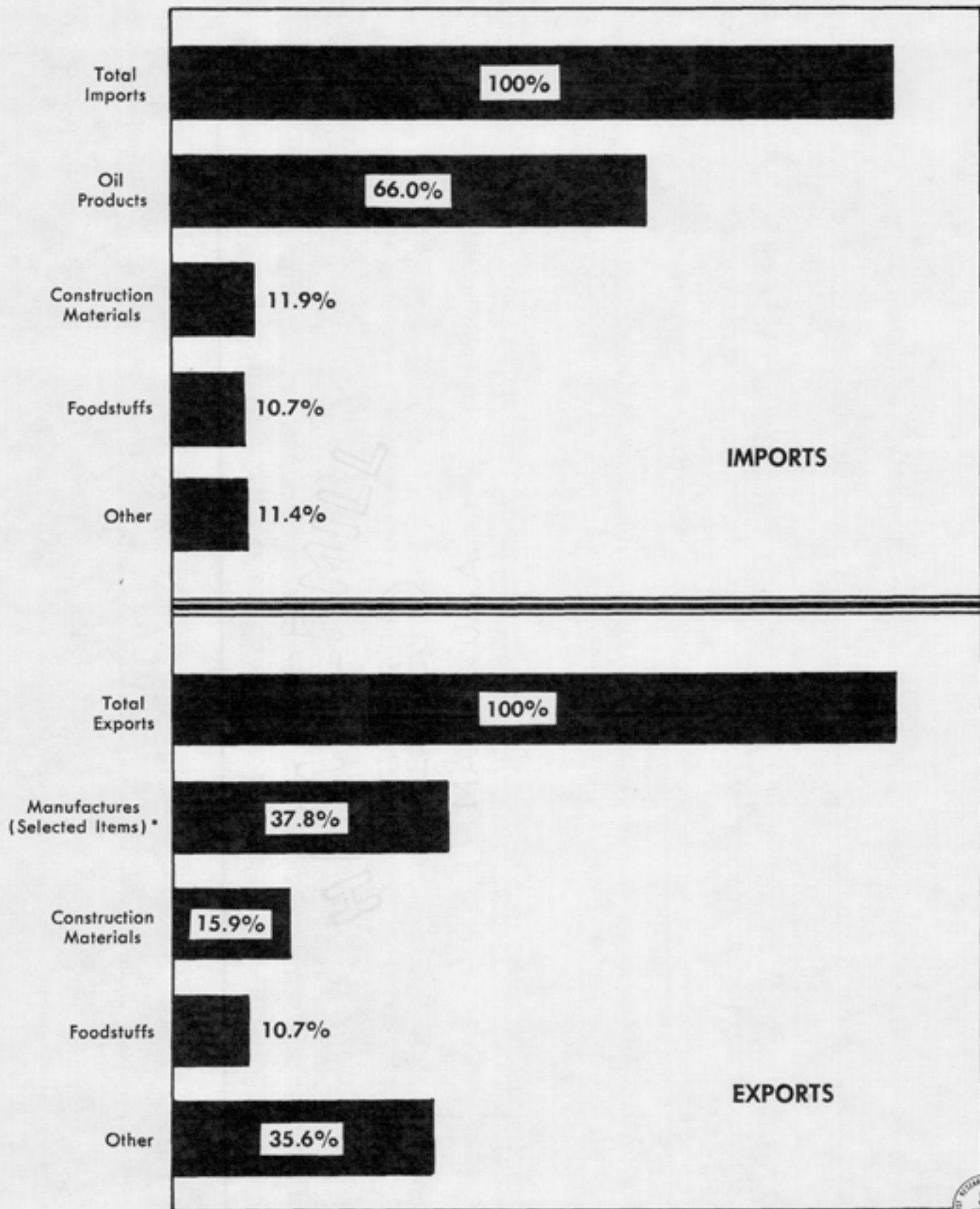
Oil products, which as indicated before constituted such a large share of imports, tend to be negligible in the export picture. Only insofar as occasional shipments take place do they tend to be of any significance. These occasional oil products exports are sometimes large, as for example in 1954 residual fuel oil shipments amounted to 18,018 tons or 20.8% of total exports*. However, since their past history indicates that they are sporadic in nature one cannot attach too much significance to them.

Because oil products are less significant in the export picture, the degree of concentration is considerably less in the export picture as against that of imports.

Upon grouping commodities of related nature we have obtained some general indication on the composition of exports. From Table IV we may see the important role played by several types of manufactured products. Five groups of manufactured products while not very significant by themselves tend to comprehend a relatively large share of total exports when considered together. For the five-year period 1950-54 these five groups of manufactured products comprised 37.8% of total exports.

* Shipments from Miami of all other oil products for 1954 amounted to 1,458 tons or 1.6% of total exports

**PORT OF MIAMI: COMPOSITION of IMPORTS & EXPORTS
by Major Commodity Categories, Annual Average, 1950-54**



* Includes: Paper & Wood Products; Chemical Products; Metal Products; Machinery & Equipment; Transportation Equipment.



The importance of manufactures in the export picture is greater than the above percentage indicates. In the "Other Commodities" grouping we have included a large number of unclassified commodities which in 1954 alone amounted to 16,586 tons or 19.1% of total exports. Undoubtedly, within this unclassified group are included a large number of miscellaneous manufactured products.

Aside from manufactures it is possible to detect some important concentrations in the two major categories mentioned before in the case of imports: Construction Materials and Foodstuffs. For the 1950-54 five-year period Construction Materials and Foodstuffs comprised 15.9 and 10.7% respectively, of total exports.

In conclusion it must be pointed out that Miami's exports tend to consist mainly of finished manufactured products, together with shipments of construction materials and foodstuffs. These export shipments, however, are limited in volume and even as a whole have not amounted to very significant figures. Also, some occasional relatively large shipments of oil products take place, and because the total volume of exports is so limited they tend to have a considerable effect on the nature of exports whenever they occur.

TABLE IV
PORT OF MIAMI
COMPOSITION OF EXPORTS*
BY MAJOR COMMODITY CATEGORIES

	Annual Average 1950-54 Tons	%	1954 Tons	%
		<u>Distribution</u>		<u>Distribution</u>
Manufactured (Selected Items):				
Papers and Wood Products	7,465	11.0	6,185	7.1
Chemical Products	3,375	5.0	2,739	3.2
Metal Products	3,532	5.2	4,938	5.7
Machinery & Equipment	6,658	9.9	6,892	7.9
Motor Vehicles, Watercraft, Railway Equipment and all parts and accessories	4,533	6.7	4,413	5.1
Manufactures (Selected Items) Total	25,563	37.8	25,167	29.0
Construction Materials	10,729	15.9	12,648	14.6
Foodstuffs	7,240	10.7	7,579	8.7
Other Commodities	24,258	35.6	42,437**	47.7**
	67,790	100.0	87,831	100.0

* Includes foreign exports plus domestic shipments.

** Includes large export of 18,018 tons of residual fuel oil for 1954. These shipments are not recurrent in nature.

5. Trends and Projections of Commodity Volumes-

Preliminary investigation of our projection requirements suggested that expected tonnages for 1960 and 1965 should be projected on a commodity or commodity group basis. Commodity projections would make for more accurate estimates than a total or overall tonnage projection. Moreover, in order to estimate the pattern of destination of commodities for 1960 and 1965, it was necessary to have available the individual commodity projections.

The commodity projections for 1960 and 1965 appear in Table V below and in Appendix 1 are based on the continuation of existing trends. One major assumption underlying them, however, is that there will be ample port facilities for handling the projected tonnages, particularly in the case of open storage and liquid storage for oil products. To the extent that these facilities are not provided for, the expected tonnage would be reduced.

We may thus regard these projections as traffic potential which might be realized only if the proper facilities were available at the time.

In some particular instances it was considered that the trends established during the past ten year period would not hold for the future because of new developments in the trade picture, or because of bottlenecks resulting from the inadequacy of existing facilities. The effects of these changing circumstances have been taken into account in arriving at our final estimates, whenever a particular commodity or commodity group was involved.

TABLE V
PORT OF MIAMI
TRADE MOVEMENT PROJECTIONS
BY COMMODITY GROUPS
1960;1965

	Imports	Exports	Total
	I N	T O N S	
1. Fruits, Fresh			
1954	4,407	1,248	5,655
1960	3,800	1,200	5,000
1965	3,800	1,200	5,000
2. Vegetables, Fresh			
1954	5,676	504	6,180
1960	5,000	200	5,200
1965	5,000	-	5,000
3. Bananas, Fresh			
1954	31,227	-	31,227
1960	30,000	-	30,000
1965	35,000	-	35,000
4. All Other Refrigerated Items			
1954	28	622	650
1960	-	260	260
1965	-	170	170

TABLE V (Con't)

PORT OF MIAMI
TRADE MOVEMENT PROJECTIONS
BY COMMODITY GROUPS
1960;1965

		Imports	Exports	Total
		I N	T O N S	
5.	Fruits and Vegetables, Canned or Container-Non-Refrigerated			
	1954	29,457	531	29,988
	1960	56,000	-	56,000
	1965	80,000	-	80,000
6.	Liquors and Wines			
	1954	7,965	330	8,295
	1960	14,000	-	14,000
	1965	22,000	-	22,000
7.	Animal Feeds			
	1954	3,871	1,702	5,573
	1960	3,700	800	4,500
	1965	4,800	1,200	6,000
8.	All Other Non-Refrigerated Items			
	1954	7,313	2,642	9,955
	1960	6,400	2,600	9,000
	1965	5,900	2,500	8,400
9.	Standard Newsprint Paper			
	1954	60,107	10	60,117
	1960	80,000	-	80,000
	1965	100,000	-	100,000
10.	Papers and Manufactures			
	1954	3,654	4,739	8,393
	1960	2,600	9,400	12,000
	1965	2,200	12,300	14,500
11.	Lumber and Shingles			
	1954	21,778	4,302	26,080
	1960	133,000	7,300	140,300
	1965	160,000	9,200	169,200
12.	Wood Manufactures			
	1954	398	1,446	1,844
	1960	750	1,850	2,600
	1965	900	2,000	2,900
13.	All Other Vegetable Products (Inedible) and Textile Fibers			
	1954	3,964	2,100	6,064
	1960	7,000	3,000	10,000
	1965	9,000	3,000	12,000

TABLE V (Con't)

PORT OF MIAMI
TRADE MOVEMENT PROJECTIONS
BY COMMODITY GROUPS
1960;1965

		Imports	Exports	Total
		I N	T O N S	
14.	Motor Fuel and Gasoline			
	1954	57,323	267	57,590
	1960	50,000	1,000	51,000
	1965	47,000	1,000	48,000
15.	Gas Oil and Distillate Fuel Oil			
	1954	123,528	244	123,772
	1960	139,000	-	139,000
	1965	162,000	-	162,000
16.	Kerosene			
	1954	2,698	37	2,735
	1960	2,000	-	2,000
	1965	1,700	-	1,700
17.	Residual Fuel Oil			
	1954	452,494	18,018	470,512
	1960	880,000	-	880,000
	1965	1,500,000	-	1,500,000
18.	Petroleum Asphalt			
	1954	22,703	45	22,748
	1960	28,500	-	28,500
	1965	42,000	-	42,000
19.	Petroleum Products Liquid Form			
	1954	3,136	865	4,001
	1960	3,100	300	3,400
	1965	2,500	300	2,800
20.	Building Cement			
	1954	28,076	2,280	30,356
	1960	15,200	800	16,000
	1965	13,000	500	13,500
21.	Glass and Glass Products			
	1954	9,742	266	10,008
	1960	27,000	-	27,000
	1965	39,500	-	39,500

TABLE V (Con't)

PORT OF MIAMI
TRADE MOVEMENT PROJECTIONS
BY COMMODITY GROUPS
1960;1965

		Imports	Exports	Total
		I N	T O N S	
22.	Iron and Steel Scrap			
	1954	236	2,526	2,762
	1960	-	2,500	2,500
	1965	-	2,500	2,500
23.	Rolled Steel Mill Products			
	1954	29,202	5,800	35,002
	1960	101,000	2,000	103,000
	1965	152,000	2,000	154,000
24.	Other Metal Manufactures			
	1954	4,617	4,938	9,555
	1960	9,500	11,500	21,000
	1965	8,000	20,000	28,000
25.	Construction Machinery and Parts			
	1954	82	1,853	1,935
	1960	-	2,100	2,100
	1965	-	2,250	2,250
26.	Other Machinery			
	1954	2,028	5,039	7,067
	1960	2,500	14,000	16,500
	1965	3,000	19,500	22,500
27.	Fertilizers and Materials			
	1954	336	1,605	1,941
	1960	300	2,600	2,900
	1965	300	3,300	3,600
28.	Other Chemical Products			
	1954	5,308	1,134	6,442
	1960	3,800	900	4,700
	1965	2,900	700	3,600

TABLE V (Con't)

PORT OF MIAMI
TRADE MOVEMENT PROJECTIONS
BY COMMODITY GROUPS
1960;1965

	Imports	Exports	Total
	I N	T O N S	
29. Non-Metallic Minerals Dry Form			
1954	3,593	714	4,307
1960	2,200	400	2,600
1965	2,100	100	2,200
30. Motor Vehicles, Watercraft Railway Equipment and All Parts and Accessories			
1954	1,153	4,413	5,566
1960	1,300	4,050	5,350
1965	2,000	3,800	5,800
31. Sand, Gravel and Crushed Rock			
1954	1,018	1,025	2,043
1960	-	-	-
1965	-	-	-
32. Commodities, NEC			
1954	13,126	16,586	29,712
1960	13,000	18,000	31,000
1965	13,000	19,000	32,000

It may be seen from Table V that larger volumes of certain commodities will move in the projected years, while smaller total trade volumes may be expected for some other ones. In some cases the total trade volume is anticipated to show but a small change. In order to visualize their behavior more effectively, we have proceeded to group the different commodity groups within each one of the three possible fluctuations, as indicated below:

(a) Commodities which will increase in volume -

1. Bananas, fresh
2. Fruits and vegetables, canned or container
3. Liquors and wines
4. Standard newsprint paper
5. Papers and manufactures
6. Lumber and shingles
7. Wood manufactures
8. All other vegetable products (inedible) and textile fibres
9. Gas, oil and distillate fuel oil
10. Residual fuel oil
11. Petroleum asphalt
12. Glass and glass products
13. Rolled steel mill products
14. Other metal manufactures
15. Construction machinery and parts
16. Other machinery
17. Fertilizers and materials

(b) Commodities which will show little change in volume -

1. Fruits, fresh
2. Animal feeds
3. Iron and steel scrap
4. Motor vehicles, watercraft, railway equipment and all parts and accessories
5. Commodities, NEC

(c) Commodities which will decline in volume -

1. Vegetables, fresh
2. All other refrigerated food items
3. All other non-refrigerated food items
4. Motor fuels and gasoline
5. Kerosene
6. Petroleum products, liquid form
7. Building cement
8. Chemical products, other than fertilizers
9. Non-metallic minerals - dry form
10. Sand, gravel and crushed rock

From the above list, one may see that a larger number of commodities or commodity groups fall within the category which is expected to increase in volume as against the ones that are expected to decline. Moreover, the ones in the increasing category are generally more important in the trade movement, and their expected expansion in volume is considerably larger than the reduction foreseen for the declining group. The net effect to be expected, therefore, is a very large expansion of over all trade movement, that is, provided that the port facilities available at the time can handle it.

From Table VI below it may be seen that the sum total of these projections point to a total trade expansion by 1960 or 66% over 1954, and by 1965 of 146% over 1954.

TABLE VI
PORT OF MIAMI
PROJECTED VOLUME OF TRADE
1960 and 1965

		In Short Tons			
		<u>Imports</u> <u>Tons</u>	<u>Export</u> <u>Tons</u>	<u>Total Trade</u> <u>Tons</u>	<u>Index No.</u>
All Trade	1954	940,244	87,831*	1,028,075	100
	1960	1,620,650	86,760	1,707,410	166
	1965	2,419,600	105,520	2,525,120	246
Dry Cargo Trade	1954	278,362	68,355	346,717	100
	1960	518,050	85,460	603,510	174
	1965	664,400	105,220	769,620	222

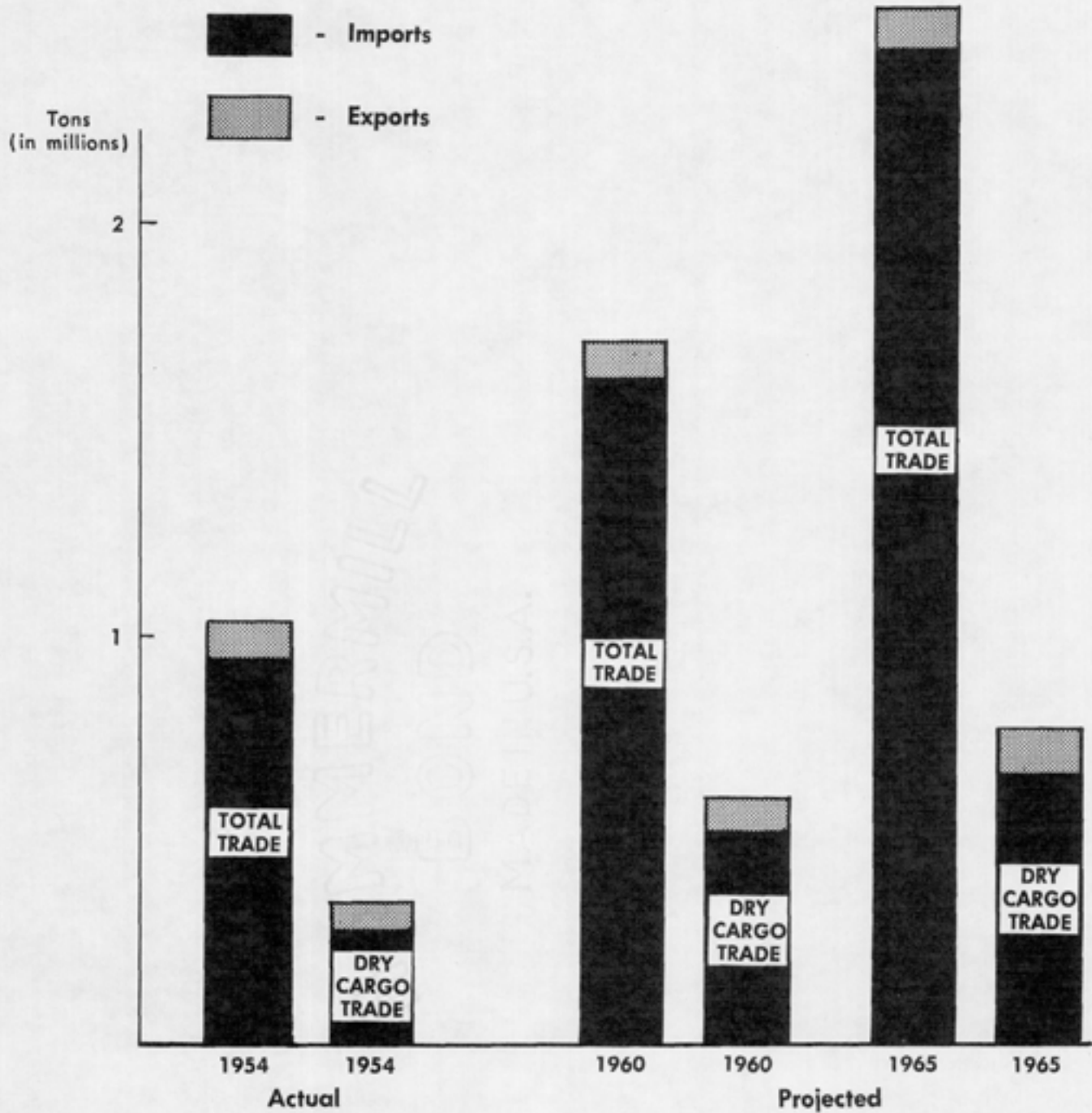
* Note: The 1954 export figure includes residual oil shipments of 18,018 tons. Previous history of these shipments indicate that there is no definite pattern to the occurrence of these shipments (See Appendix 1). Because of that we have made no provisions for future shipments of this nature. It is for this reason that the total tonnage for 1960 exports reveals a slight decline from the 1954 figure, which in reality if residual oil shipments were excluded from the 1954 export total the 1960 projection would reveal a definite increase, as indicated by the dry cargo figures.

