New Bedford Wholesale Food-Distribution Facilities

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The report was prepared under the general supervision of William C. Crow, Director, Transportation and Facilities Research Division. Catharine A. Perry prepared a scale model of the layouts and Robert L. Holland designed the meat processing layout. Both are Division staff employees.

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SUMMARY

The city of New Bedford is developing proposals for urban renewal, historic restoration, and highway construction. As these plans are initiated, many food wholesalers who operate in crowded facilities will be forced to relocate. This report, prepared at the request of the Mayor of New Bedford, presents guides for constructing a new, efficient, wholesale food-distribution center.

In 1961, thirty wholesale food handlers received a total of 151,000 tons of food. Of this volume, 70 percent arrived by truck. Supplies arrived from all parts of the United States as well as from many foreign countries, primarily Portugal. One-quarter of the grocery volume, one-half of the meat and poultry volume, and three-quarters of the fresh fruit and vegetable volume were distributed within the city of New Bedford.

In plans developed for new facilities, the fresh fruit and vegetable dealers and the meat and poultry dealers are placed in a single building divided into 27 units. The fruit and vegetable dealers would occupy 8 units, each 25 feet wide, 36 feet deep, and 20 feet high with a 14-foot covered front platform. Six units similar to the fresh fruit and vegetable units are provided for the poultry and small meat wholesaling firms. Thirteen larger units in this building are recommended for meat wholesalers and processors. These units are 25 by 100 feet, with 14-foot front and rear platforms, and are two stories high. Another modified multiple-occupancy building containing 20 units would house the smaller grocery firms. Three single-occupancy buildings containing 40,000 square feet, 70,000 square feet, and 130,000 square feet are suggested for the larger general-line grocery firms.

Three sites were considered in the north end of the city: Nash Road, Tarkiln Hill Road, and the south end of the industrial park. The total cost of land and facilities is estimated at about $4.5 million dollars.

If private financing were used to develop these facilities it is estimated that the annual rentals needed to make the project fully self-supporting would be $640,000. It might be possible with city assistance to reduce the cost of amortization and other operating costs which affect rents. For most firms, regardless of the method of financing, this would represent a considerable increase in rental charges over those being paid for their present inadequate facilities. This increased rental cost would be partially offset by reduced handling, interdealer handling, spoilage, deterioration, breakage, and shrinkage costs. Still the total cost would be somewhat higher than that now incurred, because it is impossible to provide adequate facilities at the same low cost of those now in use. The plan developed is aimed at providing new facilities at the lowest possible cost for dealers who must relocate.

NEW BEDFORD WHOLESALE FOOD-DISTRIBUTION FACILITIES

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BACKGROUND OF THE STUDY

In New Bedford, the majority of the food handling facilities are located either in the path of Interstate Route 195 and the city connector, proposed route 140, both of which are programmed for early construction, or in an area presently under study for urban renewal and historic restoration. Most of the remaining firms are in areas for which renewal plans will be made in the future

In the fall of 1961, this study was undertaken at the request of the Mayor of New Bedford and in cooperation with the City Planning Department. The purpose of this report is to assist in planning wholesale food handling facilities to replace existing facilities which may be displaced by proposed highway construction, a historical restoration project, or future urban renewal project

Data in this report were obtained in cooperation with the City Planning Department, by personal interviews, and examination of records of the various food handling firms. Information was obtained from retail buyers and from truckers hauling to and from these firms. Other data and statistics were supplied by officials of the city, State, and Federal governments, and the New York, New Haven and Hartford Railroad.

This study is part of a broad program of marketing research to aid in reducing costs of marketing farm and food products. It has the following objectives:

- To analyze the present food marketing situation and facilities in New Bedford.
- To determine those facilities that would best suit present and future needs.
- To estimate costs of facility construction, possible operating expenses, and self-liquidating potentials.
- To estimate probable savings and other benefits from any suggested improvements.

Cost estimates are rounded in the text; exact figures from computations appear in the tables.

IMPORTANCE OF FOOD MARKETING IN NEW BEDFORD

The Greater New Bedford area consists of the city of New Bedford and the towns of Acushnet, Dartmouth, Fairhaven, Marion, and Mattapoisett. The area's economy is primarily industrial. Rural land is devoted to farming, dairying, and recreation. It contains 176 square miles, and in the 1960 census, had a population of 143,176. 1/ The city of New Bedford, containing 19 square miles, is the main shopping and distribution center for the area and Cape Cod. This area forms a part of the southern New England industrial complex.

Highway access is by Route 6 from Providence on the west or Cape Cod on the east, and by Route 140 from Boston on the north. Interstate Route 195 will soon reach the city; a limited-access city connector route (extended proposed route 140) is planned as part of this project (fig. 1). Rail service is provided by the New York, New Haven and Hartford Railroad. Air and ship service are available.

New Bedford is an industrial, commercial, and shipping center with extensive wholesale, retail, and manufacturing enterprises. The city is third largest in value of manufactured products in Massachusetts. It is the Nation's second largest commercial fishing port in value of fish landed, and handles more than 75 percent of the sea scallop receipts of the United States.

NUMBER OF DEALERS AND VOLUME HANDLED

Food distribution to and from New Bedford is complicated by the proximity of Boston and Providence. Because of this proximity, New Bedford wholesalers serve a limited area with many wholesale firms acting as secondary receivers or jobbers for certain food commodities.

The wholesale food business at the time of this study was conducted by 30 New Bedford dealers, including a grocery chain. However, not included in this study were food chains maintaining warehouse facilities outside the area, or handlers of seafood or sundry (nonfood) items.

The volume of food handled by the 30 wholesale dealers were estimated after each dealer had been interviewed, the records of selected dealers analyzed, and their volumes substantiated. Volumes of direct receipts by methods of transportation may be seen in table 1. Certain combinations of commodities were broadly interpreted so as not to divulge data of individual firms.

In 1961, the wholesale food handlers in New Bedford received a total of 150,738 tons of food. Of the volume of direct receipts 106,750 tons, or 70 percent arrived by truck. Much of the truck receipts originated in the Boston or Providence area.

1/ U. S. Bureau of the Census, United States Census of Population, 1960.

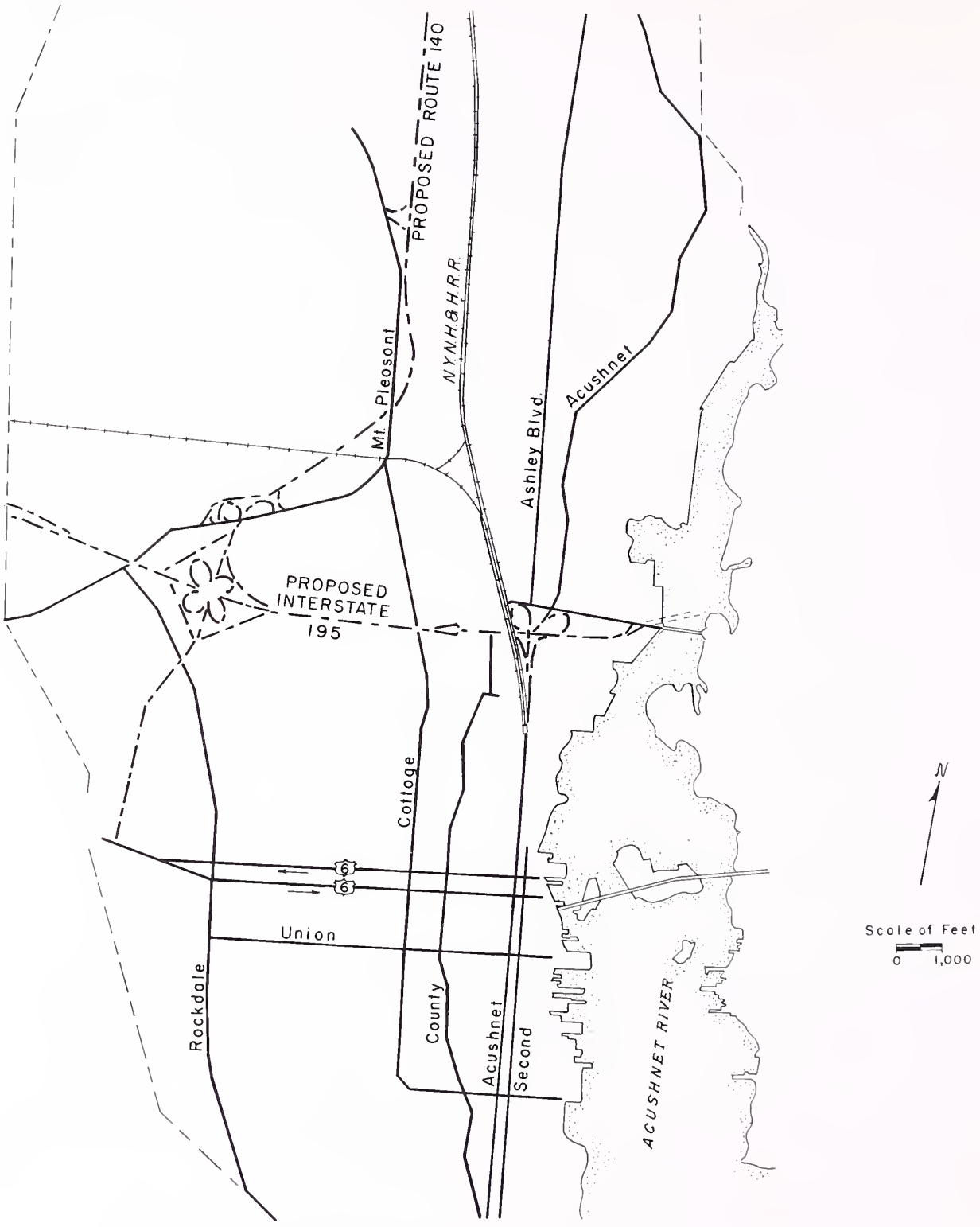

Figure 1.--Existing and proposed transportation networks.

Table 1.--Number of wholesale dealers and estimated volume of direct receipts 1/

Type of wholesaler	Dealers	Volume of direct receipts		
		Rail	Truck	Total
	Number	Tons	Tons	Tons
Fresh fruits and vegetables:				
Wholesalers	8		15,306	15,306
Meat and poultry: 2/				
Wholesalers	7	5,030	2,600	7,630
Processors	6		3,245	3,245
Total	13	5,030	5,845	10,875
Groceries:				
General-line wholesalers	4	38,577	80,083	118,660
Specialty wholesalers	5	381	5,516	5,897
Total	9	38,958	85,599	124,557
Grand total	30	43,988	106,750	150,738

1/ Does not include intramarket transfer.

2/ Includes direct receipts of 3,030 tons of poultry, butter, eggs, cheese, and frozen food.

Fresh Fruits and Vegetables

Fresh fruits and vegetables were handled by eight wholesale dealers. Most of these firms were secondary receivers with their primary supply coming from Boston or Providence; however, occasional shipments were received directly from producing areas. One firm specialized in cranberries and potatoes, and another in bananas. A total of 15,306 tons of fresh fruit and vegetables, all of which arrived by truck, was received by the eight wholesale firms.