If liquid cargo is disregarded we find that dry cargo could possibly expand by 74% in 1960 and 122% in 1965, over 1954.

One may note that a more rapid expansion may be expected in the 1954-60 period than in the 1960-65 time interval. The difference is explained by the fact that there is a trade potential which is not now realized because of the inadequacy of existing port facilities. Upon assuming that the present bottleneck is corrected by 1960 and particularly that space for open storage becomes available, we may then expect to realize a rapid and immediate gain which would not be repeated in the second five-year period.

Port of Miami:

Total Trade & Dry Cargo Trade, 1954 and Projections for 1960 & 1965



The projections in Tables V and VI may be regarded as quite accurate estimates. However, like any other projection into the future they are subject to such deviations as may result from unforeseen developments. Fluctuations of the business cycle, technological developments in the transportation field, and the like may result in offsetting whatever prediction might be possible from our known elements upon which our projections are based. Ordinarily in making projections and because of the impossibility of estimating these effects, such elements are assumed as neutral or constant.

In the realm of unforeseen developments, however, there is one important consideration pertinent to our problem, and that is the emergence of new export products resulting from the economic growth of Miami and the rest of the Caribbean area.

It was indicated in a previous section that the volume of exports is considerably smaller than that of imports. While imports may be projected with relative assurance the same is not the case where exports are concerned. So far Miami has had little experience in selling in the Caribbean markets. It is questionable that Miami may be able to do so to any considerable extent within the next ten years. On the other hand Miami's location with respect to these areas and the rapid growth of air cargo trade with the Caribbean point to a possible development of this trade.

We have provided in our estimates for future expansion of foreign trade for those commodities now exported. We have not, however, been able to provide for new products which may in the future enter the export trade to any significant extent. To the extent that this happens our projections will therefore, fall short. Upon interpreting our projections for 1960 and 1965 one must then regard them, therefore, as being somewhat on the conservative side.

One should not expect, however, any very extensive export trade development with the Caribbean within the next ten years. Southeast Florida's industrial growth, although impressive is still limited in scope. Moreover, most of the manufacturing enterprises developing in the area are of the light industry type. A similar and somewhat parallel development is taking place in the major importing countries of the Caribbean. Generally speaking, their demand for those products which Florida would manufacture will most likely be satisfied from their own newly developed industries. The room for complementarity is likely to remain small in the near future and it will not be until further specialization takes place in both areas, that any important or sizeable trade of manufacture goods may develop between the two. Such development, however, should not be expected to take place for some time yet.

6. Origin of Imports

From Table II it may be seen that for the five-year period 1950-1954 the annual average of seaborne imports for Miami was 863,100 tons. Of this total 595,500 tons or 69% originated from domestic sources* and 267,600 tons or 31% corresponded to foreign imports.

Domestic imports originate largely from three areas: Texas, the northeast of the United States (New York, Philadelphia and Baltimore) and California. An indication of the commodity movement from these three areas is given in Table VII which gives a detailed breakdown of commodity imports by origin for 1953.

The origin of domestic imports from these three areas is determined largely by the type of products moved. The pattern is quite clear cut. Shipments from Texas consist almost entirely of oil products while shipments from California consist largely of canned fruits and vegetables, and wines. The Atlantic ports supply in addition a wide range of other types of commodities, and as a source of dry cargo imports is by far the most important supplier.

Although the volume of domestic imports both in total tonnage and individual commodity tonnage may change in the future there is no reason to believe that their geographical origin will change. The present pattern will most likely continue to prevail, with the same commodity groups moving largely in the manner described above from each one of the three areas mentioned.

Miami's foreign imports originate mainly from three areas: the Caribbean, Canada and Europe. Imports from the Caribbean consist largely of bananas, fresh fruits and vegetables and cement. Occasionally, however, oil products are shipped from the Netherland Antilles, but there is no regularity to this movement. Bananas are shipped from a rather large number of islands and countries bordering the Caribbean but Colombia is the major supplier of this commodity. Cement, on the other hand, is shipped exclusively from Puerto Rico.

Practically all the tonnage originating from Canada consists of standard newsprint paper and lumber. Lumber shipments, however, are of a more recent development and as such are not reflected in Table VII. In 1954 lumber shipments from Canada amounted to about 22,000 tons. All indications are that these shipments will continue in the future, as well as grow in volume.

Unlike Caribbean and Canadian imports there is less concentration in a few items among European imports. The two major items are cement and steel mill products. Nevertheless there is a variety of other items such as glass products, liquors and wines and other manufactured commodities which when combined add up to fairly significant tonnage. Most European imports originate from the Netherlands and Belgium.

As in the case of domestic imports we may safely assume that, although both total tonnage and individual commodity tonnage may change in the future, the existing geographical origin for different types of commodities or commodity groups will continue to prevail.

* Includes Puerto Rican shipments elsewhere classified as Caribbean trade.

TABLE VII
 PORT OF MIAMI
 WATERBORNE INBOUND TRADE BY COMMODITY GROUP AND AREA OF ORIGIN
 1953

	(In Tons) UNITED STATES			EUROPE			
	Total	Atlantic	Gulf	Pacific	Total	Netherland & Belgium	Other
GRAND TOTAL	<u>710,836</u>	<u>175,856</u>	<u>513,705</u>	<u>21,275</u>	<u>52,234</u>	<u>44,775</u>	<u>7459</u>
Animal and Animal Products:							
Edible	976	98	-	878	41	18	23
Inedible	10	10	-	-	2	-	2
Vegetable Food Products & Beverages							
Fresh or Frozen	4,900	-	-	4,900	-	-	-
Bananas	-	-	-	-	-	-	-
Other	35,004	21,095	-	13,909	1,540	660	880
Vegetable Products - Inedible	2,539	2,403	-	136	288	14	274
Wood and Paper							
Newsprint	-	-	-	-	2,177	-	2,177
Other	3,082	2,825	-	257	752	25	727
Oil Products	614,381	105,896	508,485	-	-	-	-
Cement	141	141	-	-	22,185	22,185	-
Glass Products	-	-	-	-	5,137	4,696	411
Other non-metallic mineral	10,999	5,694	5,220	85	369	70	299
Steel Mill Products	16,841	16,661	-	180	16,985	15,865	1,120
Other Metal and Manufactures	1,750	1,651	-	99	1,475	1,117	358
Machinery and Vehicles	1,730	1,567	-	163	737	19	718
Chemical and Related Products	6,879	6,760	-	119	456	95	361
Miscellaneous	11,604	11,055	-	549	90	11	79

TABLE VII (Con't)

PORT OF MIAMI
 WATERBORNE INBOUND TRADE BY COMMODITY GROUP AND AREA OF ORIGIN
 1953
 (In Tons)

	Total	CARIBBEAN			Other	Total
		Columbia	Netherlands Antilles	Puerto Rico		
GRAND TOTAL	105408	19209	38123	19153	28923	48687
Animal and Animal Products:						
Edible	520	-	-	-	520	16
Inedible	195	-	-	-	195	-
Vegetable Food Products & Beverages						
Fresh or Frozen	3748	-	-	-	3748	-
Bananas	37546	19207	-	-	18339	1493
Other	7289	-	-	4373	2916	-
Vegetable Products - Inedible	1556	-	-	-	1556	-
Wood and Paper						
Newsprint	-	-	-	-	-	48062
Other	527	-	-	-	527	43
Oil Products	38126	-	38123	-	3	-
Cement	14649	-	-	14649	-	-
Glass Products	-	-	-	-	-	-
Other Non-Metallic Mineral	132	-	-	-	132	-
Steel Mill Products	-	-	-	-	-	-
Other Metal and Manufactures	215	-	-	-	215	-
Machinery and Vehicles	17	-	-	-	17	1
Chemical and Related Products	-	-	-	-	-	-
Miscellaneous	888	2	-	131	755	2

SOURCE: Statistics & Special Studies Office, Maritime Administration from Data furnished by Bureau of Census, Port Series #16, Corps of Engineers, U. S. Army & Maritime Administration U. S. Department of Commerce.

7. Destination of Imports

The problem of ascertaining the destination of imports proved a difficult one. The way different commodities are handled the number of brokers and intermediaries involved and lack of records in some cases raised considerable obstacles to determining a perfect picture of import destination. Nevertheless, we have been able to put together a fairly reliable pattern picturing the destination of the goods imported at the Port of Miami.

In establishing the picture for import destination we have made use of certain criterias or guiding principles, as follows:

(1) The destination of imports was catalogued into three areas: (a) within the limits of the City of Miami, (b) within the limits of Dade County, but excluding those going to city limits, and (c) outside of Dade County.

(2) Commodities were traced insofar as possible in their initial movement from within the port limits to any point within the designated areas in (1) above. No attempt was made to trace further movement of commodities once they were delivered at any particular destination. For instance, if a shipment of bananas was moved from the port to a warehouse located in the City of Miami, the latter was recorded as the destination of that import. The final destination or end use of those bananas is a secondary movement not reckoned with in our distribution of imports.

(3) No attempt was made to uncover the destination of oil products. Since the Dodge Island Port will not handle these commodities it was considered that it would not be worth while to go through the laborious undertaking involved.

(4) Ready availability of data was a determining factor in establishing the relative volume going to each one of the three areas for each commodity group. These proportions were then applied to incoming tonnage for the year 1954 the last year for which a complete commodity breakdown was available.

(5) Because destination data when available was voluminous, it was necessary to rely on samples. Particular care was taken to make sure these samples were reliable, especially for major import items.

(6) When data was unavailable, or if so it was in such fashion as not to indicate a true destination picture in accordance with (2) above, we have made use of three different ways for arriving at the relative distribution of the imports concerned. This happened more often in the case of foreign imports where the commodities are often imported by a broker whose address or location had no connection whatever with the commodity movement from the port. ^{1/} In such cases the procedure use for determining destination was as follows: First, the importers concerned were interviewed as well as any other people concerned with these commodity movements in an effort to determine if the destination corresponded to that of similar domestic shipments. If it did, the relative distribution arrived at for the domestic shipments was applied to the corresponding foreign ones. Second, if no corresponding domestic shipments existed or if in the opinion of the people related to the foregoing shipments under consideration there was no similarity between the two, it was necessary to base the relative distribution on concensus of informed opinions of these people.

^{1/} It was not unusual to find foreign shipments under the name of import houses with a New York address. Obviously the commodity movement from the port in such cases had no connection with the importer.

Finally, in some cases, such as (1) fruit and vegetable imports from the Caribbean; (2) lumber and rolled steel mill products; and (3) the miscellaneous commodity group (commodities not elsewhere classified) it was impossible to establish a distribution between the city and the rest of the country from our interviews. These commodities are delivered from the port to a large number of individuals or firms spread out throughout the county. We therefore decided to base their distribution on the basis of population for (1) and (3), and construction activity for (2).

As may be seen from the above, the composite picture cannot be regarded as perfect, yet it may be looked upon as a fair indicator in which the margin of error is not so great as to make the picture undependable. We had enough reliable information for making a relatively accurate distribution of domestic imports. In the case of foreign imports, the lack of accurate information usually applied to smaller shipments. The fact that the two major items, newsprint and bananas could be traced to their warehouse locations in the city where they move in toto, reduced considerably the margin of possible error.

The distributive picture, by destination appears in Table VIII.

TABLE VIII
PORT OF MIAMI
ESTIMATED RELATIVE DISTRIBUTION OF
DRY CARGO IMPORTS, BY DESTINATION

	Percentage Distribution		
	1954	1960	1965
Foreign Imports - Total	<u>100.0</u>	<u>100.0</u>	<u>100.0</u>
City of Miami	46.1	34.4	34.7
Dade County (excluding city)	36.2	56.2	57.1
Outside Dade County	17.7	9.4	8.2
Domestic Imports - Total	<u>100.0</u>	<u>100.0</u>	<u>100.0</u>
City of Miami	41.8	43.9	44.5
Dade County (excluding city)	48.6	50.5	50.3
Outside Dade County	9.6	5.6	5.2
Total Imports (Foreign and Domestic)	<u>100.0</u>	<u>100.0</u>	<u>100.0</u>
City of Miami	44.6	36.7	37.1
Dade County (excluding city)	40.3	54.9	55.4
Outside Dade County	15.1	8.4	7.5

It may be seen from the table that in 1954 the distribution of imports between the city and rest of the county is fairly even, whereby the city took in only 4.3% more than the rest of the county.

In terms of foreign imports the city appears as taking a larger share, in 1954, mainly because newsprint and bananas, the two larger items, move practically in toto directly to points located in the city.

For domestic imports the opposite seems to be true whereby the county takes a larger share. There is no outstanding concentration in this case of any particular major commodity item going in bulk to either the city or county as is the case of foreign imports. The picture, however, should be regarded as quite reliable since statistical information was more readily available in the domestic group, and the conclusions thereof are based largely on actual figures or records.

Upon applying the same relative or percentage distribution used for determining the 1954 commodity volume breakdown to our commodity projections for 1960 and 1965, we may obtain a general idea of how the city and the remaining county will share in the future traffic. The estimated breakdowns appear also in Table VIII, and it may be seen that the tendency is for the remaining county area to increase its relative share from 40% to something like 55%.

These projected shares are, of course, based on the assumption that the pattern of destination by commodities will be similar to that used for the year 1954. It is possible that this pattern may change in the future for one may visualize, for instance, that firms operating warehouses in the city may shift or expand their facilities to locations in the county outside of city limits. In such cases the city proportion would be further reduced and the remaining county proportion would be correspondingly increased.

Since a shift of warehousing location is most likely to take place from the city towards the county rather than vice versa, we may look upon the projected distribution for 1960 and 1965 as somewhat underestimating the county's share, while overestimating the city's share.

8. Destination of Exports

The general composition of waterborne exports was indicated above in Table IV. In general, there exists some degree of concentration among commodities of a related nature, whereby finished manufactured products, construction materials and food-stuffs constitute an important share of total exports.

It may be seen from Table IX that this trade movement consists of domestic shipments to Atlantic ports and export shipments to the Caribbean. Shipments to other areas are insignificant.

As indicated by Table IX, shipments to other U.S. Atlantic ports include a series of commodities among which the more important are oil products, cement, chemical products and metal products.

Exports to the Caribbean constitute the larger share of Miami's shipments. A considerable portion of this trade is destined to Nassau and Cuba. Miami acts as a wholesale center for Nassau providing the latter with foodstuffs, construction materials and a considerable amount of manufactures or general cargo. It also supplies a variety of cargo to nearby Cuba, particularly automobiles.

Purchases from the remaining islands and countries bordering the Caribbean amount to small quantities in each case, and tend to be concentrated in the finished manufactured commodities groups. As a general rule these remaining areas, as well as Cuba, tend to supply themselves directly from the U.S. northeastern ports (notably New York), New Orleans, and in the case of the European possessions or colonies, directly from their mother countries. Imports from Miami constitute but a small share of their total imports. Also in the case of the more removed areas, such as Puerto Rico, there is a tendency upon supplying themselves from Miami to use air transportation, reducing thus Miami's volume of waterborne shipments to them.

It is likely that in the future Miami may increase its exports to the Caribbean countries. However, it is impossible to ascertain at this time how successful will Miami be in competing with such other ports as New York and New Orleans for supplying Caribbean imports from the United States.

TABLE IX

PORT OF MIAMI
WATERBORNE OUTBOUND TRADE
BY COMMODITY GROUP AND AREA OF DESTINATION
1953
(In Tons)

	Total	UNITED STATES			EUROPE Total	OTHER Total
		Atlantic	Gulf	Pacific		
GRAND TOTAL	<u>23,062</u>	<u>22,734</u>	<u>328</u>	-	<u>302</u>	<u>321</u>
Animal and animal products	-	-	-	-	-	-
Edible	-	-	-	-	-	-
Inedible	-	-	-	-	-	-
Vegetable food products and beverages	611	561	50	-	297	-
Vegetable products-Inedible	13	13	-	-	-	125
Textile fibers and manufactures	31	31	-	-	-	4
Wood and paper	-	-	-	-	-	-
Lumber and shingles	-	-	-	-	-	-
Other	66	66	-	-	-	160
Oil products	12,838	12,838	-	-	-	-
Cement	4,091	4,091	-	-	-	10
Other non-metallic minerals	734	729	5	-	-	-
Metals and manufactures	2,011	1,986	25	-	-	13
Machinery and vehicles	57	51	6	-	3	9
Chemical and related products	2,113	2,113	-	-	-	-
Miscellaneous	497	255	242	-	2	-

TABLE IX (Con't)

PORT OF MIAMI
WATERBORNE OUTBOUND TRADE
BY COMMODITY GROUP AND AREA OF DESTINATION
1953
(In Tons)

	Total	C A R I B B E A N					Other
		Bahamas	Cuba	Haiti	Venezuela	Colombia	
GRAND TOTAL	41,823	19,767	13,545	3,168	1,471	1,342	2,530
Animals and animal products							
Edible	1,498	475	996	-	-	-	27
Inedible	221	39	33	8	-	-	141
Vegetable food products and beverages	3,153	1,860	1,076	3	7	-	207
Vegetable products - Inedible	772	233	443	91	2	-	3
Textile fibers and manufactures	958	111	805	17	-	-	25
Wood and paper							
Lumber and shingles	3,462	3,271	70	16	-	-	105
Other	4,941	1,434	1,749	177	1,129	-	452
Oil products)	6,463	4,139	823	138	5	890	468
Cement)							
Other non-metallic minerals)							
Metals and manufactures	3,344	862	1,614	668	13	-	187
Machinery and vehicles	8,477	972	5,299	1,892	87	38	189
Chemical and related products	2,164	1,165	189	132	205	411	62
Miscellaneous	6,370	5,206	448	26	23	3	664

SOURCE: Statistics and Special Studies Office, Maritime Administration. From data furnished by Bureau of Census, Port Series #16, Corps of Engineers, U.S. Army and Maritime Administration. U.S. Department of Commerce.

9. Origin of Exports -

Like in the case of imports, the immediate movement from any inland point to the port was taken as an index for classifying origin. Previous movements to that final one were disregarded, inasmuch as the work entailed in tracing back those commodities would have been an almost impossible task. Also, origin was classified from the point of view of (1) City of Miami, (2) Dade County (excluding City of Miami), and (3) outside Dade County.