Meat, Poultry, and Related Products

Many meat and poultry wholesalers in New Bedford handled several different commodities. Within the city there were two packer branch houses, two general wholesalers, six processors (three of which are Federally inspected) and three poultry firms. Most eggs used in New Bedford came from local producers; however, packer branch houses and poultry firms did handle limited amounts of these items. Dairy products, such as butter and cheese, were handled as secondary items by several dealers. Some of these dealers also handled frozen foods.

These 13 dealers handled a total of 10,875 tons of meat, poultry and related products. Just under half of this volume, 5,030 tons, arrived by rail while the balance, 5,845 tons, came by truck.

Groceries

Groceries were handled by four general-line and five specialty wholesalers. The latter handled specialty items--principally Portuguese foods--or because of the nature of their operations were placed in this category.

The general-line wholesalers handled 118,660 tons of groceries, of which 67 percent arrived by truck; the remaining 38,577 tons were rail receipts. Specialty wholesalers handled 5,897 tons of which the larger share, 93 percent, was truck receipts. An undetermined amount of these truck receipts were imports from Boston or New York.

PRESENT MARKETING FACILITIES

The facilities of the various wholesalers were located either in the urban renewal study area 2/ surrounding the Whaling Museum and Seaman's Bethel (figs. 2 and 3) in downtown New Bedford or in the north or south end of the city. The facilities of the 14 wholesalers were located in and near the center of the urban renewal study area. Seven other firms are located in the south end of the city, and nine are located in the north end.

The majority of fresh fruits and vegetables and meat wholesaling operations are carried on in the urban renewal study area. Meat processing is carried on in the south end, while the majority of groceries are handled in the north end (fig. 4).

Fresh Fruit and Vegetable Facilities

Seven fresh fruit and vegetable firms are located at the lower end of Union Avenue, in the center of the renewal study area, one firm is located in the south end of the city. The facilities located in the renewal area are primarily of one- and two-story brick construction. Access to the upper floor and basement is by stairway. The basements are used for general storage and heating or refrigeration equipment. Only one dealer fully utilized his basement because of lack of first-floor space. Most of these firms lacked unloading facilities other than the sidewalk which was occasionally used for display. One firm used a platform which effectively blocked the street when a semitrailer was loaded or unloaded. None of these firms were served directly by rail. The one fruit and vegetable firm located outside of the area maintained a one-story facility with a platform for loading and unloading. This dealer has outgrown his facilities.

The eight fruit and vegetable firms used 1,123 square feet for office space, or 140 square feet per wholesaler. Seven wholesalers had refrigerated space totaling 14,721 square feet, or 2,103 square feet each. They used a total of 73,168 square feet of floor space, of which 25,644 square feet was first floor space. These dealers had an average of 9,146 square feet per dealer. Five owned their facilities.

2/ The central portion of the renewal study area contains buildings of historical interest and architectural merit, which are intended to be preserved and rehabilitated as reminders of New Bedford's whaling era.

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Figure 2.--Seaman's Bethel.

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Figure 3.--Whaling Museum.