The reasons for exporting at Miami relate generally to three conditions:

- (1) Miami acts as a port of transshipment for commodities ordered by firms and individuals in the Caribbean.
- (2) Miami acts as a wholesaler for southeast Florida, and as a wholesaler is in a position to supply certain products needed in the nearby Caribbean area, and
- (3) Miami has a certain amount of manufacturing enterprises some of which find an outlet for their products in the nearby Caribbean markets.

As a port of transshipment Miami exports most of the construction material purchased by the Caribbean countries, as well as some heavy machinery and appliances. These exports thus tend to originate outside of Dade County.

As a wholesaler, Miami exports most of the foodstuff purchased by the Caribbean countries through Miami, as well as the automobiles and miscellaneous groups of commodities. Where foodstuffs are concerned, these are handled by distributors located within city limits. The automobiles and miscellaneous commodities flow to the port is less recognizable, but the consensus of opinion of people in the trade is that the bulk of them originate within city limits. These correspond largely to purchases made directly to the larger distributing concerns located at the city.

The origin of manufactures presented the more complex problem. The export of manufactures originates in all three forms: transshipment; wholesale and retail distribution; and from local manufacturing concerns.

The first one, transshipment, relates mainly to the more bulky and complex type of products such as bulky machinery and equipment and transportation equipment. Miami does not produce important quantities of this type of product, and moreover because of their limited demand and high carrying charges, they are not usually carried in stock for wholesaling in the area. Their movement tends, therefore, to be one of transshipment. The one important exception is that of automobiles where Miami has become an important market for used cars.

Among the light manufacturing group the flow originates at either the warehouse of a distributing firm, or from a local manufacturing plant.

A total of 255 manufacturing firms in the locality were interviewed. These firms were selected from the following finished products categories:

- (1) lumber and wood products
- (2) paper products
- (3) chemical products
- (4) primary metal products
- (5) fabricated metal products
- (6) machinery
- (7) electrical machinery
- (8) transportation equipment.

As may be seen the selection corresponded to those concerns whose products reflected a close similarity to the composition of Miami's export of manufactured products.

A copy of the questionnaire used appears in Appendix 2 of this study.

The results of the field survey enabled us to establish with relative accuracy what are the exported manufactured products which originate out of plants in the Miami area, against those which are either wholesale or transhipped. Also, for the products originating from local manufacturing establishments the sample provided us with a representative percentage breakdown between city and county as point of origin.

In Table X, we have summarized the estimated relative distribution of dry cargo exports of Miami, by origin. As indicated by the table the county contribution is limited essentially to the manufacturing group. In this group, however, a larger percentage originates from the outside; the city's contribution is relatively small.

In the overall picture for exports, the city contributes the largest share. As a distributor for foodstuffs and miscellaneous commodities the city provides a considerable amount of all shipments. Together with the smaller contributions from manufacturers they amount to practically one half of all exports. The county, on the other hand, contributes only about 15%, while approximately 35% originates from other areas. As already indicated outside Dade County shipments correspond to transshipments of heavy manufacture goods as well as construction materials.

Upon applying the same relative or percentage distribution used for determining the 1954 commodity volume breakdown to our commodity projections for 1960 and 1965, we may obtain a general idea of how the city and the remaining county will share in the future export traffic. The estimated breakdowns appear in Table XI, and it may be seen that the tendency is for the remaining county area to increase its relative share from 15% in 1954 to something like 28% in 1965. The city's share, on the other hand, would tend to reduce its relative share from 50% in 1954 to something like 37% in 1965.

The projected shares assume, of course, that pattern for commodity origin will remain the same in the future, and only take into account changes in volume for the different commodity exports as projected for the future years. There is no reason to assume that the pattern for commodity origin will remain the same, and, like in the case of import destination, the same may vary most likely to the benefit of the county. We may, therefore, look at the projected distribution for 1960 and 1965 as somewhat underestimating the county's share while overestimating the city's share.

The survey also provided us with related information on the use of the port by the industrial community of Dade County. The tabulated results of the survey appear in Tables XII, XIII and XIV.

Of the 255 firms interviewed only 22.8% reported shipments by water. Of these the majority belonged to three categories: Fabricated metal products; Chemical products; and Lumber and Wood products.

Also, in terms of tonnage shipments the metal, chemical and wood product industries reflected the more important volumes.

TABLE X
PORT OF MIAMI
ESTIMATED RELATIVE DISTRIBUTION OF DRY CARGO EXPORTS
BY ORIGIN 1954

	<u>Total</u>	<u>City of Miami</u>	<u>Dade County Exc. City of Miami</u>	<u>Outside Dade County</u>
<u>Manufacturers (Selected Items*)</u>				
Tonnage	25167	3899	9963	11305
Percentage	100	15.5	39.6	44.9
<u>Construction Materials</u>				
Tonnage	12648	-	-	12648
Percentage	100			100
<u>Food Stuffs</u>				
Tonnage	7579	7579	-	-
Percentage	100	100	-	-
<u>Other Commodities</u>				
Tonnage	22961	22961	-	-
Percentage	100	100	-	-
<u>All Dry Cargo</u>				
Tonnage	68355	34439	9963	23953
Percentage	100	50.4	14.6	35.0

* Includes Paper and Wood Products; Chemical Products; Metal Products; Machinery and Equipment; Motor Vehicles, Water craft, Railway Equipment and all parts and accessories.

TABLE XI
ESTIMATED RELATIVE DISTRIBUTION OF DRY CARGO EXPORTS
BY ORIGIN

	<u>Percentage</u>		<u>Distribution</u>
	<u>1954</u>	<u>1960</u>	<u>1965</u>
<u>Total Exports(Foreign and Domestic)</u>	<u>100.0</u>	<u>100.0</u>	<u>100.0</u>
City of Miami	50.4	41.5	37.0
Dade County (excluding city)	14.6	23.1	27.6
Outside Dade County	35.0	35.4	35.4

TABLE XIII
 REPORTED USE OF WATER TRANSPORTATION BY 255 MANUFACTURING CONCERNS IN THE MIAMI AREA

Utilization of Water Transportation	Lumber & Wood Products		Paper Products	Chemical Products	Primary Metal Products	Fabricated Metal Products	Machinery	Electrical Machinery	Transportation Products	Misc. Products
	All Groups	Percentage	Percentage	Percentage	Percentage	Percentage	Percentage	Percentage	Percentage	Percentage
Number of Respondents	255	43	7	46	8	103	11	11	21	5
Ship by water	22.8%	16.3%	28.6%	34.8%	37.5%	21.4%	9.1%	27.3%	14.3%	20.0%
Do not ship by water	72.9%	83.7%	71.4%	60.9%	62.5%	71.8%	81.8%	72.7%	81.0%	80.0%
No answer	4.3	-	-	4.3	-	6.8	9.1	-	4.7	-
Receive Raw Materials by water	26.7%	14.0%	57.1%	47.8%	25.0%	26.2%	9.1%	9.1%	19.0%	20.0%
Do not receive raw materials by water	69.0%	81.4%	42.9%	45.7%	75.0%	68.0%	90.9%	90.9%	81.0%	80.0%
No Answer	4.3	4.6	-	6.5	-	5.8	-	-	-	-
Anticipate Shipments by water in future	33.3%	30.2%	57.1%	50.0%	37.5%	28.2%	9.1%	36.4%	33.3%	20.0%
Do not anticipate Shipments by Water in the future	59.2%	69.8%	28.6%	39.1%	62.5%	63.1%	72.7%	63.6%	57.2%	80.0%
No Answer	7.5	-	14.3	10.9	-	8.7	18.2	-	9.5	-
Port Improvements Advantageous to Business Operations	56.9%	44.2%	100.0%	60.9%	50.0%	54.4%	54.5%	63.6%	71.4%	60.0%
Port Improvements Not Advantageous to Business Operations	25.5%	30.2%	-	23.9%	37.5%	27.2%	27.3%	18.2%	23.9%	-
No Answer	17.6%	25.6%	-	15.2%	12.5%	18.4%	18.2%	18.2%	4.7	40.0%
Annual Tonnage Shipped	5793.5	562.0	-	3743.0	580.0	602.25	5.0	13.25	38.0	250.0
Percentage of Total	100.0%	9.7%	-	64.6%	10.0%	10.4%	.1%	.2%	.7%	4.3%
Anticipated future Tonnage Shipments	27,989	2,783	400	19,523	1,000	3,344	150	19	270	500
Percentage of Total	100.0%	9.9%	1.4%	69.8%	3.6%	11.9%	.5%	.1%	1.0%	1.8%

FIRST RESEARCH CORPORATION

TABLE XII (Con't)

REPORTED USE OF WATER TRANSPORTATION BY 255 MANUFACTURING CONCERNS IN THE MIAMI AREA

Ship by:	All Groups	Lumber & Wood Products		Paper Products	Chemical Products	Primary Fabricated Metal Products		Electrical Machinery	Trans portation Products	Misc. Products
Port of Miami	81.0%	85.7%	100.0%	87.5%	66.7%	77.3	100.0%	100.0%	100.0%	-
Port of Everglades	1.7	14.3	-	-	-	-	-	-	-	-
Both (5 Miami of Both)	17.3 (50%)	-	-	12.5 (80%)	33.3 (95%)	22.7 (90%)	-	-	-	100.0%

Source: First Research Corporation Survey
May 1956

TABLE XIII

GREATER MIAMI
REPORTED SHARE OF WATER TRANSPORTATION SHIPMENTS OF TOTAL OUTPUT

	<u>Number of Respondents</u>
<u>Total number of manufacturing concerns interviewed</u>	<u>255</u>
Number of respondents reporting water shipments	58
Percent of total output reported shipped by water:	
1 - 10%	42
11 - 20%	5
21 - 30%	1
31 - 40%	-
41 - 50%	1
No answer	9

Source: FIRST RESEARCH CORPORATION SURVEY
May, 1956

TABLE XIV
GREATER MIAMI

REPORTED ANNUAL VOLUME OF WATER SHIPMENTS

	<u>Number of Respondents</u>	
	<u>Actual</u>	<u>Anticipated</u>
Number of manufacturing concerns interviewed	255	255
Number of respondents reporting watershipments	58	85
Tons		
1-20	22	14
21-40	6	4
41-60	4	2
61-80	1	3
81-100	3	3
101-500	8	11
501-1000	-	2
1001-2000	1	1
2001-3000	-	2
No Answer	13	43

Source: FIRST RESEARCH CORPORATION SURVEY
May, 1956

Practically all the firms reporting water shipments disclosed that these shipments amount to small percentages of their total output. Not one of the reporting firms indicated water shipments of 50% or more of total output.

It may be concluded from this that the exports of these manufacturing concerns to the Caribbean constitute generally but a small share of their total business.

The survey, however, revealed that the industrial community anticipates a more active use of the port in the future. Of the firms interviewed, a larger number anticipate shipments by water, whereby about one third of the reporting firms would fall in this category against the 22.8% reporting as presently shipping by water. Also the anticipated tonnage volume is considerably higher, whereby the reporting firms indicated an anticipated volume over three times as large as their present one. The anticipated water export volume distribution among the different industrial groups remained about the same, pointing once more to a concentration in the chemical, metal and wood products group.

PART II. ECONOMIC ANALYSIS OF PASSENGER TRAFFIC

1. Total Volume of Passenger Traffic

The movement of passenger traffic at Miami Harbor is presented in Table XV, below, where inbound arrivals for the year 1938 as well as from 1945 on are stated.

It may be seen from the table that Miami had a relatively important passenger trade movement previous to World War II. This movement practically disappeared over the war years and in spite of its recovery in recent years it is still below pre-war levels.

The slow recovery is largely explained by the nature of the pre-war passenger trade and the emergence of air travel during and after the war years. Passenger travel in the pre-war years consisted largely of an independent one way movement where business travel tended to predominate. Miami as a gateway to Latin America was able to develop an important volume of the same. This type of travel has tended to shift almost in its entirety to air transportation and there are no indications of its ever reverting back to ocean travel again.

The immediate post-war years therefore saw ocean passenger travel at Miami reduced to an insignificant movement as indicated by the figures on Table XV corresponding to the years 1945-47.

TABLE XV

PORT OF MIAMI
ARRIVAL OF PASSENGERS FROM FOREIGN COUNTRIES
BY VESSEL, 1938, 1945 - 1955

<u>Year</u>	<u>Number of Passengers Arriving</u>	
1938	66,458	
1945	2,325	
1946	2,480	
1947	2,530	
1948	39,212	
1949	30,565	
1950	32,589	
1951	33,046	
1952	39,462	
1953	40,356	
1954	37,676	
1955	53,356	
1st Quarter 1954	8,968	
1st Quarter 1955	14,581	
1st Quarter 1956	22,854	
	<u>Low</u>	<u>High</u>
Projected 1960	80,000	100,000
1965	130,000	200,000

Source: U.S. Customs
First Research Projections

The year 1948, however, pointed out to a sudden and relatively important recovery in this trade. The new development was based not on a recuperation of the old type of traffic lost to the airplanes, but rather on the creation of a new traffic movement consisting of pleasure cruises. While ship travel cannot compete successfully with air travel for business traffic, it can do so to a certain extent in the field of pleasure travel. Florida's successful tourist industry and permanent population gain of the post-war years, coupled with increased interest for visiting the Caribbean Islands permitted the creation of the pleasure cruise type of travel between Miami and Caribbean Ports.

This new movement emerged successfully in 1948 and after some set back resulting largely from the 1948-49 economic recession it gradually has gained in momentum, particularly since 1955*.

The behavior is indicated by the figures for vessel passenger arrivals at the Port of Miami from foreign countries. In a pleasure cruise type operation it is customary to purchase a round trip ticket, so that the volume of outgoing and incoming traffic differs only slightly. We may therefore rely on arrival figures, which are more clearly recorded, as a good index of vessel passengers traffic behavior at Miami.

It may be said that Miami has but barely begun to realize its potential for this new type of traffic. The rapid growth of this trade within the last year and a half point to an increasing popularity of Caribbean cruises among both the tourist coming into Florida, as well as the residents of the state and of the ports of call of the cruise ships in the Caribbean.**

Barring economic recessions, which seem to have a pronounced effect on the volume level of this trade, one may visualize a possible rapid expansion in the volume of this trade in the years to come.

The future of this volume expansion, however, will be greatly affected by the facilities to be provided. Up to now the public has not had at its disposal the more pleasant and luxurious facilities, both at the port and in the vessels, usually demanded for this type of operation. If at a later date such high class facilities become available their effect on the volume of this trade may be quite significant.

It should be pointed out that there is currently taking place a very rapid expansion of high class passenger vessel facilities in the transatlantic trade, catering largely to the highly active U.S. - Europe summer trade. The reduced winter traffic permits a shift of some of these facilities to the Caribbean route where tourist activity reaches its peak at that time of the year. So far the main point of departure for these pleasure cruises has been the city of New York.

* It appears, judging from the drop in volume in 1954 as against 1953, that the slight economic recession taking place in 1954 was consequential in curtailing this traffic movement during that year.

** As will be seen on the following pages, there are already a large number of Cubans who take advantage of these facilities.

However, because of the increasing popularity of the Miami - Caribbean cruises, it would not be unlikely, that some of the future expanded capacity at the European run may find its way to service the Miami - Caribbean trade.

A further possible development is that of new passenger trade route between Miami and Europe. Passenger ship service between the U.S. and Europe is handled almost entirely by U.S. northeast ports and Canada. Consequently U.S. passengers originating in the southern areas of the country ordinarily travel to the northern ports to take their ships. The development of a southeastern port such as Miami would allow to funnel this traffic more conveniently and perhaps as a result stimulate its volume. Already there has been an interest on the part of trans-atlantic liners to make Miami a port of call. The Companhia Colonial de Navegacao, a Portuguese concern which operates passenger ships from Europe to the Caribbean ports has recently been active in securing permission to include Miami in its regular runs to the Caribbean. The major obstacle has been the fact that the Caribbean ports form part of the Southern Atlantic Conference, while the port of Miami has been considered as belonging to the Northern Atlantic Conference.* This obstacle has been overcome in the case of this Portuguese concern, so that its ships are now free to come to the port of Miami.**

This action, therefore, opens an entire new vista to a possible development of Miami-European passenger trade.

In view of all the possible development which may take place in the future affecting the volume of passenger traffic at Miami, it becomes somewhat difficult to project this traffic volume into the future. In doing so, therefore, we find it more accurate to rely on possible future minimum and maximum figures of passenger volumes which may be realized.

The minimum figure relates to a continuation of the prevailing trend of cruise passenger travel to the Caribbean utilizing facilities similar to the existing ones where vessels are concerned. The maximum figure relates to a probably volume which may be realized if new facilities of a more luxurious type should come into operation, as well as if a Miami-European trade becomes a realization. This maximum figure should be regarded only as a rough estimate, inasmuch as there is no past history on which to base it. It is not possible to estimate with precision the effect of new developments of the type described above.

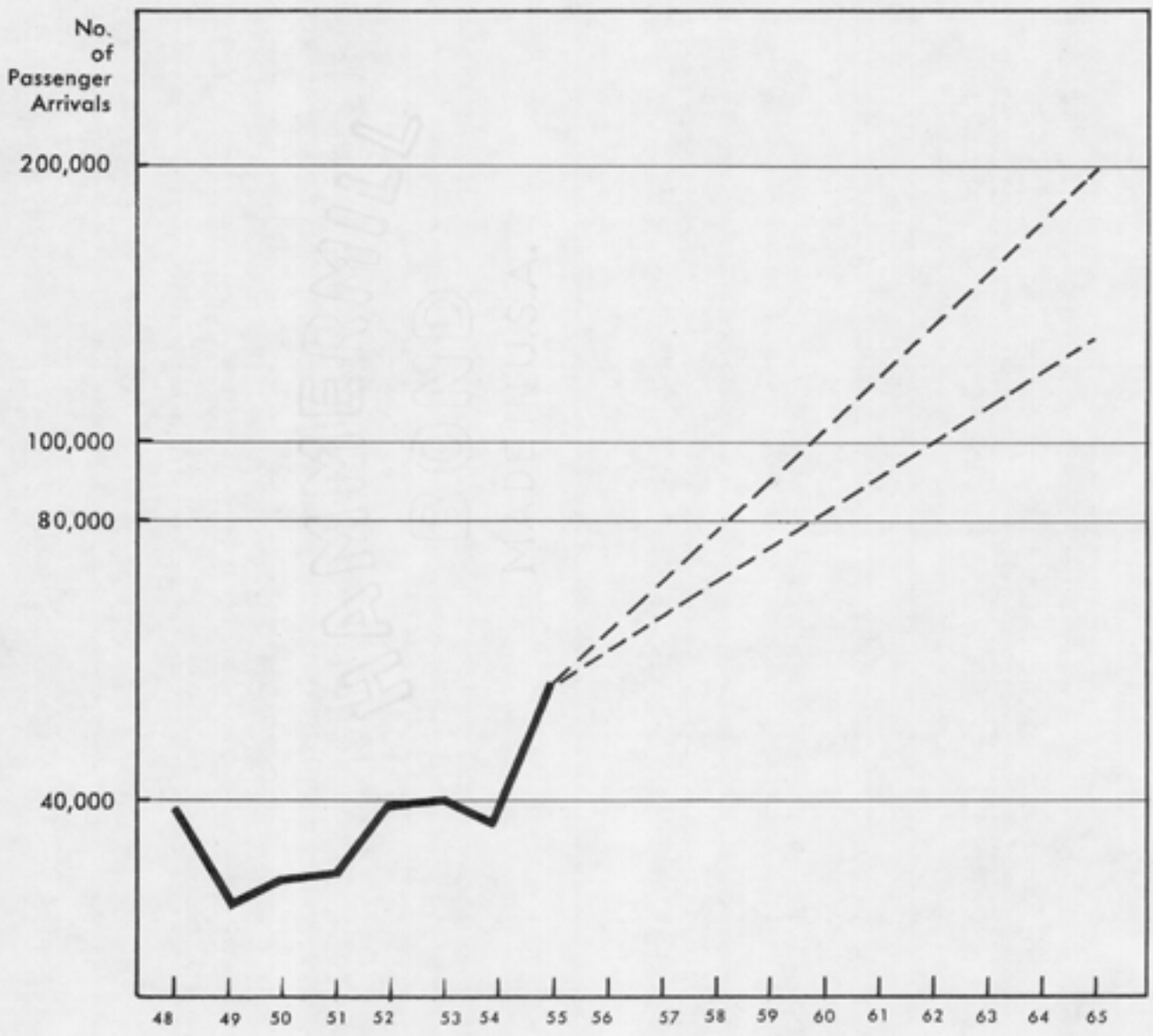
The projected figures are indicated in Table XIV. For 1960 a low of 80,000 and a high of 100,000 passenger arrivals; and, for 1965 a low of 130,000 and a high of 200,000 passenger arrivals.

These projections also appear in the accompanying chart where the volume of passenger arrivals at Miami has been plotted for the years 1948 to 1955. As may be seen they point out to a considerable growth in this type of trade business.

* By common agreement steamship companies have distributed among themselves geographical areas for providing their services. Those companies which service particular areas or routes belong to a certain "Conference" and cannot enter the territory of another "Conference"

** As this report has gone into print it has been reported that the two Portuguese liners, the Santa Maria and Vera Cruz, will not be able to come to the Port of Miami because the port channel does not provide the required depth. Presumably these boats will go to Port Everglades.

Port of Miami — Passenger Traffic, Arrivals from Foreign Countries



2. Seasonality of Miami's Ocean Passenger Traffic

It was mentioned in our discussion above that the existing ocean passenger travel at Miami is essentially of the pleasure cruise type.

This type of traffic tends to be seasonal in nature, whereby volume peaks take place at one or two periods during the year. The seasonal pattern of the Miami movement is clearly indicated in the accompanying chart.* It may be seen that there are two peaks to the Miami pattern, one taking place during the winter months reaching its highest point during the months of February and March, and another occurring during the summer months when it reaches its highest point during the months of July and August.

In general, this pattern coincides with the seasonal nature of Florida's tourist industry. For the tourist industry both February and March mark the highest level of activity during the winter season, while July and August mark the highest level of activity during the summer season.

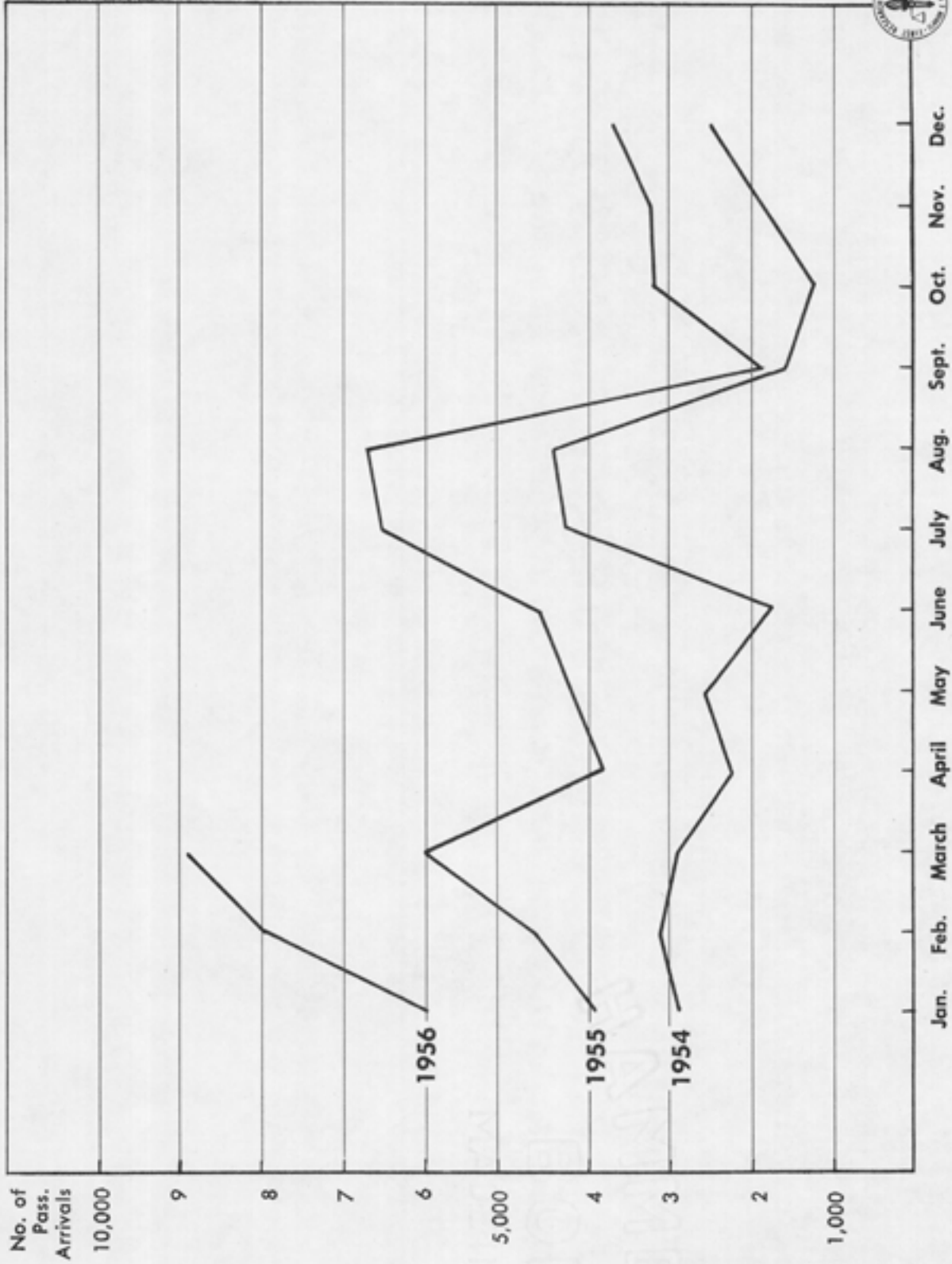
There is, therefore, a close relationship between tourist activity in Florida and ocean passengers travel at Miami, indicating that the latter draws many of its customers from the tourist population.

However, upon comparing the seasonal pattern of the tourist industry with that of ocean passenger travel at Miami, one finds one important difference. In the tourist pattern the winter peak reaches considerably higher levels than the summer one. In the ocean passenger travel pattern the opposite appears to be true: the summer peak reaches a higher level of activity than the winter peak. The explanation for this inverse order of activity lies in the fact that Florida's permanent population contributes heavily to the ocean traffic. By custom Floridians have a tendency to travel more during the summer months and therefore concentrate their contribution to this trade during that period. Furthermore, there is also a smaller but important number of Cubans who take advantage of the cruise facilities. Like Floridians, the Cubans tend to take their vacations during the summer months and therefore add to the volume of ocean passenger activity during that period of the year.

Thus, while the winter ocean passenger traffic relies heavily on the tourist population, the summer traffic relies, in addition, on the permanent population of Florida (particularly the Miami area) and Cuba. The result is therefore a higher level of activity in the summer months than takes place in the winter.

* The chart also indicates the highest volume levels of the more recent years pointing to the rapid expansion now prevailing in passenger trade activity.

Port of Miami, Passenger Traffic: In Bound



3. Origin of Passengers

In order to establish with precision the origin of passengers moving through the Port of Miami, First Research conducted a survey among the major concerns operating passenger ships in the Miami area. Because of the large number of passengers involved, the survey was limited to the years 1955 and 1954. A detailed investigation was made of the first year, and this was supplemented by spot results for 1954. The latter indicated only very small variations from the 1955 distribution pointing to a consistency from one year to the next.

Table XVI below summarizes the distribution of passenger origin. The table indicates that in 1955 about 25% of all passengers were Floridians. Of this 25% slightly over one half originated from Dade County.

Another 9% of the 1955 passengers originated from Cuba. Both Floridians and Cubans may be regarded as traffic generated from the permanent population at the areas directly served; these two together accounted for about one third of all passenger traffic.

The remaining two thirds may be looked upon as traffic generated from the tourist population of Florida other than Cuban. Within this two thirds and as indicated in Table XVII below, it may be seen that there tends to be a greater tendency among those tourists originating from the southern and western states to make use of cruise facilities at Miami. Although the northern states contribute substantially to cruise passengers, this contribution is considerably less than their overall contribution of tourists to Greater Miami.

TABLE XVI
PORT OF MIAMI
ORIGIN OF PASSENGER TRAFFIC, 1955

	<u>Number of Passengers</u>	<u>Percentage Distribution</u>
City of Miami	2,965	5.7
Dade County (Excluding City of Miami)	3,800	7.4
Florida (Excluding Dade County)	<u>5,968</u>	<u>11.6</u>
Total Florida	12,733	24.7
Southeast United States (exc. Florida)	7,313	14.2
Northeast United States	9,722	18.8
Mid-West United States	7,760	15.0
Other United States	6,561	12.7
Cuba	4,600	8.9
Canada	1,809	3.5
Other Foreign	<u>1,112</u>	<u>2.2</u>
Total Foreign	<u>7,531</u>	<u>14.6</u>
Grand Total	51,620	100.0
Unaccounted for (origin unknown)	<u>1,736</u>	
Total Passenger Traffic	<u>53,356</u>	

Note:

Southeast United States includes: Maryland, Delaware, West Virginia, Virginia, District of Columbia, Kentucky, Tennessee, North Carolina, South Carolina, Georgia, Alabama, Mississippi, Louisiana

Northeast United States includes: Maine, Vermont, New Hampshire, Massachusetts, Connecticut, Rhode Island, New York, Pennsylvania, New Jersey

Mid-West United States includes: Wisconsin, Michigan, Illinois, Indiana, Ohio

TABLE XVII
MIAMI
ORIGIN OF VESSEL PASSENGER TRAFFIC
AS COMPARED TO ORIGIN OF TOURISTS AT GREATER MIAMI

	Origin of Tourists %	Origin of Passengers* %
Southeast United States (exc. Florida)	12.3	21.3
Northeast United States	38.7	25.0
Midwest United States	29.9	22.6
Other U.S. & Foreign* (Canada)	19.1 (4.3)	27.7 (5.3)
	100.0	100.0

Note: Data for Origin of Tourists related to the period December 1, 1952 to January 15, 1953; and data for Origin of Vessel Passengers relates to the year 1955.

* Because Cuban tourists come to Miami largely during the summer or off season months the Origin of Tourist survey excludes them. For purpose of comparison they have been excluded from the Origin of Passengers percentage computation. The origin of Passengers percentage computation also excludes those originating from Florida.

Sources: For Tourists: Survey conducted by the Bureau of Business and Economic Research, University of Miami
For Vessel Passengers: First Research Corporation.

4. Destination of Passengers

It has been mentioned above that vessel passenger trade at Miami is constituted almost in its entirety of pleasure cruises going from Miami to the Caribbean area. As a general rule these cruises are of short duration and go only to those islands closer to Miami. Places of call are usually Nassau, Cuba, Jamaica, Haiti and more recently the Dominican Republic.

So far these cruises have not tried to reach the more distant places in the Caribbean such as Puerto Rico, the Virgin Islands and the rest of the smaller islands to the east of the Caribbean Sea nor the countries on Central and South America bordering the Caribbean. It may well be that as the popularity of these Miami-Caribbean cruises develop and larger and faster ships come into operation, the radius of activity of cruise travel in the Caribbean increases.

PART III. ESTIMATE OF FACILITY REQUIREMENTS AT PROJECTED MIAMI SEAPORT1. Basic Decisions and Facts -

On the basis of the nature and volume of future traffic potential of freight and passenger trade as outlined in the previous sections of this report, it is possible to give an indication on the size and type of facilities required for handling trade.

The City of Miami, which sponsors this study, has made an official expression of its plans to reallocate the city's port facilities at Dodge Island, and preliminary plans for such move have already been made. In estimating the port's facility requirements we have, therefore, attempted to relate them to the Dodge Island new port proposal.

Present plans for the Dodge Island seaport establishes a framework upon which to fit facility requirements. This framework should not be regarded as rigid inasmuch as it may be subject to future or final changes. It constitutes, nevertheless a series of important decisions and facts greatly affecting the type of development planned. These basic decisions and facts are as follows:

- (1) The commercial freight port will be located on Dodge Island south of MacArthur Casueway and will cover an area of approximately 100 acres, extending 1100 feet north and south and 3500 feet east and west.
- (2) The passenger terminal will be located on the south and southeast side of Watson Island, between the present bulk-heading and the highway.
- (3) All handling of petroleum products, in bulk will be shifted either to Port Everglades or be accomplished at enlarged installations on Fisher's Island. This will probably be a private development and the city will not provide transportation facilities for these installations. No oil products, in bulk, will be handled at the Dodge Island port.
- (4) A new bridge and causeway will be constructed to provide rail and motor transportation to the freight terminal.
- (5) The intent of the City of Miami is to provide facilities for a freight terminal with short-term warehousing available, and it does not intend to provide for any long-term warehousing.
- (6) The present private sea freight terminals notably Albury's will continue to operate. They are now operating at capacity without room for expansion.
- (7) The intent of the City of Miami is to construct, immediately, terminals with minimum but adequate facilities yet which will be capable of quick and economical expansion to provide for unforeseen needs and shipping growth.
- (8) The new port shall be so planned and constructed that it shall satisfy docking and warehousing needs as projected to 1965 without further development after initial completion.

(9) The City of Miami will not provide for the handling and warehousing of bulk shipments of such commodities as frozen foods, cement, or perishable commodities, although it is possible that if the demand develops, the City of Miami will be empowered to lease land at the terminal to private enterprises desiring to develop some such warehousing.

(10) The growth of the new Port of Miami will not be based on the assumption that it will attract trade from Port Everglades to any appreciable extent, but will result, in the main, from the attraction of additional freight and passenger traffic due to the improved port facilities and the growth of South Florida as a whole.

2. Description of Existing Port Facilities -

The present Port of Miami consists of three piers #1, 2, and 3. These piers provide for approximately 6,000 feet of docking space in three slips and pier heads; 398,227 square feet of covered warehouse space; 37,020 square feet of office space; and 5,800 feet of railway track facilities...on a total square footage of 810,344. Limited passenger facilities and 9,848 square feet of cold storage lockers are included in the above office and warehouse area.

There is no practical provision for unprotected, open storage.

One private oil company has almost exclusive use of 330 feet of docking space at the end of Pier #1.

These facilities handled approximately 251,674 tons of sea-borne cargo in 1954. This figure does not include approximately 93,000 tons handled at the Albury terminal, nor any bulk petroleum. Also 2,043 tons of sand and gravel shipments in and out of Miami Harbor in that year are not included.

The warehousing facilities of the present port equals 1.58 square feet for each ton of the above freight.

The Albury terminal, which is operating at capacity, with more diversified trade than the City terminal and providing open or unprotected storage, which can be regarded as indicative of the type of freight the new port will handle, has 1.1 square feet of covered warehousing per ton handled.

The plans for the new port presupposes the elimination of all the present Port of Miami facilities as well as the adjoining private installations for handling bulk shipments of oil products.

3. Anticipated Volume and Nature of Future Traffic -

Trends and projections of future commodity volumes of trade for 1960 and 1965 were presented and discussed in Part I, Section 5. Table VI shows 1954 trade volume by commodity groups as well as their projected volumes for 1960 and 1965.

As indicated, the total volume of traffic through the Port of Miami is increasing and will continue to increase for the next ten years, if the facilities are available for handling it. Nevertheless, although the net result is one of an overall increase there are certain commodity trade movements that are tending to decline or remain stable. The relative composition of the future trade volume will be therefore somewhat different.

For our purpose of determining future facility requirements it is important to establish with precision the expected behavior of commodity movements, both as to imports or exports* for the year 1965 as compared with the prevailing movement in 1954.

* In this section and unless otherwise specified, the term import includes foreign imports plus coastwise receipts, while the term exports includes foreign exports plus coastwise shipments

Some items are maintaining a steady level of volume, notably:

	<u>Tonnage</u> <u>1954</u>	<u>Tonnage</u> <u>1965</u>
1. Fresh fruit exports	1,248	1,200
2. Fresh vegetable imports	5,676	5,000
3. Non refrigerated foods - export	2,642	2,500
4. Iron and steel scrap exports	2,526	2,500
5. Fertilizer - imports	336	300
6. Nonclassified commodities - imports	13,126	13,000

Some items are decreasing in volume, notably:

1. Fresh fruit imports	4,407	3,800
2. Fresh vegetable exports	504	-
3. Other refrigerated items - exports	622	170
4. Animal Feeds - exports	1,702	1,200
5. Canned fruits and vegetables - exports	531	-
6. Non-refrigerated foods - imports	7,313	5,900
7. Paper manufacturers - imports	3,654	2,200
8. Building cement - import and export	30,356	13,500
9. Glass and glass products - exports	266	-
10. Rolled steel - exports	5,800	2,000
11. Various chemicals - imports and exports	6,442	3,600
12. Non-metallic minerals - imports and exports	4,307	2,200
13. Motor vehicles and misc. machinery - export	4,413	3,800

Traffic in the following items is increasing:

1. Bananas - imports	31,227	35,000
2. Animal feeds - imports	3,871	4,800
3. Canned fruits & vegetables - imports	29,457	80,000
4. Liquors & wines - imports	7,965	22,000
5. News Prints - imports	60,107	100,000
6. Paper Manufactures - export	4,739	12,300
7. Wood manufactures - import and export	1,844	2,900
8. Non-edible vegetables & fibres - import and export	6,064	12,000
9. Lumber - import and export	26,080	169,200
10. Glass and glass products - imports	9,742	39,500
11. Rolled and mill steel - imports	29,202	152,000
12. Other metal products - import and export	9,555	28,000
13. Construction machinery - export	1,853	2,250
14. Other machinery - import and export	7,067	22,500
15. Fertilizer - export	1,605	3,300
16. Non-classified commodities - export	16,586	19,000
17. Motor vehicles - import	1,153	2,000

The total projected dry cargo volume for 1965, in tons, is 769,620. The dry cargo volume for 1954 from the above figures is 343,988 tons.*

In 1954 the Albury terminal handled approximately 93,000 tons of dry cargo. With its present facilities the Albury Terminal has the capacity to handle approximately 110,000 tons of dry cargo. This optimum capacity was reached in 1955.