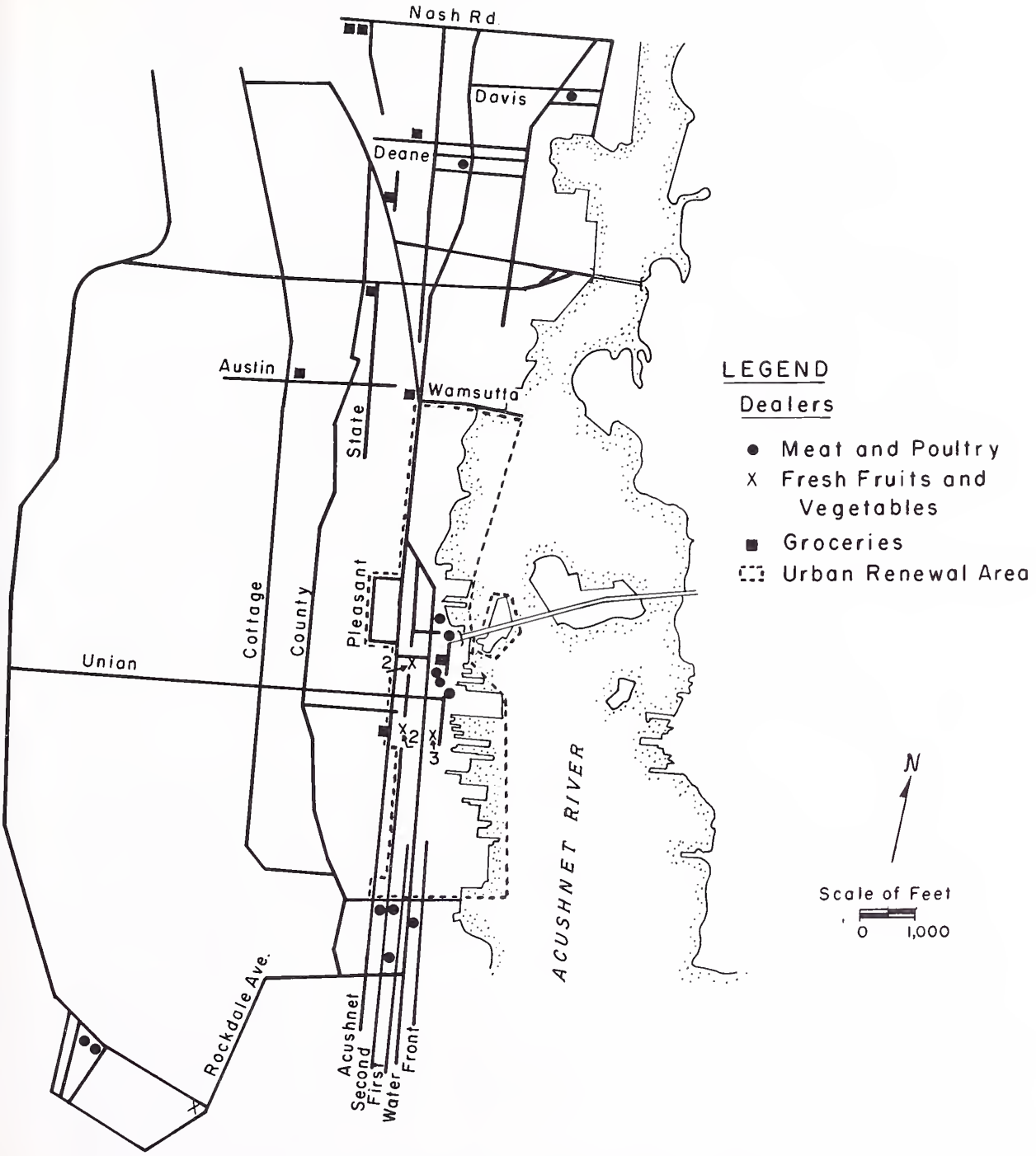

Figure 4.--Location of dealers in New Bedford.

Meat and Poultry Facilities 3/

Wholesalers

Five of the seven meat and poultry wholesalers were located in the renewal area. The remaining firms were located in the north and south end of the city. These dealers' facilities were of brick, stone, or wood construction. Four firms were located in multistory buildings, of which one was the oldest building in the city. Accesses to the upper floors and basements were by stairs or slow freight elevators. The remaining three firms were located in one-story facilities, not specifically designed for wholesaling. Two firms had platform facilities and was served by rail. The other firms lacked adequate loading facilities and were not served by rail. At one facility the street was partially blocked during unloading operations.

The three poultry wholesalers were located in various points of the city. One firm was located in the south end, another in the north end, and the third bordered the renewal area. Two firms were located in one-story buildings. These firms lacked unloading facilities, although one had inadequate off-street unloading within the building. None of the firms had rail access. An example of these facilities is shown in figure 5A.

The facilities of the meat and poultry wholesalers contained 2,169 square feet of office space, or 310 square feet per firm. These seven firms had refrigerated space totaling 27,030 square feet, or 3,861 square feet per dealer. The meat and poultry wholesalers had a total of 47,350 square feet of space, or 6,764 square feet per dealer. Of the total space, 19,750 square feet, or 42 percent, was first floor space. Two of the seven firms rented their facilities; the rest owned theirs.

Processors

Five meat processors were located in the south end of the city, and one in the north end. All dealers maintained one-story facilities of either brick or wood construction. One firm used a platform for unloading and loading; the others provided off-street unloading and parking areas. None of the firms had direct access to rail.

The meat processors occupied 25,800 square feet of first-floor space. Many dealers operated in more than one building; 5,200 square feet of first-floor space was in separate buildings. All facilities contained 4,330 square feet of refrigerated space, or 721 square feet per wholesaler. Office space amounted to 1,028 square feet, or 171 square feet per dealer. All of the processors owned their facilities. A picture of a typical processor's facility may be seen in figure 5B.

3/ The poultry firms have been combined with meat dealers to prevent the disclosure of individual data. (For this reason, all further analysis of their operations will be classified as meat and poultry dealers.)

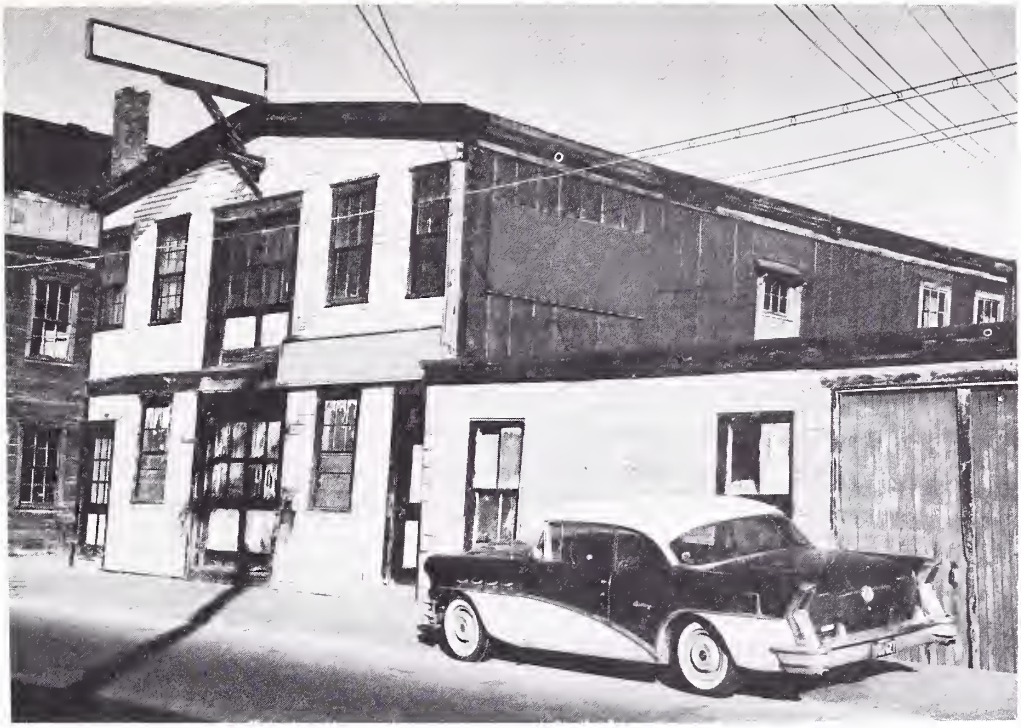

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Figure 5A.--An example of a poultry facility.

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Figure 5B.--An example of meat processing facilities.