If the Albury trade volume is deducted from the above figures we may say that the City of Miami Terminal handled approximately 250,988 tons in 1954, while its trade volume potential for 1965 would be around 659,620. This would represent a 163% increase.

Of the items indicated above the following need refrigerated storage:

1. Fresh fruits		
2. Fresh vegetables		
3. All other refrigerated items		
Total volume of trade	1954:	12,485 tons
Projected total volume of trade	1965:	10,170 tons

The following items are classified as needing covered and protected storage:

	<u>Tonnage</u> <u>1954</u>	<u>Tonnage</u> <u>1965</u>
1. Fresh fruits	5,655	5,000
2. Fresh vegetables	6,180	5,000
3. Other refrigerated foods	650	170
4. Canned and container fruits & vegetables	29,988	80,000
5. Liquors, wines & beers	8,295	22,000
6. Non-refrigerated animal foods	5,573	6,000
7. All other non-refrigerated items	9,955	8,400
8. News Print	60,117	100,000
9. Paper and paper products	8,393	14,500
10. Wood products	1,844	2,900
11. Non-edible vegetable products & fibres	6,064	12,000
12. Glass and glass products	10,008	39,500
13. Miscellaneous machinery	7,067	22,500
14. Fertilizer	1,941	3,600
15. Building Cement	30,356	13,500
16. Chemical products	6,442	3,600
17. Non-metallic minerals	4,307	2,200
18. Non-classified commodities	29,712	32,000
Total tonnage for protected storage	1965: 372,870	
Total tonnage for covered storage	1954: 232,547	

Increase: 140,323 tons or 60%

* The 1954 figure does not include sand and gravel shipments, nor other minor unimportant items not classified above.

Of these items, newsprint, liquors, wines and beers account for over one-third of the increase in the need for covered storage. All of these move quickly and either are, or will be, warehoused in private warehouses. Both of Miami's papers, the largest users of newsprint, have formulated definite plans for storing that which they consume. This is also true of many of the other items on the list. For them, the Port Authority will not need to provide storage other than temporary, to permit transshipment. Thus, in 1965, warehouse storage must be provided for the following maximum amount of tonnage:

Total projected need for covered storage:	372,870
Less amount needed for newsprint and liquors, wines and beers:	<u>122,000</u>
Net tonnage needing covered storage:	250,870

Part of this tonnage will find its way to the Albury Terminal where covered storage facilities are available. The tonnage requiring covered storage in 1965 at the city terminal would therefore be less than the 250,870 tons figure given above.

It is evident from the above figures that by 1965 it will not be necessary to increase provisions for new storage over that which is provided for today.

4. New Methods of Transportation -

The present port traffic on shore is handled by truck, a smaller portion by rail freight. The present trend is towards an increase in truck and tractor-truck shipment to the decrease of rail traffic.

However, there are two newly-developed methods of land and sea transportation which are gaining in volume.

The first is the method whereby unbroken transshipments are made by trailer, the shipment being brought to the terminal by tractor-trailer, the trailer being loaded on a specially adapted cargo ship, and transported complete with load to the point of destination. This is gaining wide acceptance and it is indicated that much of our coastwise trade will be carried on with this method.

The second is the development of the "piggy back" railroad car now widely used in the North. This has gained rapid acceptance and it is indicated that this method will soon be universally used throughout the United States.

It is impossible to predict, at this time, how fast the use of these two methods of transportation will increase and when the Port of Miami will be handling freight in such manner. However, in planning the new port, provision must be made for them and railroad, trailer parking spaces, and means for loading trailers on both vessels and freight cars must be provided.

5. Facilities for New Port

1. The present volume of marine freight handled by all agencies in Miami, with the exception of Albury is approximately 250,988 tons. The projected amount of tonnage, which the port can expect to handle in 1965, is approximately 659,620 tons. Neither of these figures includes any petroleum products as these will be handled at Fisher's Island separate from the new port or at Port Everglades. The percentage of increase from 1954 to 1965 is approximately 163%.

2. The total square footage available, at present, under control of the Port Authority, covers approximately 810,344 square feet. The total square footage available, when the future port is completed, will be approximately 4,356,000 square feet - or 100 acres. This is approximately five times the present operating area. This does not include approaches.

This area can easily be expanded to the east, west, and if necessary, south, to provide for almost unlimited expansion.

It is evident that 100 acres of new port is sufficient to take care of the needs of the new port until at least 1965.

3. The existing dockage is about 6,000 feet. The projected dockage, at the new port, is approximately 8,000 feet. Much of the present dockage is either unusable or unavailable. The new dockage will be both available and usable. Therefore, it is indicated that the projected dockage will be sufficient to take care of the needs of the port until at least 1965. Like the acreage, this can be readily expanded. It is estimated that at least 4,600 feet should be made available for deep-water ships. This will permit 9 vessels to load and unload simultaneously.

4. Present protected storage available is 398,000 square feet. This amounts to about 1.6 square feet for each ton handled per annum. Much of the warehouse space is either not usable, due to structural weaknesses, or loading and unloading difficulties, due to poor initial planning. A considerable part of the warehousing is used for goods that can be stored temporarily without protection. However, the Port Authority, through efficient management, has been able to handle the present volume with the present facilities.

Although the figures gathered by this survey show a tremendous increase in volume in the next 10 years, they also indicate that much of the increase in tonnage is in goods not needing protective storage. Newsprint, which now takes up an entire warehouse on Pier 3, will not be stored at all. This is also true of several other items. It is indicated that the policy of the new port will not permit long-term storage and that tonnage entering or leaving the port will be transferred as rapidly as possible. Coupled with this, is the development of new types of transportation as mentioned above. Warehouses, at the new port, can be efficiently designed and so placed that a much greater volume of trade can be handled than is now possible at the present installation. Therefore, it is recommended that the new port be equipped with 300 000 feet of covered storage in order to take care of the needs until 1965. Due to the large amount of open space available at the new site, this warehouse space may be readily expanded if needed.

5. The existing port provides for 9,848 square feet of refrigerated warehousing. This is contained in the total warehouse area figures. The present plant has a capacity of 105 tons. One-third of this space is rented to a shipping company on an annual basis. A small proportion of the remainder is used for goods shipped on water-borne carriers. In the main the space is rented out for storage of goods not passing through the port itself...such as citrus products, meats, and like foodstuffs..The present operation is on a profitable basis.

It is obvious that some refrigeration must be provided at the new port. It is questionable whether an installation, involving less than 100 tons of refrigeration, would be economically profitable. Much of the present equipment can be re-installed at the new site. Therefore, it is recommended that approximately 10,000 square feet of refrigerated space be installed at the new port and that the new installation be run in a manner similar to the present lockers. This would more than take care of the needs of the port until 1965.

6. The existing port provides for 37,020 square feet of office space. As these are used to capacity at present, it is recommended that office space be increased to 50,000 square feet at the new port. A separate building, with an area of 25,000 square feet of office space per floor, is recommended. There is plenty of space available to increase these office facilities in the future.

7. Rail transportation must be provided, regardless of the present trend towards trailer freight. It is recommended that facilities for railroad loading be provided at each warehouse and that a small but adequate sorting yard be provided on the new island.

8. One specially-designed berth must be provided for loading and unloading trailer-carrying ships. It is recommended that this be located on the northwest corner of the new site and also that a large amount of trailer parking area be provided.

9. Several local steamship agencies have made arrangements with trans-atlantic steamship companies to have combination freight and passenger liners dock regularly in Miami. Although the number of passengers, which these ships are expected to carry is comparatively small, passenger facilities must be provided for them at the new freight terminal. Due to the fact that these ships are primarily cargo ships, it will not be feasible for them to dock at the new passenger terminal on Watson's Island. It is estimated that they will not carry over 200 passengers. Therefore, it is recommended that provisions be made for this number.

10. Of the 100 acres reserved for the new seaport, the necessary installations... such as warehouses, office buildings, 70 foot dockside aprons, etc... will cover approximately 10 acres. Therefore, about 90 acres will be available for open storage and future expansion.

6. Passenger Terminal

1. This is to be a separate terminal located on Watson's Island. It is planned to provide bulkhead docking space along the southwest and south side of the island extending from MacArthur Causeway southeast and east to approximately the present location of Chalk Airways.

2. This passenger terminal will be designed, primarily for the use of cruise ships...such as the S.S. Florida, S.S. Evangeline, and the S.S. Queen of Nassau. These vessels are primarily passenger ships and carry little or no freight, other than automobiles. Except for the handling of the automobiles and ships' services, such as laundry, provisioning, etc., it will be necessary to provide only passenger facilities at this location.

3. At present, these cruise ships are operating at near capacity. They carry between 400 and 600 passengers apiece. If the present trend is continued, it would appear that, by 1965, additional vessels will be used in this service. Therefore, it is recommended that berthing space be provided for four such vessels, demanding the use of approximately 2,000 feet of bulkhead space.

4. It is estimated that Customs, Immigration, passenger and luggage facilities be provided to take care of 1,000 passengers simultaneously.

5. The present port has provided one warehouse as a garage for the storage of cars belonging to the tourists taking trips on these vessels. It is recommended that a garage, housing 300 cars, be provided at the new terminal.

The above recommendations are based on reasonable needs to be required by trade and passenger activity in the not too distant future. The importance of flexibility has been stressed throughout.

In general, the guiding policy has been that facilities should keep somewhat ahead of trade, in order to stimulate trade or to prevent choking it. Nevertheless, one should bear in mind that facilities should grow with traffic, for only then may waste be avoided. Expenditures in what later may become unused capacity should be avoided. Adding whenever necessary and as indicated by trade, would be considerably less expensive than trying to provide too much at once.

Our estimates on required facilities above are therefore, if any, on the conservative side. Particularly for facilities which may be added quickly. (For instance, it is only a question of a few months to adding more warehousing space, if the land area is available.) In this way, we may expect a more efficient utilization of the investment than otherwise.

7. Re-location of the Port -

It was indicated above that in suggesting port facility requirements as dictated by Miami's future ocean traffic potential the same have been related to the Dodge Island port proposal. The selection of Dodge Island or any other site in the harbor does not fall within the intended scope of this study. However, one thing is evident from the facts and figures of our previous discussions: it would be illogical to try to maintain the Port of Miami in its present site.

It is obvious that the existing facilities would not permit the handling of the expected traffic potential. To recondition the present port for future needs would require: (1) modernization of the present lay-out along the lines suggested above, and (2) a considerable extension of the present port area in order to provide for all the facilities called for by the projected traffic potential for 1965, plus provisions for additional increases later on.

The modernization of existing facilities may possibly cost more than the erection of new ones at a different site. Moreover, it would tie up facilities during the period of time required for reconstruction which, in the face of rapidly expanding trade volume, would be seriously needed. Business lost on this account may be difficult to recapture at a later date.

The main problem would be, however, the required additional area for port usage. It has been indicated that the great need for the future is essentially open storage space.

The main bottleneck at the present port is the lack of space for open storage. Our projections for the future indicate that the nature of the traffic to be realized would require a considerable amount of open space. To provide the open space requirements at the present site would entail the acquisition of additional land, adjoining the existing port. This would be difficult and expensive. Real estate along Biscayne Boulevard in this neighborhood is very high priced. To requisition such expensive real estate to be used for open storage would not appear to be a very sensible way out.

One of the most important elements in providing future port facilities is the necessary flexibility for future growth and expansion. Flexibility at a Biscayne Boulevard location would be a difficult thing to achieve. Again the difficulties and expense of acquiring adjoining land would be a serious obstacle. If in the future more land is required, one may expect the indecisions and controversies which have hampered the Port of Miami in the past to be renewed, jeopardizing thus its development to the detriment of all concerned.

PART IV - THE ECONOMIC SIGNIFICANCE OF THE PORT OF MIAMI TO THE CITY AND DADE COUNTY

Among the many ways in which the economic impact of the Port could be measured, we have selected the one which appears most pertinent at this time. First, we assume that what is required is not the total gain currently accruing from the Port, but rather the gain that would be lost to the area if the Port were to be lost. Accordingly, attention is directed, for example, not to the total number of people who are directly or indirectly employed in processing goods now received through the Port but rather in the number who would presumably have to seek employment elsewhere if there were no Port.

Secondly, we have not thought it sufficient to express the economic advantages in broad terms, such as "the maximum economic development of the area requires the maximum in transportation facilities." While there are many advantages (and some disadvantages) that cannot be expressed in reliable dollar figures, it is of the greatest importance that advantages be stated in dollars wherever reasonably reliable estimates can be obtained. In dealing with such factors as personal expenditures and payrolls, it is obvious that precise data cannot always be obtained and that this is a particularly true where one is forecasting such factors over an extended period of time. We have been at pains to seek out information not previously gathered that will throw light on what the community can expect from the Port, to gather these and other data from the most reliable sources available and to forecast future developments with care. Thus, while there can be no suggestion of decimal point accuracy in each figure, each does represent the best available estimate and at no point is the probable deviation such as to affect the usefulness of the figure for the purposes of this study.

Finally, for the purposes of the study it has been thought desirable that wherever there is a difference in estimates, to select the most conservative of the figures. This has resulted in the total gain for the community being perhaps moderately but deliberately understated.

The economic advantages of the Port can be conveniently grouped:

- (A) Revenue to the government of the City of Miami from Port operations, and,
- (B) Direct and indirect income to city and county residents and companies, clearly attributable to the existence of the Port.

(A) Revenue to the government of the City of Miami from Port Operations

The City received \$409,984.00 from users of Port facilities in 1955.* Looking to the future: On the basis of the estimates of passengers and tonnages made above and after allowing for increased Port charges recently effected, the Port should generate about \$710,000.00 in 1960 and \$958,000.00 in 1965.

(B) Direct and Indirect Income to the Dade County Area

(1) Lower Transportation Costs

It is estimated that the Port is currently saving this area about \$1,197,000.00

* This, of course, is gross income. Net income, after all expenses, is relevant to problems of financing the Port but is not a measure of the income generated by the Port.

annually on dry cargo now handled through the Port and affecting this area. This figure will approximate \$1,580,000.00 by 1960 and \$2,060,000.00 by 1965.

The two major components of these estimated savings are the tonnages consumed and the savings per ton. These were derived as follows. For each significant commodity group handled we determined the course of action that would be taken by Port users if there were no Port here. Almost without exception we were advised by users that they would continue to buy from the sources they now use, transport by water but bring the goods into Port Everglades.

Accepting Port Everglades as the most likely alternative for the great part of the tonnage carried by the Port, it was then necessary to compute the per ton differential between delivery to a typical Miami user from the Port of Miami as opposed to delivery from Port Everglades. Typical differentials between the common carrier rates for the two services range from a low of about 90¢ a ton to a high of about \$5.30, depending upon the type of product. Weighting for the respective tonnage of each type of commodity, the total differential between laid-down costs in Miami of a Port Everglades delivery as opposed to Port of Miami delivery was approximately \$1,197,000.00 in 1955; the weighted average per ton differential being \$3.41.* This figure should probably be considered a maximum, however, since there are carriers (unlicensed for this operation) who allegedly carry for less than the scheduled charges but it is not clear as to how they affect the differential (as opposed to the absolute levels of the rates). The differential drops to \$2.98 a ton in 1960 and \$3.02 in 1965 as a result of anticipated shifts in types of products carried. Thus computed the saving will rise to \$1,580,000.00 in 1960 and \$2,060,000 in 1965.

To these should probably be added the following approximate savings in petroleum products (at an approximate 8½¢ per ton differential): 1955, \$612,000.00; 1960, \$830,000.00 and 1965, \$1,355,000.00, although it is not entirely clear as to who bears this additional cost.**

There is another important but more nebulous effect of the Port on transportation costs. By permitting effective water competition the Port undoubtedly has forced rail rates and to some extent probably truck rates, on some commodities, to lower levels than would pertain in the absence of such water competition. In the absence of a Port there is adequate reason to believe that rail rates (and, possibly, but certainly to a lesser extent, truck rates) would rise. It is much easier to recognize this contribution, however, than it is to assign a dollar value to it. This vagueness exists both as to the per ton savings and the number of tons to which the differential should be applied. As to the per ton saving: water transportation is only one factor controlling rail rates. To what extent lower rail rates should be credited, say, to the Port as opposed to trucks as opposed to economic conditions, no one can say with real confidence. Further, if the Port were removed, there would remain the formidable competition of water to Port Everglades and truck to the Dade destination. Accordingly, it is difficult to see how the Port can be credited with a saving of more than the \$3.41 per ton weighted current average differential between using Port Everglades and the Port of Miami.*** The actual saving might be substantially less than this depending upon other competitive factors.

* Including additional costs of exports.

** To these should be added a modest percentage allowance for additional mileage involved for some ships in travelling the additional distance to Port Everglades to unload. The figures exclude bunker oil.

*** If the rail or truck product mix should produce a different per ton average differential, this \$3.41 figure would be moderately high or low.

As to the tonnages to which this figure should be applied: there is no feasible way of accurately determining the total tonnage of goods imported or exported by this area by rail and truck nor is there any practicable way of ascertaining the origin of the imports or the precise ultimate destination of the Dade exports, both of which would be necessary if we wish to know to what extent they would be affected by the increase in rail and truck rates that might follow the elimination of the Port.

It is quite clear, therefore, that the impact of the Port on rail and truck rates cannot be measured with any reasonable degree of accuracy. Most authorities would agree, however, that there is such an impact and that it is of substantial significance to this area. The significance of the impact is perhaps suggested by such rough calculations as the following. In 1955, there were apparently just under 125,000 cars brought into Miami. Assuming that these carried about 16.5 tons each, about 2,000,000 tons arrived. Assuming that, say, half of this (1,000,000 tons) would have been subject to the higher rates of \$3.41 per ton if there were no Port, the area would have saved about \$3,410,000.00. To this would have to be added the truck tonnage figure, for which no acceptable estimate is available, and the savings in rail and truck exports. Rail exports were apparently slightly in excess of 500,000 tons and assuming again that perhaps half of this (250,000 tons) might have been subject to the \$3.41 per ton differential, this area may have saved as much as \$852,000.00

There is no implication that the combined figures of \$4,262,000.00 (\$3,410,000.00 on rail imports plus \$852,000.00 on rail exports) does more than merely suggest the magnitude of what the Port may be saving the area in rail transportation charges. Similarly with the future: by 1960 we should see about 3,142,000 tons carried. Again assuming that half would move at the average differential per ton of \$2.98 (used for the 1960 water-borne goods comparison) we would see a saving of \$4,680,000.00. For 1965, the corresponding figures would be half of 3,911,000 tons, at the 1965 per ton differential of \$3.02, for a possible saving of about \$5,904,000.00. When the unknown differential for trucks is added to these, it becomes even more obvious that this indirect contribution by the Port is of substantial significance, even though it is not satisfactorily measurable.

(2) Employment Resulting From Port Traffic

(a) Longshoremen

Handling of Port cargo for the import and export trades required longshoremen wages of \$1,200,400.00 in 1955. This figure would, of course, be totally lost to the area if traffic were to be shifted to Port Everglades. By 1960 this figure should approximate \$1,810,000.00 and by 1965 \$2,340,000.00, on the basis of forecast tonnages.

(b) Pilotage and Towage

Data provided from reliable sources indicate that in 1955 these operators received no less than about \$272,000.00. Again, this income is directly attributable to the Port. For 1960 and 1965, the appropriate figures approximate \$340,000.00 and \$420,000.00 respectively, but there is no accurate way of forecasting this. Accordingly, the 1955 figure is used in the minimum estimate for those years.

(c) Ship Crews (Dade Resident)

Two types of crews are relevant to this study: those who live in this area and may be assumed to spend the bulk of their earnings here and those who live elsewhere, but spend part of their earnings here during stopovers. The latter group are treated

below in Section (3).

The Dade resident group is estimated at 139, with wages and salaries totalling about \$830,000.00 in 1955. If the port were not here, it is fair to assume that the bulk of this personnel would find it more convenient to live elsewhere.

Since there is no way of accurately forecasting crew requirements, this figure is also used for the 1960 and 1965 minimum estimates. It is clear, however, that as with (b) above, this is an understatement since the increase in import and export tonnage, as well as the increase in passengers, will certainly raise the requirements: figures of \$1,015,000.00 for 1960 and \$1,355,000.00 for 1965 would probably represent fair approximations.

(d) Office Payrolls of Port Users

If one assumes that without a local Port the shipping companies and the various types of agents would relocate, either totally or in significant part, this area would to that extent lose the incomes currently paid office personnel. This amounted to approximately \$896,000.00 in 1955. This figure is also used for 1960 and 1965 since there is no reliable way of computing increased office requirements as tonnages handled increase. Actually, an estimate of \$1,115,000.00 for 1960 and \$1,371,000.00 for 1965 would probably be reasonable.

(e) Ship Maintaining and Repairing Labor

This area has an important industry involved in ship maintenance and repair. At this point, we are concerned only with the sector involved in handling ships which use the Port, as distinguished from those dependent on the marina. Careful research indicates that the total payroll for these jobs was in excess of \$602,000.00, in 1955. This will doubtless rise substantially by 1960 and 1965 but since there is no way of determining a ratio between increased repairs and increased traffic, the 1955 figure is also used as the minimum for the later years. Nevertheless, an increase to \$750,000.00 for 1960 and \$888,000.00 for 1965 would probably represent a reasonable expectation.

(f) Labor For New Ship Construction

Roughly \$324,000.00 was paid their labor by shipbuilding companies for new construction in 1955. There is some question, however, as to the precise extent to which such new construction is indebted to the existence of the Port and it is, therefore, not included in the minimum estimate. Further, available data are not adequate to permit 1960 and 1965 projected increases for this account; accordingly, the 1955 figure is used for all three years.

(3) Other Expenditures by Port Beneficiaries

(a) Ship Maintenance, Repairs and New Ship Construction

The minimum estimate of expenditures in this category creditable to the Port, excluding that portion paid for labor and raw materials, was about \$730,000.00. Again, there is no established ratio between increased traffic (cargo and passengers) and increased expenditures for these items, and we have, therefore, also used this as the minimum for 1960 and 1965. After including an allowance for the new ship construction, about which there is some question as to its dependence on the Port, a reasonable 1955 figure would be approximately \$849,000.00; a further allowance for an

expected growth in expenditure as traffic increases would raise 1960 to \$1,026,000.00 and 1965 to \$1,272,000.00, making the figures for the three years much more reasonable than that of \$730,000.00.

(b) Provisions, Operating Supplies and Laundry

Most of the larger shipping companies have supplied us with their 1955 expenditure data. Reliable estimates can be made for the others and for the smaller companies from data received from other sources.

These items totalled about \$748,000.00, after deducting the suppliers' costs of goods sold. By 1960 they should reach roughly \$994,000.00 and \$1,428,000.00 in 1965, based on anticipated increases in cargo and passengers.

(c) Local Expenditures by Passengers and Non-Dade Crews*

This category includes several types of expenditures:

- (a) Visitors who stop over on trips originating and terminating here, and,
- (b) Commercial shipping crews who are not Dade residents*

(a) Although the total expenditure of these visitors is patently substantial, there are two serious problems involved in any attempt to measure it. First, no accurate data are available as to typical per capital expenditures. Second, it is not clear as to what would happen in the absence of the Port; i.e., how many would continue to visit Dade even though the ship docked, say, at Port Everglades?

There is no way at this time of estimating what percentage of the passengers take a Caribbean trip as an incident in a Miami visit and to what percentage the Miami visit is incidental to a Caribbean trip. It would seem fair to assume that for the substantial majority the trip is incidental but that there are doubtless some who would not be in Miami if trips did not originate here. Even if this figure were assumed to be as low as 10% of all those taking Caribbean trips, or about 5,500 persons in 1955, their Dade expenditures must be significant in total.** For example, for each person spending 24 hours prior to embarking and 24 hours after disembarking (which is probably a low average), a minimum average expenditure would presumably not be less than say, \$35 to \$40. These arbitrary estimates would alone yield incomes (after deducting suppliers' cost of goods sold) a total of roughly \$155,000.00 gross income for 1955. Projected to the 1960 expected minimum figure of 80,000 persons, this might reasonably be \$225,000.00 and to 1965, \$368,000.00, for the expected 130,000 persons.

(b) Similar problems arise in estimating expenditures of crews, but minimum approximations may be useful. Of the 1,636 dockings in 1955, it is estimated that 76,949 separate shore visits by non-Dade crews were involved. Average expenditures

* Dade resident crews are treated separately in 2 (c) above.

** That this would be a fair minimum estimate is suggested by the 11.6% ratio of Florida, non-Dade, Caribbean travelers to total. For the majority of this group, Miami is probably largely incidental to the trip; to most others, it is likely that the trip is the more incidental.

would be less than for passengers not only because of income differences but also because of shorter leaves and the living accommodations provided aboard ship while in port. Again, it is probably reasonable to assume that the minimum average expenditure would not be less than, say \$10 per visit, yielding a potential of roughly \$576,000.00.

Since it is not possible to predict crew numbers for 1960 and 1965, this figure will also be used for those years although an understatement is again involved. Reasonable approximations for those years would perhaps show about 95,500 shore visits for 1960 and about 121,000 for 1965, producing gross incomes of about \$719,000.00 and \$904,000.00 for the respective years.

(C) Other Considerations

The minimum measurable advantages from the present port and an adequate future one, have been set out above, together with a more reasonable estimate of the magnitudes. There are, however, several factors which have not been included, primarily because it has not been possible to make reliable estimates, that should be considered in assessing the contribution of the Port to the economic welfare of this area.

I Real Estate Values

There are those who feel that the Port of Miami is unaesthetic and creates serious congestion; that it thus depreciates the surrounding properties and detracts in general from the economic and social value of the community. It has not been feasible to attempt to measure these elements but we have, in measuring some of the economic advantages of the Port, provided a rough standard with which such possible disadvantages may be compared.

Still others feel that, while a Port may be desirable, the proposed new location on Dodge Island will depreciate values of nearby residential properties. Again, it is not possible to estimate, realistically, the dollar figure that should be attached to such depreciation, if it should occur. Against such possible depreciation must be weighed, however, an important consideration.

As part of the present thinking on financing the new Port, the City expects to sell the present port land, after substantial filling from the new dredging operations, for about \$10,000,000.00. It is also anticipated that large holders of adjacent properties would also sell theirs. The combined land would then be suitable for first class residential or hotel construction and the city estimates that the net additional tax revenues from such construction would be, very roughly, perhaps no less than \$1,500,000.00 a year, which the City and County Governments would share about evenly. This figure might have been included among the 1960 and 1965 advantages accruing from the planned relocation of the Port or deducted from the advantages of the present Port (in the sense that if no Port were there, such properties might similarly be sold). To the \$1,500,000.00 figure should be added a substantial, but indeterminate, allowance for the improvement in the value of real estate and businesses adjacent to the present site if the Port should be removed or relocated and the present properties converted to residential or hotel sites.

II Other Expenditures:

Attention has been focussed upon expenditures by major users of the Port. In the process, it has not been possible to obtain data from all such companies and many smaller ones have been missed whose total contribution would doubtless have been of interest. For example, to the total should be added such companies as the ship agents, payments to stevedoring companies in excess of the longshoremen and office payrolls

that are included, and smaller and specialized repair services and the bunkering trade (after allowing for their expenditure on shipping and raw materials, which cannot be considered net income to the area).

Their contribution is in part included in estimated office payrolls and the balance would not be sufficient, in our considered opinion, to affect the overall picture in any significant fashion. Their omission should, nevertheless, be recognized as underlining the fact that the presented figures are modest estimates.

III Miami's Status as a Distributing Centre

This is an important wholesale distribution centre. In the building of this distributing trade, the Port has almost certainly played an important part, and can be reasonably expected to play an even more important part in the future as South American trade develops. Again, it is not possible to assess this contribution in dollars and cents. We have assessed the additional costs if the Port were not here but the additional status given this area through the facilitating role of the Port, is not measurable.

(D) To Summarize:

A reasonable appraisal of the economic advantages accruing from the Port is indicated in Table XVIII.

Deducting the estimated totals shown in the lower half of the Table would leave the following "minimum" gains: \$8,228,000 in 1955; \$10,028,000 in 1960 and \$12,415,000 in 1965. It is our opinion that the gains are much more likely to approximate the "reasonable" estimate totals of \$12,933,000 in 1955, \$16,091,000 in 1960 and \$20,951,000 in 1965.

TABLE XVIII
ESTIMATED BENEFITS FROM THE PORT OF MIAMI

	<u>1955</u>	<u>1960</u> in thousands of dollars	<u>1965</u>
A. <u>Operating Revenues of the Port:</u>	\$ 410.	\$ 710.	\$ 958
B. <u>Direct and Indirect Income</u>			
(1) <u>Transportation Savings</u>			
Water-Borne Dry Cargo	1,197.	1,580.	2,060.
Water-Borne Petroleum Products	612.	803.	1,355.
Induced Lower Rail Rates	4,262.	4,680.	5,904.
(2) <u>Employment</u>			
Longshoremen	1,200.	1,810.	2,340.
Pilots and Towing	272.	340.	420.
Ship Crews (Dade Residents)	830.	1,015.	1,355.
Office Personnel	896.	1,115.	1,371.
Ship Maintaining and Repairing Labor	602.	750.	888.
New Ship Construction Labor	324.	324.	324.
(3) <u>Other Gross Income-Producing Expenditures by Port Users</u>			
Ship Maintenance, Repairs and New Ship Construction**	849.	1,026.	1,276.
Provisions, Laundering, Operating Supplies, etc.	748.	994.	1,428.
Local Expenditures by Passenger and Non-Dade Crews	731.	944.	1,272.
	<u>\$ 12,933</u>	<u>\$ 16,091</u>	<u>\$ 20,951</u>

An appraisal of the minimum economic advantages of the Port might make the following reductions in the above Table*

	<u>1955</u>	<u>1960</u>	<u>1965</u>
Induced Lower Rail Rates	\$ 4,262.	\$ 4,680.	\$ 5,904.
Pilots and Towing	No change	68.	148.
Ship Crews (Dade Resident)	No change	185.	525.
Office Personnel	No change	219.	475.
Ship Maintenance and Repairing Labor	No change	148.	286.
New Ship Construction Labor	324.	324.	324.
Expenditures on Ship Maintenance, Repairs and New Ship Construction	119.	296.	546.
Ship Crew (Non-Dade) Expenditures	No change	143.	328.
	<u>\$ 4,705</u>	<u>\$ 6,063</u>	<u>\$ 8,536</u>

* But see Page 55 for "Other Considerations" supporting the position that the statement of "minimum" advantages understates the contribution of the Port.

** Excluding Labor (included above), Parts and Raw Materials.

PART V - DISTRIBUTION OF PORT BENEFITS BETWEEN THE CITY OF MIAMI AND
THE REMAINING AREAS OF DADE COUNTY

In the previous section an effort was made to measure the benefits to the Dade County area from the port. After considerable analysis regarding the components of these benefits, and careful investigation to determine their values, a total of \$12,933,000 was estimated as a reasonable figure for 1955, of which an undisputable minimum amounted to \$8,228,00. Corresponding figures for 1960 and 1965 were projected at \$16,091,000 and \$20,951,000, respectively, of which a minimum of economic advantages would be \$10,028,00 and \$12,415,000, respectively.

This section attempts to break down the total benefits in terms of the City of Miami and the remaining areas of the county, in order to give an indication on how the two areas benefit from the existence of the port, separately. Like in the previous problem of estimating total benefits, it is impossible to make a complete or 100% accurate breakdown. The results must therefore be regarded only as close approximations. Nevertheless, the percentage of error is not so important as to affect the validity of the conclusions therefrom.

The distribution of port benefits has been done on the basis of its major components, as stated in Part IV. An analysis of each one of these components determined the best possible basis on which to distribute their share. Also, whenever a recipient was involved, either an individual or a firm, his or its location in either one of the two areas, city or remaining county, was taken as the basis for allocating the distribution. The fact that the received payment may in a second or future instance affect the income of other individuals or firms in other localities was disregarded. Such more complete measurement would have been next to impossible.

1. Basic Criteria for Allocating Port Benefits:

The basis for distribution of each one of the separate contributions made by the port are as follows:

(1) Port Revenue:

This is revenue generated at the port from the ships making use of its facilities. These revenues are paid to the City of Miami who owns and operates the port. The total of this figure is therefore assigned to the city.*

(2) Lower transportation costs:

These are savings accruing to the area in the cost of transporting goods in and out of Dade County. These savings accrue from two sources, (a) from the estimated saving in cost resulting from handling waterborne trade at Miami instead of at Port Everglades, and (b) from the estimated saving in rail freight rates resulting from the competition by the Port of Miami.

(a) Savings in the cost of handling waterborne trade -

The allocation of savings for dry cargo trade tonnage has been done on the basis of the percentage distribution of destination of imports and origin of exports as arrived at above in Part I. The percentage distribution of destination

* Port revenues at locations other than the City Port are not included above. The same are relatively small and have been partially included under other benefit components, such as office payrolls.

of imports appears in Table VIII, the percentage distribution of origin of exports appear in Table XI. The combined percentage distribution for destination of imports and origin of exports is as follows:

	1954	1960	1965
City of Miami	45.8%	37.4%	37.1%
Dade County (exc. City of Miami)	35.2	50.4	51.6
Outside Dade County	19.0	12.2	11.3

Inasmuch as transit trade, i.e. imports destined for outside Dade County, and exports originating outside Dade County, does not contribute to the savings to the community from handling water-borne trade at Miami instead of Port Everglades, it has been excluded from the benefit calculation. It must also be excluded from the percentage distribution figures above in order to make the correct allocation. By eliminating them we obtain the following result:

	1954	1960	1965
City of Miami	56.5	42.6	41.8
Dade County (exc. City of Miami)	43.5	57.4	58.2

By applying the above percentage distribution to the savings for dry cargo tonnage for the years 1955, 1960 and 1965 stated above we obtain an idea of the share of these two areas in the benefit from these savings.

It may be noted that we are applying 1954 percentage distribution to 1955 savings. Because there is no statistical commodity breakdown as yet available for 1955, it is impossible to calculate a percentage distribution for the latter year. However, since the two years follow one another, one may safely assume that the percentage distribution for 1955 should have remained pretty close to the one prevailing for 1954.

Our next calculation relates to oil tonnage. Oil trade relates to shipments of oil used for bunkering steamers coming to Miami Harbor, for use of the Florida Power Company, and for miscellaneous number of users. In calculating the freight savings from this trade in the previous section the oil trade resulting from bunkering uses was disregarded. Savings resulting from that share of oil imports consumed by residents of the area belong to the last two users: Florida Power and miscellaneous users. Of this total Florida Power consumed about 85% in 1955. Florida Power has three power plants in Dade County. One Plant, the Cutler Plant, is located in the southern area of the county, and is by far the largest of the three. Another plant is located at Miami Beach, and a third one is within the limits of the City of Miami.

For allocating the savings resulting from the oil imports consumed by the Florida Power, we may take the share of oil consumed at the City of Miami Plant location as determining the City share of the savings, and the share of oil consumed at the two plants in the remaining county areas as determining their share of these savings.

Our investigation revealed the relative use of oil by the three plants to be as follows:

Cutler Plant (South Dade)	72.8	
Miami Beach Plant	<u>9.4</u>	
Total County Areas		82.2
City of Miami Plant		<u>17.8</u>
		100.0

For the remaining 15% accruing to miscellaneous customers, there is no accurate index for distribution. The number of customers is considerable and their locations are not concentrated in either of the areas. By using population distribution between county and city as an index, we may approximate the distribution of this part of the oil trade. For 1955, the percentage distribution of population was 37% for the City of Miami and 63% for the remaining county. Thus, of the 15% one may assign 6% to the city and 9% to the remaining county.

If the proportion of Florida Power oil trade and miscellaneous oil trade is maintained for 1960 and 1965, and if we continue to allocate the Florida Power trade on the basis of the relative consumption of oil of its plants, and the miscellaneous 15% trade on the basis of relative population distribution for the two areas 1/, then the allocation of estimated savings resulting from the oil trade would be as follows:

	1955	1960	1965
City of Miami	21%	19.5%	18.5%
Dade County (Exc. City of Miami)	79%	80.5%	81.5%

(b) Savings in rail freight charges -

These savings arise from the lower rail freight rates that result because of the competition provided by water carriers.

Rail trade is essentially a dry cargo movement and its composition is similar to the water-borne dry cargo trade.

In the absence of more accurate information relying the origin and destination of this trade, one may take the percentage distribution applicable to water-borne incoming and outbound dry cargo trade as approximating the distribution of the rail trade.

(3) Employment -

These benefits from wages and salaries paid out to: (a) dock employees, (b) pilots (including labor used in towing), (c) crew members of boats coming into Miami who are residents of the area, (d) ship repairing labor, and (e) office staff employees in shipping concerns.

1/ The projected population distribution for 1960 and 1965 are as follows:

	1960	1965
City of Miami	30%	23%
Dade County (exc. City)	70%	77%

Our investigation regarding the place of residence of these people, disclosed that for the first two, dock employees and pilots, practically all resided within the City of Miami limits. Consequently, their entire income figure has been allocated to the City for 1955 and projected years.

Regarding the remaining three categories, resident crew, ship repairing labor and office staff personnel, there appears to be no evident concentration in any one area. Their income has thus been allocated on the basis of relative population distribution between City and remaining county for 1955 and as estimated for 1960 and 1965.

(4) Expenditures -

These benefits relate to expenditures by shipping concerns for (a) ship building and repairs (excluding labor) and, (b) ship provisions and supplies. The bulk of these expenditures accrue to concerns located within the City of Miami limits. In allocating these expenditures we have assigned the total of these benefits to the City of Miami.

(5) Passenger expenditures -

These expenditures were estimated as the minimum expenditures to be expected from the number of passengers who come to Miami with the object of taking a cruise to the Caribbean. These were based on an estimated average 24 hour stay before boarding the ship and another 24 hours stay after disembarking.

Under such circumstances it is natural to expect that these people will seek hotel accommodations in close proximity to the port, and we may, therefore, assume that their expenditures will be made largely in the immediate vicinity.

(6) Crew expenditures -

Visiting crew use their ships as living quarters. As in the case of the passenger expenditures above, there will be a tendency for the bulk of crew expenditures to take place in the immediate vicinity of their headquarters.