Grocery Facilities

General-Line Wholesalers

The four general-line wholesalers (including one institutional supplier) are located in the north end. These facilities are one- and two-story brick buildings. All facilities have adequate platforms for loading and unloading operations. Three of the firms have direct rail service. The fourth firm has to maintain a split operation, operating in two buildings; one warehouse has rail service and the other does not.

These wholesalers maintained office facilities of 6,500 square feet, or 1,625 square feet per wholesaler. The four firms had refrigerated space amounting to 7,950 square feet or 1,987 square feet per firm. These firms occupied a total of 245,500 square feet of first-floor space, an average of 61,375 square feet each. Two of these firms owned their facilities.

Specialty Wholesalers

The five specialty wholesalers included a ship chandler. Two firms were located in the center of the renewal area, while the others were located in the north end. Three were in old multistory stone buildings while two had one-story brick or wood facilities. Most firms maintained an unloading area, although not all had platforms. Only one firm had a rail spur, which was inadequate. The specialty wholesalers used team tracks, 3 to 5 miles from their location.

The five firms occupied a total of 69,450 square feet, of which 42 percent (29,350 square feet) was first-floor space. These firms had 1,575 square feet of office space, or an average of 315 square feet per firm. The refrigerated space maintained was 1,240 square feet, or 248 square feet per firm. Three of the five firms owned their facilities, while the others rented or leased.

All New Bedford Wholesale Facilities

The total space used by all types of wholesalers in New Bedford was 461,268 square feet, of which 346,044 square feet (75 percent) was first floor space. This provided the 30 dealers studied with an average of 15,375 square feet. Twenty-one (70 percent) of the dealers owned their facilities; the remaining 30 percent (9 dealers) rented or leased. Details of the tenure status and space used may be seen in table 2.

Table 2.--Tenure status and space used by food wholesalers

Type of wholesaler	Tenure status: Wholesalers renting facilities	Tenure status: Wholesalers owning facilities	Space on first floor	Space on other floors	Total available space	Average per wholesaler
			Sq. Ft.	Sq. Ft.	Sq. Ft.	Sq. Ft.
Fresh fruit and vegetable:						
Wholesalers	3	5	25,644	47,524	73,168	9,146
Meat and poultry:						
Wholesalers	2	5	19,750	27,600	47,350	6,764
Processors	0	6	1/ 25,800		25,800	4,300
Total	2	11	45,550	27,600	73,150	5,626
Groceries:						
General-line wholesalers	2	2	245,500		245,500	61,375
Specialty wholesalers	2	3	29,350	40,100	69,450	13,890
Total	4	5	274,850	40,100	314,950	34,994
Grand Total	9	21	346,044	115,224	461,268	15,375

1/ Includes 5,200 square feet first floor space in other buildings.

SOURCES OF SUPPLY

Food commodities handled by wholesalers in New Bedford originated from local sources, other firms within the State, other areas of the country, and from foreign countries, primarily Portugal. The volume handled and the amount originating in Massachusetts along with interdealer movement may be seen in table 3. In 1961, 13,929 tons (about 90 percent) of the fresh fruit and vegetable volume came to New Bedford from points in Massachusetts. Part of this tonnage was accounted for by local production, especially of cranberries; the largest part was supplied from wholesale firms in Boston. This large volume originating in Boston seems to emphasize the role of New Bedford as primarily a jobber market for fresh fruits and vegetables. Direct receipts of fresh fruits and vegetables arrived by trucks from the major producing areas. The interdealer movement may be accounted for in part by movement between local dealers and those specializing in certain commodities.

Seventy-seven percent of the poultry handled was supplied by producers outside the State, primarily in Maine and Maryland. Twenty-three percent of the poultry receipts were from within the State, principally the surrounding areas. There was a small amount of interdealer movement in poultry.

No firm in the area handled such products as butter, margarine, eggs, or cheese exclusively. These commodities were handled by meat, poultry, and grocery firms, and were received directly from producing areas. In addition, these commodities were purchased by the retail outlets from wholesalers in Boston and Providence.

Table 3.--Food products handled by 30 wholesalers annually, 1961

Type of wholesaler	Total volume handled 1/	Volume from sources within Massachusetts	Interdealer movement
	Tons	Tons	Tons
Fresh fruit and vegetable:			
Wholesalers	15,306	13,929	1,837
Meat and poultry:			
Wholesalers	7,630	471	2,150
Processors	3,245	1,963	475
Groceries:			
General line wholesalers	118,660	2/	3,560
Specialty wholesalers	5,897	2/	850
Total	150,738	16,363	8,872

1/ Includes volume from out of State.
2/ Negligible amount.

Meat and meat products were received from slaughterers and meat packers in the Midwest. Sixty-seven percent was received from these sources, while the rest came from packers within the State. Slightly less than one-third of the commodity was handled more than once in New Bedford.

Most of the grocery volume originated outside the State. There was some movement between dealers within the city. The general-line wholesalers received their supplies by rail or truck at their facilities. The specialty wholesalers received their supplies either by truck or from pool cars on local team tracks. Approximately 18 percent of the volume handled by the specialty wholesalers was imported. Unloading of a semitrailer at a grocery facility may be seen in figure 6.

DISTRIBUTION OF SUPPLIES

Interviews and records of the New Bedford wholesalers indicated that 94 percent of their merchandise was distributed within the State, of which 52,726 tons, or 35 percent, was distributed within the city.

Largely because of the nature of present operations in New Bedford (a jobber-service market), about 97 percent of the sales were delivered by the wholesalers. Further details may be seen in table 4. The volume distributed within the city ranged from 29 percent of the grocery volume to 72 percent of the fresh fruit and vegetables; however, slightly over half of the meat (55 percent) was consumed in New Bedford. Details of the distribution pattern may be seen in table 5.