Ships coming to Miami Harbor dock at either the City Port, Albury or Fisher Island. We may assume that the crew of those boats coming to the City Port tend to leave their expenditures within the city, while those coming to Albury or Fisher Island would have a stronger tendency to leave their expenditures in county areas other than the City of Miami, namely Miami Beach.

We may therefore approximate the distribution of these expenditures on the basis of the relative distribution of ship crew visits* to either one of these three dockage locations. The relative distribution of ship crew visits for 1955 was as follows:

Relative Distribution of Ship Crew Visits

City Port	93.8%	
Albury	5.4) 6.2
Fisher Island	.8	

* Ship crew visits relates to the number of ship arrivals multiplied by the size of their crews.

2. Distribution of Port Benefits:

The estimated distribution of port benefits between the City of Miami and the remaining areas of Dade County appears in Table XIX. This distribution has been elaborated on the basis of the different criteria stated above for allocating each one of the different major components making up the benefits from the port. It may be seen that for 1955 the City of Miami's share of the total amounted to \$8.4 million or 65%. The projected City of Miami shares for 1960 and 1965 are estimated at \$9.6 and \$12.1 millions, or 59% and 58%, respectively, of total benefits.

Because of the difficulty in making a precise measuring of these benefits, it is possible that the estimated figure for 1955 and the projections for 1960 and 1965 may vary from the given totals appearing in Table XIX. Actual figures may be either lower or higher than the given results.

In order to avoid any misleading conclusions from possible lower results, we have also calculated port benefits on the basis of the most conservative possible assumptions. In this way one may point out to certain minimum or undisputable benefits to accrue from the port.

The distribution of the minimum benefits, as estimated from Table XVIII, by both City of Miami and the remaining areas of Dade County, appear in Table XX. It may be seen that on this basis the benefits to the City of Miami in 1955 total \$5.7 million or 70% of all benefits. The corresponding figures to the 1960 and 1965 projections are \$6.8 and \$8.3 millions or 68% and 67%, respectively.

TABLE XIX

ESTIMATED DISTRIBUTION OF PORT BENEFITS BETWEEN THE CITY OF MIAMI AND THE REMAINING AREAS OF DADE COUNTY

	1955			1960			1965		
	Amount	Dade (excl. city)		Amount	Dade (excl. city)		Amount	Dade (excl. city)	
		City			City			City	
(A) Operating Revenue from Port	410,000	410,000	-	710,000	710,000	-	958,000	958,000	-
(B) (1) Transportation Savings									
Dry Cargo (incl. lower rail rates)	5,459,000	3,084,335	2,374,665	6,260,000	2,666,760	3,593,240	7,964,000	3,328,952	4,635,048
Petroleum Products	612,000	128,520	483,480	803,000	156,585	646,415	1,355,000	250,675	1,104,325
(2) Employment									
Dock Labor	1,200,000	1,200,000	-	1,810,000	1,810,000	-	2,340,000	2,340,000	-
Pilots towage	272,000	272,000	-	340,000	340,000	-	420,000	420,000	-
Ships (Dade Resident) Crews	830,000	307,100	522,900	1,015,000	304,500	710,500	1,355,000	311,650	1,043,350
Office Payrolls	896,000	331,520	564,480	1,115,000	334,500	780,500	1,371,000	315,330	1,055,670
Ship Repairing	602,000	222,740	379,260	750,000	225,000	525,000	888,000	204,240	683,760
New Ship Construction	324,000	119,880	204,120	324,000	97,200	226,800	324,000	74,520	249,480
(3) Other Expenditures by Port Users									
Commercial ship-building & repair	849,000	849,000	-	1,026,000	1,026,000	-	1,276,000	1,276,000	-
Provisions, operating supplies, etc.	748,000	748,000	-	994,000	994,000	-	1,428,000	1,428,000	-
(4) Local expenditures									
Passengers	155,000	155,000	-	225,000	225,000	-	368,000	368,000	-
Crews	576,000	540,288	35,712	719,000	674,422	44,578	904,000	847,952	56,048
Total	12,933,000	8,368,383	4,564,617	16,091,000	9,563,967	6,527,033	20,951,000	12,123,319	8,827,681
	100.0%	64.7%	35.3%	100.0%	59.4%	40.6%	100.0%	57.9%	42.1%

Source: First Research Corporation

TABLE XX
ESTIMATED DISTRIBUTION OF MINIMUM EXPECTED PORT BENEFITS
BETWEEN THE CITY OF MIAMI AND THE REMAINING AREAS OF DADE COUNTY

	1 9 5 5		1 9 6 0		1 9 6 5	
	Amount	Dade (Excl. City)	Amount	Dade (Excl. City)	Amount	Dade (Excl. City)
A. Operating Revenues from the Port	410,000	-	710,000	-	958,000	-
B. (1) Transportation Savings						
Dry Cargo (Excl. lower rail rates)	1,197,000	520,700	1,580,000	906,920	2,060,000	1,198,920
Petroleum Products	612,000	483,480	803,000	646,415	1,355,000	1,104,325
(2) Employment						
Dock Labor	1,200,000	-	1,810,000	-	2,340,000	-
Pilots Towing Ships (Dade Resident)	272,000	-	272,000	-	272,000	-
Crews	830,000	522,900	830,000	581,000	830,000	639,100
Office Payrolls	896,000	564,480	896,000	627,200	896,000	689,920
Ship Repairing	602,000	379,260	602,000	421,400	602,000	463,540
(3) Commercial						
Shipbuilding and repair	730,000	-	730,000	-	730,000	-
Provisions, operating supplies, etc.	748,000	-	994,000	-	1,428,000	-
(4) Local Expenditures						
Passenger Crews	155,000	-	225,000	-	368,000	-
Crews	576,000	35,712	576,000	35,712	576,000	35,712
Total	8,228,000	2,506,532	10,028,000	3,218,647	12,415,000	4,131,517
	100.0%	69.5%	100.0%	67.9%	100.0%	66.7%
		30.5%		32.1%		33.3%

FIRST RESEARCH CORPORATION

Source: First Research Corporation

SUMMARYA. Freight Traffic -

Trade activity in both the Port of Miami and Port Everglades ^{1/} is presently undergoing an important expansion. This expansion of trade seems to be in direct response to the rapid growth the areas served.

Port Everglades now handles about one and a half times more trade than the Port of Miami. This port is a highly specialized port whereby over 90% of its trade corresponds to oil products, molasses and cement. Of a total of 2,331,125 tons in 1954 only 7.8% corresponded to general cargo other than the three commodities already indicated.

The history of the Port of Miami points out to considerably less concentration in particular commodities. Nevertheless, in 1954 out of a total of 1,028,075 tons of cargo handled, 681,358 tons consisted of oil products. Dry cargo for that year amounted to 346,717 tons, consisting of a wide number of commodities.

In a sense, therefore, these two ports tend to complement one another, whereby Port Everglades tends to be a highly specialized port largely dependent on three commodities for its volume of cargo, and the Port of Miami is considerably less so, handling a wide variety of general cargo.

Both ports are essentially ports of importation. Import tonnage (including domestic receipts) for both ports averaged approximately 90% of total trade annually, during the five year period 1950 to 1954.

Although imports at Port of Miami comprise a larger number of individual commodities it is possible to group a considerable amount of these under three major categories: oil products, construction materials, and foodstuffs. For the five year period 1950 to 1954 approximately 90% of Miami's import tonnage consisted of products belonging to these three groupings. Exports, on the other hand, are less easily grouped. However, they consist largely of finished manufactured products, construction materials and foodstuffs.

The majority of Miami's water borne imports originate from domestic sources. For the five-year period 1950-1954 the annual average sea borne imports was 863,100 tons. Of this total 69% originated from domestic sources and 31% corresponded to foreign imports. Domestic imports originate from Texas, the northeast of the United States (New York, Philadelphia and Baltimore), and California. Shipments from Texas consist almost entirely of oil products, while shipments from California consist largely of canned fruits and vegetables, and wines. The Atlantic ports supply in addition a wide range of other types of commodities, and as a source of domestic dry cargo imports are by far the most important suppliers.

Foreign imports originate mainly from three areas. The Caribbean supplies bananas, fresh fruits and vegetables, and cement; Canada supplies standard newsprint paper and lumber; while Europe (largely the Netherlands and Belgium) supplies cement, steel mill products and a variety of other items.

^{1/} Port Everglades is located in Broward County to the north of Dade, about 20 miles from the Port of Miami.

Outbound water borne shipments from Miami are destined to the Caribbean and other U.S. Atlantic ports. Exports to the Caribbean countries constitute the larger share of Miami's shipments, and considerable portions of this trade is destined to Nassau and Cuba.

Tonnage projections by individual commodities revealed that the Port of Miami may expect an important increase in trade tonnage potential for the future. The total trade tonnage in 1954 amounted to 1.0 million. By 1960, trade tonnage potential is estimated at 1.7 million, and for 1965 at 2.5 million, representing increases of 66% and 146% for 1960 and 1965, respectively, over the volume handled in 1954.

Total dry cargo trade tonnage in 1954 amounted to 346.7 thousand. By 1960, dry cargo trade tonnage potential is estimated at 603.5 thousands, and for 1965 at 769.6 thousands, representing increases of 74% and 122% respectively, over the volume handled in 1954. Although both dry cargo import and export trade potentials are expected to increase, the import or inbound trade reveals a stronger tendency towards expansion.

The above projections should be regarded as traffic potential which might be realized only if the proper facilities are available at the Miami harbor at the time.

Our inquiry into the relative distribution of dry cargo trade by destination of imports and origin of exports, for 1954 and projected years 1960 and 1965, produced the following breakdown:

	<u>1954</u>	<u>1960</u>	<u>1965</u>
City of Miami	45.8%	37.4%	37.1%
Dade County (Excluding City of Miami)	35.2	50.4	51.6
Outside Dade County	19.0	12.2	11.3

B. Passenger Traffic -

Since 1948 Miami has developed a relatively important passenger traffic movement in the field of pleasure cruises to the Caribbean. This volume may be measured in terms of number of passenger arrivals, amounting to 53,356 in 1955.

The movement is highly seasonal drawing an important volume of its customers from Miami's tourist population. However, because of the contribution of Floridians and Cubans to this trade, a higher volume of activity is reached in the summer as compared with the winter peak.

Cruise passenger traffic appears to be highly sensitive to fluctuations in income and general business activity. Both the 1948-49 economic recessions and the 1954 decline in income and employment resulted in a reduction of passenger traffic from the previous years. Aside from such minor set backs, the general trend is one of a steady increase in volume, with a particularly rapid expansion within the last year and a half.

It appears possible that in view of the increasing popularity of these Caribbean cruises, high class passenger vessel facilities may be introduced to servicing this trade. The introduction of the more pleasant and luxurious variety of vessels at a later date may have quite significant effects on this trade.

A further possible development is that of a new passenger trade route between Miami and Europe by interested European concerns.

Projected figures for the volume of passenger arrivals as of 1960 indicate a low of 80,000 and a high of 100,000. Similar projections for 1965 point to a low of 130,000 and a high of 200,000 passenger arrivals.

C. Estimated Facility Requirements -

From the existing trends in water borne shipments, three main considerations appear evident regarding the Port of Miami: (1) considerable open space for open storage and traffic uses will be required, (2) additional bulkheading space, to the amount now available within existing port facilities, will be needed, and (3) provisions should be made to take care of the new trend towards trailer freight transportation.

The main bottleneck at the present port facilities is the lack of open storage space. Because of it, the existing port facilities have failed to realize the maximum of the port's trade potential. Moreover, the prevailing trend towards the use of trailers for carrying freight from its point of origin to its point of destination without unloading the cargo, will demand considerable areas for open storage of these trailers in the future, as well as for their freedom of movement.

Taking the above three considerations into account and under the light of the expected nature and volume of trade potential anticipated as of 1965, the following recommendations are made regarding facility requirements at the proposed Dodge Island Port.

Freight Terminal Requirements:

- (1) The 100 acres to be available at Dodge Island would be sufficient to take care of open storage space needs until at least 1965.
- (2) Approximately 8,000 feet of dockage will be required to take care of the needs of the port until 1965, of which at least 4,600 feet should be made available for deep-water ships. This will permit 9 such vessels to load and unload simultaneously.
- (3) The new port should be equipped with about 300,000 square feet of covered storage. Due to the large amount of open space available at the new site, this warehouse space may be readily expanded, if needed.
- (4) Approximately 10,000 square feet of refrigerated space should be installed at the new port, and the new installation should be run in a manner similar to present lockers. Much of the present equipment can be reinstalled at the new site.
- (5) About 50,000 square feet of office space should be provided for at the new port. A two story building with a 25,000 square feet floor area per floor is recommended. Like warehousing, these facilities may be readily increased in the future.
- (6) Facilities for railroad loading should be provided at each warehouse, and a small but adequate sorting yard should be provided on the new island.

(7) One specially-designed berth must be provided for loading and unloading trailer-carrying ships. This berth should be strategically located in the island so as to permit (a) considerable future expansion of this type of facilities, (b) a large amount of trailer parking area adjoining it, as well as an expansion potential for such area in line with future additions to berth facilities, and (c) ease of traffic movement for trailers entering and leaving the port area.

(8) A minimum of passenger facilities should be provided at the new freight terminal, to handle not more than 200 passengers, which may arrive in combination freight and passenger liners.

Passenger Terminal Requirements -

(1) Except for handling of automobiles and ships' services, such as laundry, provisioning, etc., it will be necessary to provide only passenger facilities at this terminal.

(2) It is recommended that berthing space be provided for 4 vessels, of the existing Caribbean cruise type, or approximately 2,000 feet of bulkhead space.

(3) It is estimated that Customs, Immigration, and passenger and luggage facilities should be provided to take care of 1,000 passengers simultaneously.

(4) A garage for car storage, capable of housing 300 cars, should be provided at the new terminal.

(5) It is recommended that enough flexibility for expanding the above facilities after 1965 should be allowed for.

D. Economic Significance of the Port

The Port makes two major contributions to this area. First, and of the lesser importance, is the revenue to the City Government from the operation of the Port. Second, is the direct and indirect income to the residents, generated through the existence of the Port.

In presenting these contributions, we first set forth the 1955 figures, followed by reasonable estimates for 1960 and 1965. The latter group are essentially based on the above forecasts of cargo and passengers. For each significant item is shown both the minimum that can be credited and, where feasible, an adjusted figure showing what might be a more reasonable estimate. We have not, however, presented the possible maximum figures, believing that no useful purpose would be served. It is stressed that any assessment of these data should recognize that they are understated to the extent that they include the contributions of many smaller firms whose figures are unavailable and that they give no special weight to the way in which the Port facilitates the development of the area as a distribution centre (other than by providing economical transportation). In brief, the emphasis has been in providing a statement of the probable minimum gain, extending this to include probable gains from the Port, and avoiding the maximum but less probably advantages.

The findings are conveniently tabulated on Table XVIII but may be summarized here. Reasonable estimates for 1955 show a total probable gain of \$12,933,000. Assuming an adequate Port, this figure should reach \$16,091,000 in 1960 and \$20,951,000 in 1965.

Of these totals: Port operations generated \$410,000 in 1955, in the form of revenues paid the City by Port users; this should rise to \$710,000 in 1960 and \$958,000 in 1965.

Savings in transportation costs totalled about \$6,000,000 in 1955. Of this, \$1,800,000 represented savings on water shipments (against bringing these goods in through Port Everglades, the alternative that would have been used by most local concerns if the Port had not existed.) The remainder, about \$4,200,000 represented what may have been saved on rail rates through the existence of low-priced water competition. The corresponding figures for 1960 should show a total saving of over \$7,000,000: about \$2,400,000 on water shipments and almost \$4,700,000 on rail rates. For 1965, the total rises to over \$9,300,000: about \$3,400,000 on water shipments and about \$5,900,000 on rail rates.

Employment directly traceable to the Port totalled over \$4,000,000 in 1955. It should reach about \$5,300,000 in 1960 and \$6,600,000 in 1965. This includes such items as longshoremen's wages, ship crews, office payroll and ship repair labor.

Finally, Port users provided firms in this area (in addition to the employment included above and after further deductions for what such firms had to pay for the raw materials used or the wholesale prices of the goods sold) with just over \$2,300,000 in 1955. This includes such items as new ship construction, operating supplies, provisions and the multiplicity of items bought by passengers and crews. By 1960 this should total just under \$3,000,000 and by 1965 just under \$4,000,000.

The minimum, in contrast to the probable estimates, totalled \$8,228,000 in 1955, \$10,028,000 for 1960 and \$12,415,000 for 1965. These reductions were obtained by dropping certain items where the magnitudes could be subject to debate, such as the \$4,262,000 credited in 1955 to water competition's effects on rail rates; other items where some part of the gain might be obtained without a Port, such as in commercial shipbuilding, and, where there is no established ratio between increased Port traffic and the items under consideration (for example, it cannot be proven that if traffic doubles, expenditures on ship repairs will rise any specific percent), we have assumed that only the 1955 figure will be maintained. Such a procedure obviously understates the growth to be expected but does provide a sound basis for estimating the very least that can be anticipated.

E. Distribution of Port Benefits between City of Miami and Remaining Areas of Dade County -

In order to indicate how the two areas, i.e. City of Miami and remaining areas of Dade County benefit from the existence of the port, we have distributed the total gains from the port as estimated in D above, between the two.