Table 4.--Means of distribution by 30 wholesale dealers

Type of wholesaler	Delivered by wholesalers	Total distributed
	Percent	Tons
Fresh fruit and vegetable:		
Wholesalers	91	15,306
Meat and poultry:		
Wholesalers	91	7,630
Processors	83	3,245
Groceries:		
General-line wholesalers	99	118,660
Specialty wholesalers	88	5,897
Total	97	150,738

Table 5.--Area of distribution by 30 wholesale dealers

Type of wholesalers	Distributed within the city	Distributed in other parts of the State	Distributed outside the State	Total
	Tons	Tons	Tons	Tons
Fresh fruit and vegetable:				
Wholesalers	10,938	3,235	1,133	15,306
Meat and poultry:				
Wholesalers	4,187	3,398	45	7,630
Processors	1,770	1,225	250	3,245
Groceries:				
General-line wholesalers	32,528	78,246	7,886	118,660
Specialty wholesalers	3,303	1,699	895	5,897
Total	52,726	87,803	10,209	150,738

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Figure 6.--Unloading a semitrailer at a grocery facility. A fruit and vegetable wholesale firm is at the left.

COSTS INCURRED BY WHOLESALERS

The type of facility from which a wholesaler conducts his business and his methods of operation directly affect his cost. An important part of the cost of marketing is the cost involved in the physical movement of merchandise. Each subsequent movement adds to the handling costs involved, and contributes to increased losses from spoilage, deterioration, or breakage. Some of the costs involved are intangible and extremely difficult to measure. Those costs which are measurable, and which would be directly affected by provision of adequate and efficient facilities include: (1) Handling from receipt at the dealers' store, through the store, and until loaded for delivery; (2) interdealer movement (including cartage costs where applicable); (3) spoilage, deterioration, breakage and shrinkage, and (4) rentals.

Handling

Handling costs as used here include those costs incurred between the arrival of a commodity at the dealer's store for unloading and its movement from the store on an outbound vehicle. These costs included unloading, movement into the store, movement within the store (such as sorting, and order assembly, and final preparation), and loading on an outbound vehicle. The cost of any processing done to a commodity while it is in the store is excluded. Many dealers unloaded incoming trucks. When an over-the-road truckdriver assisted in unloading at the store, an estimate of the value of his time was included in the handling cost.

The difference in the cost per ton of a commodity handled reflects various handling methods and the nature of the commodity handled. The total cost of handling 159,610 tons of food was $517,700. This includes 9,422 tons which were rehandled. The average cost for handling these commodities was $3.24 per ton. A detailed description of these costs may be seen in table 6.

Handling costs in New Bedford were not high in comparison with those in many other areas of the country. This may be attributed to the relatively low labor costs and to the relatively good handling practices used by some of the larger firms.

Interdealer Handling

A total of 9,422 tons of food was handled by more than one dealer in New Bedford. Some interdealer movement is normal in any market. The large general-line grocery firms accounted for about one-third of the interdealer movement. These firms acted as warehouses for area chainstores and often purchased from local wholesalers. One specialty wholesale grocery firm acted as an importer of Portuguese products and supplied other firms. Twenty-nine percent of this movement was attributed to the meat and poultry firms. These firms were forced to obtain supplies from other dealers because of a lack of storage and cooler facilities. Two packer branch houses acted as prime receivers of a high percentage of the meat used by the local processors. The interdealer movement among the fruit and vegetable wholesalers could be attributed to the firms specializing in potatoes, cranberries, or bananas.

Improperly designed facilities, generally poor space utilization, and split operations accounted for much of the double handling which could be reduced. One grocery firm maintained two facilities, thereby requiring handling between his facilities to fill most orders. Some dealers lacked cooler space and storage, which forced them to rely on other dealers.

The interdealer handling costs computed in table 7 were the cost of moving the merchandise between firms, team tracks, and dealers' stores. These do not include the cost of loading or unloading at the individual firm; these costs are included in the handling section. The cost of interdealer handling varied because of the nature of the commodity handled and the methods used to transport them. The estimated cost of interdealer movement in New Bedford was $18,200, including (as previously mentioned) the cartage cost of 550 tons.

Table 6.--Handling costs of food wholesalers by commodity group

Commodity group	Tons handled 1/	Cost per ton	Total cost
	Tons	Dollars	Dollars
Fresh fruit and vegetable:	17,143	3.85	66,000
Meat and poultry			
Wholesalers	9,780	5.24	51,247
Processors	3,720	7.49	27,863
Groceries:			
General-line wholesalers	122,220	2.85	348,327
Specialty wholesalers	6,747	3.60	24,289
Total or Average	159,610	3.24	517,726

1/ Includes 9,422 tons handled twice in the same market.

Table 7.--Estimated interdealer handling costs by commodity group

Commodity group	Interdealer handling 1/	Cost per ton	Total cost
	Tons	Dollars	Dollars
Fresh fruit and vegetable:	1,837	1.75	3,215
Meat and poultry:			
Wholesalers	2,300	2.10	4,830
Processors	475	2.10	997
Groceries:			
General-line wholesalers	3,560	1.90	6,764
Specialty wholesalers	1,250	1.90	2,375
Total or Average	9,422	1.93	18,181

1/ 550 tons of groceries and meat subject to cartage costs.

Spoilage, Deterioration, Breakage, and Shrinkage

Cost of spoilage, deterioration, breakage, and shrinkage have been estimated for the various commodities. These costs were computed from estimates by the local wholesalers and have been compared with such losses indicated from similar operations in other areas.

The total cost of spoilage, deterioration, breakage, and shrinkage for all wholesale food dealers in New Bedford, in 1961 was $259,200, or $1.62 per ton. These costs may be seen in table 8.

Table 8.--Estimated spoilage, deterioration, breakage, and shrinkage costs, by commodity group

Commodity group	Tonnage incurring loss	Cost per ton	Total cost
	Tons	Dollars	Dollars
Fresh fruit and vegetable.....	17,143	2.73	46,800
Meat and poultry:			
Wholesalers.....	9,780	2.15	21,027
Processors.....	3,720	2.28	8,482
Groceries:			
General-line wholesalers....	122,220	1.40	171,108
Specialty wholesalers.....	6,747	1.75	11,807
Total or average.....	159,610	1.62	259,224

Rents

When the individual wholesale dealers were interviewed, rent data were collected. For each dealer who owned his facilities, an estimated rental was determined by comparing his facilities with those in the immediate area and an average rental was developed. The actual rent paid by the individual dealers varied substantially.

The highest rent was paid by the meat processors; it averaged $.64 per square foot; the lowest rent was paid by the fresh fruit and vegetable dealers -- $.40 per square foot. Apparent differences in rent are due to the location and type of facility, the type of operations and the adaptability of the facilities.

The total rental or rental value for all wholesale food handlers was estimated to be $221,300, or $.55 per square foot. A detailed description of rental costs by commodity group is shown in table 9.

Summary of Selected Marketing Costs

As may be seen in table 10, the estimated 1961 costs for handling inter-dealer movement, spoilage, deterioration, breakage, shrinkage, and rental or occupany charges amounted to over $1,016,400. Fifty-one percent of the measured costs were "handling" costs.

Table 9.--Rental or occupancy charge of present facilities for food wholesalers by commodity groups

Commodity group	Space used 1/	Annual rental value	Cost per square foot
	Sq. Ft.	Dollars	Dollars
Fresh fruit and vegetable...	51,240	20,740	.40
Meat and poultry:			
Wholesalers.....	29,489	15,240	.52
Processors.....	25,800	16,400	.64
Groceries:			
General-line wholesalers.	228,875	137,100	.60
Specialty wholesalers....	64,500	31,800	.49
Total or average....	399,904	221,280	.55

1/ Represents space actually used in store operations.

NEED FOR CHANGES IN FACILITIES

In the long range plans being developed for New Bedford, a majority of the wholesale food handlers may have to relocate. In the near future 14 wholesale food firms located in the center of the city near Union and Second Streets may be displaced. They are in the central portion of the urban renewal study area, a few blocks from the Whaling Museum and Seaman's Bethel. Some wholesalers are located in historic buildings that are to be rehabilitated. One firm is located in what originally was a sail loft and another in a former whale-oil warehouse. Examples of food handling facilities in and adjacent to historic buildings may be seen in figure 7. A few of the firms in this area, while located in adequate buildings, lack platforms for unloading. Others operate in multistory buildings, with either steps or slow freight elevators to upper stories. Much of the area has the narrow cobblestone streets of the whaling era; unloading of a semitrailer necessitates detouring of traffic.

Other firms in the city are located in old mill buildings, a former railroad freight terminal, and garages. Some carry on operations in two or more buildings. Other firms in a "make do" situation lack expansion area, or have facilities where efficient handling operations are impossible.

Traffic congestion and sufficient parking--major cost factors in many cities--was not a major problem in New Bedford. It was a minor inconvenience to most employees or buyers using the market. Parking in front of stores and blocking unloading or loading operations had some nuisance effect, but did not represent a major cost item.

Table 10.--Summary of selected costs incurred by New Bedford wholesalers

Commodity group	Handling	Interdealer handling costs	Spoilage, deterioration, breakage, and shrinkage	Rental or occupancy charge	Total
	Dollars	Dollars	Dollars	Dollars	Dollars
Fresh fruit and vegetable	66,000	3,215	46,800	20,740	136,755
Meat and poultry:					
Wholesalers	51,247	4,830	21,027	15,240	92,344
Processors	27,863	997	8,482	16,400	53,742
Groceries:					
General-line wholesalers	348,327	6,764	171,108	137,100	663,299
Specialty wholesalers	24,289	2,375	11,807	31,800	70,271
Total or average	517,726	18,181	259,224	221,280	1,016,411

1/ Includes 9,422 tons handled intermarket.

BN-48678

Figure 7.--Example of food handling facilities in and near historic buildings.

Only 6 of the 30 wholesale firms were served directly by rail. It was necessary for other receivers to use team tracks, which in most cases were not near them.

Wholesaling food operations in New Bedford were inefficient because of scattered locations. The major suppliers of meat were in the downtown area while the processors were located for 5 to 7 miles away. The split operation placed an additional burden on the buyer who might choose to pick up his merchandise: that is, grocery (north); fruit and vegetable (middle); and processor (south).

The highway plans and urban renewal, including restoration and preservation of historic buildings, will affect nearly all of the food handling facilities in New Bedford. Some of these plans are of a more immediate nature than others.

In the light of this highway and redevelopment program it was decided to develop plans for an entire food center to serve the area. It was assumed that all firms, regardless of present condition, would eventually relocate in the wholesale food center.

FACILITIES NEEDED FOR A WHOLESALE FOOD-DISTRIBUTION CENTER

Facilities are provided for 30 wholesale food dealers located within the city in the proposed market plan. These do not include seafood or sundry-item wholesalers. Not all of the 30 firms would relocate immediately. However, since they will eventually need new facilities, space was provided for all firms studied. The facilities recommended have been based on the total and projected volumes handled by these wholesalers. It was determined that the total volume remains relatively constant regardless of the number of dealers involved.

There are five basic principles necessary for the satisfactory development of a wholesale food-distribution center. They are:

- Functional design to meet specific commodity needs.
- Grouping facilities and proper layout.
- Incorporating long term plans with present needs to assure continued adequacy.
- Satisfactory location.
- Reasonable cost.