A separate distribution was made for each one of the major components contributing to the total gains. Each component was allocated under separate basis or criterium, determined by an analysis of the same. The results are conveniently tabulated on Table XIX, but may be summarized here in the following manner:

	<u>1955</u>	<u>1960</u>	<u>1965</u>
Actual Distribution:	(I n millions of dollars)		
City of Miami	8.4	9.6	12.1
Dade County (Excluding City of Miami)	4.5	6.5	8.9
	<hr/>		
Total Dade County	12.9	16.1	21.0

Relative Distribution:	<u>Percentages</u>		
City of Miami	64.7	59.4	57.9
Dade County (Excluding City of Miami)	<u>35.3</u>	<u>40.6</u>	<u>42.1</u>
Total Dade County	100.0	100.0	100.0

APPENDIX I
MIAMI'S WATER-BORNE FREIGHT TRADE, BY COMMODITY GROUPS

FRUITS, FRESH (REEFER)

<u>Year</u>	<u>Total</u>	<u>Incoming</u>	<u>Outgoing</u>
1938	527	485	42
1945	20,226	14,950	5,276
1946	8,748	6,822	1,926
1947	8,276	6,899	1,377
1948	2,570	1,258	1,312
1949	2,156	1,049	1,107
1950	7,039	5,827	1,212
1951	2,744	1,728	1,016
1952	3,330	2,219	1,111
1953	5,257	4,601	656
1954	5,655	4,407	1,248
Projection			
1960	5,000	3,800	1,200
1965	5,000	3,800	1,200

VEGETABLES, FRESH (REEFER)

1938	28,950	14,694	14,256
1945	23,738	9,977	14,761
1946	16,005	7,743	8,262
1947	10,106	4,212	5,894
1948	5,793	2,268	3,525
1949	3,096	494	2,602
1950	5,726	4,353	1,373
1951	7,676	6,266	1,410
1952	5,574	4,084	1,490
1953	7,744	6,910	834
1954	6,180	5,676	504
Projection			
1960	5,200	5,000	200
1965	5,000	5,000	-

APPENDIX I (Con't)
MIAMI'S WATER-BORNE FREIGHT TRADE, BY COMMODITY GROUPS

BANANAS, FRESH (REEFER)

<u>Year</u>	<u>Total</u>	<u>Incoming</u>	<u>Outgoing</u>
1938	4,809	4,809	-
1945	121,425	121,425	-
1946	145,662	145,662	-
1947	154,320	154,320	-
1948	126,487	126,487	-
1949	109,715	109,715	-
1950	64,573	64,573	-
1951	59,736	59,736	-
1952	35,504	35,504	-
1953	43,766	43,766	-
1954	31,227	31,227	-
Projection			
1960	30,000	30,000	-
1965	35,000	35,000	-

ALL OTHER REFRIGERATED ITEMS (INC. MISC.) REEFER

1938	1,816	1,651	165
1945	2,928	1,867	1,061
1946	445	294	151
1947	230	52	178
1948	2,034	57	1,977
1949	4,509	27	4,482
1950	505	69	436
1951	1,619	94	1,525
1952	1,167	38	1,129
1953	849	47	802
1954	650	28	622
Projection			
1960	260	260	-
1965	170	170	-

APPENDIX I (Con't)
MIAMI'S WATER -BORNE FREIGHT TRADE, BY COMMODITY GROUPS

FRUITS AND VEGETABLES CANNED OR CONTAINER (NON-REEFER)

<u>Year</u>	<u>Total</u>	<u>Incoming</u>	<u>Outgoing</u>
1938	30,755	26,304	4,451
1945	5,444	363	5,081
1946	8,479	5,724	2,755
1947	7,321	7,092	229
1948	14,578	14,414	164
1949	15,952	15,451	501
1950	15,724	15,018	706
1951	17,294	16,063	1,231
1952	23,196	22,495	701
1953	26,598	25,768	830
1954	29,988	29,457	531
Projection			
1960	56,000	56,000	-
1965	80,000	80,000	-

LIQUORS, WINES AND BEER (NON-REEFER)

1938	34,812	34,557	255
1945	7,734	6,622	1,112
1946	662	350	312
1947	4,440	2,400	2,040
1948	1,831	1,172	659
1949	3,693	3,488	205
1950	5,016	4,966	50
1951	2,122	2,035	87
1952	3,606	3,504	102
1953	9,468	9,413	55
1954	8,295	7,965	330
Projection			
1960	14,000	14,000	-
1965	22,000	22,000	-

APPENDIX I (Con't)
MIAMI'S WATER-BORNE FREIGHT TRADE, BY COMMODITY GROUPS

ANIMAL FEEDS (NON-REEFER)

<u>Year</u>	<u>Total</u>	<u>Incoming</u>	<u>Outgoing</u>
1938	20,465	20,168	297
1945	746	-	746
1946	274	-	274
1947	3,543	429	3,114
1948	-	-	-
1949	2,901	2,803	98
1950	4,782	4,670	112
1951	310	86	224
1952	4,132	4,033	99
1953	2,035	1,674	361
1954	5,573	3,871	1,702
Projected			
1960	4,500	3,700	800
1965	6,000	4,800	1,200

ALL OTHER NON-REFRIGERATED ITEMS

1938	26,997	26,502	495
1945	13,401	5,274	8,127
1946	10,924	7,510	3,414
1947	13,676	10,348	3,328
1948	21,824	7,512	14,312
1949	12,100	8,852	3,248
1950	10,590	7,526	3,064
1951	7,296	5,007	2,289
1952	7,366	4,392	2,974
1953	10,251	7,515	2,736
1954	9,955	7,313	2,642
Projected			
1960	9,000	6,400	2,600
1965	8,400	5,900	2,500

APPENDIX I (Con't)
MIAMI'S WATER-BORNE FREIGHT TRADE, BY COMMODITY GROUPS
 STANDARD NEWSPRINT PAPER

	<u>Total</u>	<u>Incoming</u>	<u>Outgoing</u>
1938	13,157	12,333	824
1945	8,081	7,849	232
1946	14,628	14,579	49
1947	21,931	21,906	25
1948	35,962	35,893	69
1949	43,687	42,868	819
1950	42,730	42,719	11
1951	40,726	40,643	83
1952	51,203	51,181	22
1953	56,356	56,349	7
1954	60,117	60,107	10
Projected			
1960	80,000	80,000	-
1965	100,000	100,000	-

PAPERS AND MANUFACTURES
 (INCL. MISC.)

1938	3,541	2,560	981
1945	311	-	311
1946	304	14	290
1947	705	289	416
1948	4,037	3,425	612
1949	5,588	3,504	2,084
1950	6,552	4,198	2,354
1951	12,186	2,431	9,755
1952	8,004	1,500	6,504
1953	6,944	2,976	3,968
1954	8,393	3,654	4,739
Projected			
1960	12,000	2,600	9,400
1965	14,500	2,200	12,300

APPENDIX I (Con't)
MIAMI'S WATER-BORNE FREIGHT TRADE, BY COMMODITY GROUPS

LUMBER AND SHINGLES

	<u>Total</u>	<u>Incoming</u>	<u>Outgoing</u>
1938	6,452	422	6,030
1945	2,098	-	2,098
1946	6,049	254	5,795
1947	6,309	2,121	4,188
1948	3,855	109	3,746
1949	3,254	30	3,224
1950	4,106	228	3,878
1951	5,194	162	5,032
1952	7,245	244	7,001
1953	4,679	802	3,877
1954	26,080	21,778	4,302
Projected			
1960	140,300	133,000	7,300
1965	169,200	160,000	9,200

WOOD MANUFACTURES

1938	7,497	5,831	1,666
1945	226	226	-
1946	623	86	537
1947	1,382	73	1,309
1948	1,878	2	1,876
1949	2,152	277	1,875
1950	1,626	296	1,330
1951	1,773	444	1,329
1952	3,221	1,214	2,007
1953	2,509	703	1,806
1954	1,844	398	1,446
Projected			
1960	2,600	750	1,850
1965	2,900	900	2,000

APPENDIX I (CON'T)
MIAMI'S WATER-BORNE FREIGHT TRADE, BY COMMODITY GROUPS

ALL OTHER VEGETABLE PRODUCTS (INEDIBLE AND TEXTILE FIBRES)

<u>Year</u>	<u>Total</u>	<u>Incoming</u>	<u>Outgoing</u>
1938	5,326	4,946	380
1945	724	451	273
1946	208	208	-
1947	814	142	672
1948	1,291	121	1,170
1949	3,009	1,604	1,405
1950	5,124	2,578	2,546
1951	4,590	2,568	2,022
1952	6,520	4,192	2,328
1953	6,838	4,716	2,122
1954	6,064	3,964	2,100
Projected			
1960	10,000	7,000	3,000
1965	12,000	9,000	3,000

MOTOR FUEL AND GASOLINE

1938	291,387	289,606	1,781
1945	107,638	107,247	391
1946	228,771	228,339	432
1947	97,038	96,271	767
1948	78,295	77,441	854
1949	87,859	85,813	2,046
1950	87,301	86,418	883
1951	78,691	77,644	1,047
1952	58,861	57,388	1,473
1953	64,410	63,075	1,335
1954	57,590	57,323	267
Projected			
1960	51,000	50,000	1,000
1965	48,000	47,000	1,000

APPENDIX I (CON'T)
MIAMI'S WATER-BORNE FREIGHT TRADE, BY COMMODITY GROUPS

GAS OIL AND DISTILLATE FUEL OIL

<u>Year</u>	<u>Total</u>	<u>Incoming</u>	<u>Outgoing</u>
1938	10,698	10,698	-
1945	75,615	72,337	3,278
1946	51,337	51,094	243
1947	13,026	13,026	-
1948	25,536	25,536	-
1949	46,104	44,950	1,154
1950	48,712	47,104	1,608
1951	88,420	87,017	1,403
1952	199,290	198,904	386
1953	163,025	162,833	192
1954	123,772	123,528	244
Projected			
1960	139,000	139,000	-
1965	162,000	162,000	-

KEROSENE

1938	14,362	14,340	22
1945	6,007	6,007	-
1946	17,410	17,300	80
1947	8,272	8,225	47
1948	6,507	6,058	449
1949	2,022	1,953	69
1950	2,194	1,984	210
1951	2,755	2,670	85
1952	4,107	3,992	115
1953	3,595	3,507	88
1954	2,735	2,698	37
Projected			
1960	2,000	2,000	-
1965	1,700	1,700	-

APPENDIX I (CON'T)
MIAMI'S WATER-BORNE FREIGHT TRADE, BY COMMODITY GROUPS

RESIDUAL FUEL OIL

<u>Year</u>	<u>Total</u>	<u>Incoming</u>	<u>Outgoing</u>
1938	94,699	-	94,699
1945	205,331	193,243	12,088
1946	193,522	192,168	1,354
1947	302,540	242,057	60,483
1948	228,444	228,242	202
1949	199,574	198,613	961
1950	310,231	310,231	-
1951	335,316	335,316	-
1952	263,605	259,876	3,729
1953	426,807	413,931	12,876
1954	470,512	452,494	18,018
Projected			
1960	880,000	880,000	-
1965	1,500,000	1,500,000	-

PETROLEUM ASPHALT

1938	1,387	1,387	-
1945	125	-	125
1946	515	435	80
1947	41	-	41
1948	74	-	74
1949	3,192	3,149	43
1950	3,201	3,134	67
1951	16,448	16,274	174
1952	11,988	11,720	268
1953	13,744	13,744	-
1954	22,748	22,703	45
Projected			
1960	28,500	28,500	-
1965	42,000	42,000	-

APPENDIX I (CON'T)
MIAMI'S WATER-BORNE FREIGHT TRADE, BY COMMODITY GROUPS

PETROLEUM PRODUCTS - LIQUID FORM
(Including Lubricating Oils and Greases
and Products N. E. C.)

<u>Year</u>	<u>Total</u>	<u>Incoming</u>	<u>Outgoing</u>
1938	5,796	5,710	86
1945	602	214	388
1946	5,256	4,267	989
1947	3,725	2,982	743
1948	15,212	14,538	674
1949	17,090	16,356	734
1950	15,474	14,352	1,122
1951	8,447	7,831	616
1952	5,349	4,400	949
1953	8,270	7,430	840
1954	4,001	3,136	865
Projected			
1960	3,400	3,100	300
1965	2,800	2,500	300

BUILDING CEMENT

1938	20,736	20,687	49
1945	5,531	-	5,531
1946	2,174	-	2,174
1947	9,113	98	9,015
1948	12,671	6,323	6,348
1949	10,972	4,741	6,231
1950	65,498	62,363	3,135
1951	106,292	104,017	2,275
1952	97,031	91,952	5,079
1953	45,764	39,637	6,127
1954	30,356	28,076	2,280
Projected			
1960	16,000	15,200	800
1965	13,500	13,000	500

APPENDIX I (Con't)
MIAMI'S WATER-BORNE FREIGHT TRADE, BY COMMODITY GROUP

GLASS AND GLASS PRODUCTS

<u>Year</u>	<u>Total</u>	<u>Incoming</u>	<u>Outgoing</u>
1938	13,373	3,042	10,331
1945	6,679	-	6,679
1946	406	206	200
1947	1,119	310	809
1948	1,116	854	262
1949	1,843	1,211	632
1950	4,162	3,788	374
1951	5,417	5,069	348
1952	4,730	4,296	434
1953	7,672	7,395	277
1954	10,008	9,742	266
Projected			
1960	27,000	27,000	-
1965	39,500	39,500	-

IRON AND STEEL SCRAP

1938	4,622	-	4,622
1945	-	-	-
1946	567	201	366
1947	5,682	4,239	1,443
1948	1,190	1,176	14
1949	-	-	-
1950	-	-	-
1951	1,302	1,302	-
1952	5,612	3,130	2,482
1953	1,772	204	1,568
1954	2,762	236	2,526
Projected			
1960	2,500	-	2,500
1965	2,500	-	2,500

APPENDIX I (CON'T)
MIAMI'S WATER-BORNE FREIGHT TRADE, BY COMMODITY GROUP

ROLLED STEEL MILL PRODUCTS (FINISHED AND
SEMI-FINISHED)

<u>Year</u>	<u>Total</u>	<u>Incoming</u>	<u>Outgoing</u>
1938	5,471	5,471	-
1945	-	-	-
1946	-	-	-
1947	-	-	-
1948	-	-	-
1949	11,314	10,312	1,002
1950	21,650	21,366	284
1951	25,011	24,441	570
1952	21,828	20,526	1,302
1953	36,501	35,865	636
1954	35,002	29,202	5,800
Projected			
1960	103,000	101,000	2,000
1965	154,000	152,000	2,000

OTHER METAL MANUFACTURES

1938	11,318	10,708	610
1945	671	-	671
1946	1,230	414	816
1947	1,314	83	1,231
1948	17,533	15,239	2,294
1949	3,562	1,756	1,154
1950	20,871	18,070	2,801
1951	16,739	13,251	3,488
1952	5,177	2,307	2,870
1953	70,000	3,438	3,562
1954	9,555	4,617	4,938
Projected			
1960	21,000	11,500	9,500
1965	28,000	20,000	8,000

APPENDIX I (CON'T)
MIAMI'S WATER-BORNE FREIGHT TRADE, BY COMMODITY GROUP

CONSTRUCTION MACHINERY AND PARTS

<u>Year</u>	<u>Total</u>	<u>Incoming</u>	<u>Outgoing</u>
1938	-	-	-
1945	-	-	-
1946	-	-	-
1947	-	-	-
1948	-	-	-
1949	949	-	949
1950	929	-	929
1951	4,010	-	4,010
1952	1,627	-	1,627
1953	2,141	6	2,135
1954	1,935	82	1,835
Projected			
1960	2,100	-	2,100
1965	2,250	-	2,250

OTHER MACHINERY

1938	1,122	947	175
1945	484	30	454
1946	2,337	90	2,247
1947	2,264	51	2,213
1948	2,753	304	2,449
1949	2,693	621	2,052
1950	4,797	2,087	2,710
1951	8,066	2,169	5,897
1952	5,744	764	4,980
1953	5,682	1,573	4,109
1954	7,067	2,028	5,039
Projected			
1960	16,500	2,500	14,000
1965	22,500	3,000	19,500

APPENDIX I (CON'T)
MIAMI'S WATER-BORNE FREIGHT TRADE, BY COMMODITY GROUP

FERTILIZERS AND MATERIALS

<u>Year</u>	<u>Total</u>	<u>Incoming</u>	<u>Outgoing</u>
1938	2,847	2,294	553
1945	1,297	-	1,297
1946	1,489	130	1,359
1947	765	74	691
1948	1,400	195	1,205
1949	1,099	127	972
1950	1,290	299	991
1951	2,044	98	1,946
1952	2,062	47	2,015
1953	1,529	389	1,140
1954	1,941	336	1,605
Projected			
1960	2,900	300	2,600
1965	3,600	300	3,300

OTHER CHEMICAL PRODUCTS
 (INCL. MISCELLANEOUS)

1938	9,359	9,095	264
1945	532	-	532
1946	731	675	56
1947	3,405	2,360	1,045
1948	5,306	4,339	967
1949	14,330	13,040	1,290
1950	15,774	14,610	1,164
1951	12,667	10,691	1,976
1952	7,123	5,613	1,510
1953	10,395	6,999	3,396
1954	6,442	5,308	1,134
Projected			
1960	4,700	3,800	900
1965	3,600	2,900	700

APPENDIX I (CON'T)
MIAMI'S WATER-BORNE FREIGHT TRADE, BY COMMODITY GROUPS

ALL OTHER NON-METALLIC MINERALS
 DRY FORM

<u>Year</u>	<u>Total</u>	<u>Incoming</u>	<u>Outgoing</u>
1938	2,102	1,990	112
1945	765	358	407
1946	1,399	297	1,102
1947	1,744	261	1,483
1948	1,501	849	652
1949	6,412	5,522	890
1950	8,454	7,382	1,072
1951	8,734	2,998	5,736
1952	5,314	1,275	4,039
1953	4,256	2,414	1,842
1954	4,307	3,593	714
Projected			
1960	2,600	2,200	400
1965	2,200	2,100	100

MOTOR VEHICLES/ WATERCRAFT/ RAILWAY EQUIPMENT/ AND ALL PARTS AND ACCESSORIES

1938	11,033	6,420	4,613
1945	1,920	77	1,843
1946	2,192	172	2,020
1947	10,366	9	10,357
1948	5,713	172	5,541
1949	4,058	454	3,604
1950	5,654	212	5,442
1951	6,344	612	5,732
1952	4,651	889	3,762
1953	4,317	999	3,318
1954	5,566	1,153	4,413
Projected			
1960	5,350	1,300	4,050
1965	5,800	2,000	3,800

APPENDIX I (CON'T)
MIAMI'S WATER-BORNE FREIGHT TRADE, BY COMMODITY GROUPS

SAND, GRAVEL AND CRUSHED ROCK

<u>Year</u>	<u>Total</u>	<u>Incoming</u>	<u>Outgoing</u>
1938	26,048	26,039	7
1945	-	-	-
1946	234	-	234
1947	243	243	-
1948	-	-	-
1949	20	20	-
1950	-	-	-
1951	-	-	-
1952	-	-	-
1953	1,405	710	695
1954	2,043	1,018	1,025
Projected			
1960	-	-	-
1965	-	-	-

COMMODITIES NOT ELSEWHERE CLASSIFIED

1938	80,130	54,462	25,668
1945	45,730	16,060	29,670
1946	20,160	10,286	9,874
1947	37,585	31,688	5,897
1948	28,102	26,960	1,142
1949	25,796	24,108	1,688
1950	30,445	28,333	2,112
1951	27,660	18,548	9,112
1952	11,316	6,673	4,643
1953	20,141	12,575	7,566
1954	29,712	13,126	16,586
Projected			
1960	31,000	13,000	18,000
1965	32,000	13,000	19,000
* Includes Intransit Cargo	13,750	11,000	2,750

Job #719

APPENDIX II

1. Do you SHIP your PRODUCTS out of Dade County by water? Yes
 No
- (IF "NO", SKIP TO QUESTION 3)
- A. (IF YES) What percentage of the products you manufacture are shipped out of Dade County by water? _____ %
- B. What would this represent in tons per year? _____ Tons
2. Do you ship your products from Port of Miami
 Port Everglades
 Both
- A. If both, please indicate percent of total shipped from each port? Port of Miami _____ %
 Port Everglades _____ %
3. Do you RECEIVE any of your MANUFACTURING materials by water? Yes
 No
- (IF "NO", SKIP TO 5)
- A. (IF "YES") About what percent? _____ %
- B. What does this amount to in tons per year? _____ Tons
4. Please indicate percentages received from Port of Miami _____ %
 Port Everglades _____ %
5. Do you anticipate making any future shipments by water? Yes
 No
- A. (IF "YES") What percent of your shipments? _____ %
- B. About what would this represent in tons per year? _____ Tons
6. Would the improvements of the City of Miami Port be advantageous to your operations? Yes
 No

PLEASE COMMENT _____

Name of Company _____ Address _____

Name of Respondent _____
 (Person completing form)

Title (Position) _____ Date _____