Fresh Fruits and Vegetables

In the plan, the fresh fruit and vegetable wholesalers would require eight small multiple-occupancy units in one building to handle their usual volume. This building would contain 13,000 square feet. Each unit would be 25 feet wide, 36 feet deep, and not less than 20 feet high. A 14-foot covered front platform 45 inches high would give an overall depth of 50 feet. The roof over the platform should extend beyond the platform for protection during loading. A wooden bumper, 6 inches by 8 inches, should be bolted to the top of the platform to protect it from damage by trucks. A continuous step along the platform about half the height of the platform and at least 24 inches wide would accommodate small trucks and pedestrians. Front door openings should be 20 feet wide; the rear door should be 8 feet wide. For these buildings no rear platform has been provided, but it could be added if desired by tenants.

The mezzanine would be 15 deep by 25 feet wide, and could be used for office space or for light storage. To allow adequate space underneath for efficient operation or refrigerated coolers, the ceiling height should be at least 20 feet. All first-story floors and platforms should have nonskid concrete surface and slope to drains. Heat could be provided by individual gas or electric space units. Refrigeration, because of individual requirements, should be provided by the tenant.

Each small store unit would contain 900 square feet of first-floor enclosed space, 375 square feet of mezzanine space, and 350 square feet of platform space for a total of 1,625 square feet. These units are adaptable and expandible. See figure 8 for layout of the small fruit and vegetable unit.

Meat and Poultry

To handle their expected volume, five meat and poultry firms would require six small units in a multiple occupancy building. These units would require a total of 9,750 square feet. Eight meat firms would require 13 larger units in a multiple occupancy building with a total of 55,900 square feet.

These small units have the same dimensions as the small units provided fruit and vegetable dealers. Some modifications would be necessary, such as extra reinforcing for meat rails and the addition of grease traps to the drainage system. Doors should be 5 feet wide and all exterior openings from refrigerated areas should be equipped with double acting standard cooler doors.

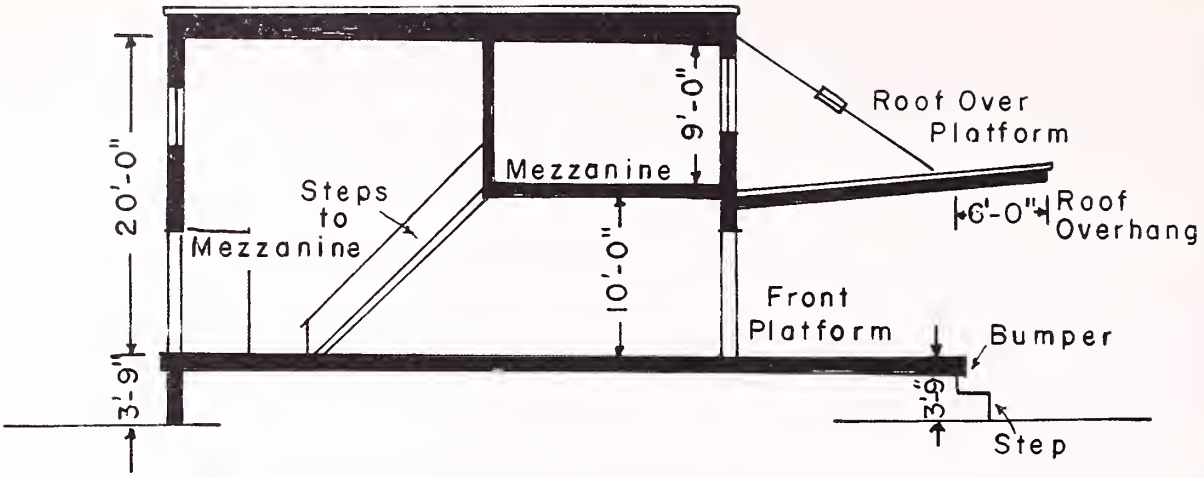
All meat rails and refrigeration should be provided where required by individual tenants. The meat rails on the platform should be installed 7 feet 6 inches from the floor to the top of the rail, with rail switches at the door to each firm. All walls, floors, and the first-floor ceiling should be insulated at the time of construction to accommodate 32°-34° F temperature.

In addition to the small units some larger units would be desirable. The larger-multiple occupancy units would be for large meat wholesalers or adapted to small operations. A suggested layout of a small processing operation in a standard unit is shown in figure 9. Each of these units should be 25 by 100 feet overall, including 14-foot front and rear platforms. The enclosed portion of each unit should be 72 feet deep. All units would have two floors, the first with a 12-foot ceiling and the second with an 8-foot ceiling. The second floor should be constructed so that it could be removed to create a 20-foot ceiling if required.

These units should have a 14-foot rear platform, 55 inches high (refrigerated rail-car level), and a 14-foot front platform 45 inches high at truck-bed level. 4/ Platforms should slope slightly to the outside for drainage purposes. In addition, the roof over the front platform should extend beyond the platform edge to provide protection for loading and unloading operations during inclement weather. Bumpers should be provided at both platforms to protect the edges and prevent damage by trucks. The second floor of these buildings could provide welfare rooms, offices, and general storage areas.

The floors in all meat or poultry units should be constructed of either vitrified brick of good quality, bonded with acid-resistant waterproof mortar and laid on a waterproof concrete base, or a dense acid-resistant waterproof concrete. Smooth floors should be avoided. Floors should be adequately drained, with drains for each 400 square feet of enclosed space. Care should be taken to assure proper slope to drains.

4/ The average height from track to floor of U. S. boxcars is 45 inches; refrigerated rail-car height is 55 inches because of racks on the floor of the cars.



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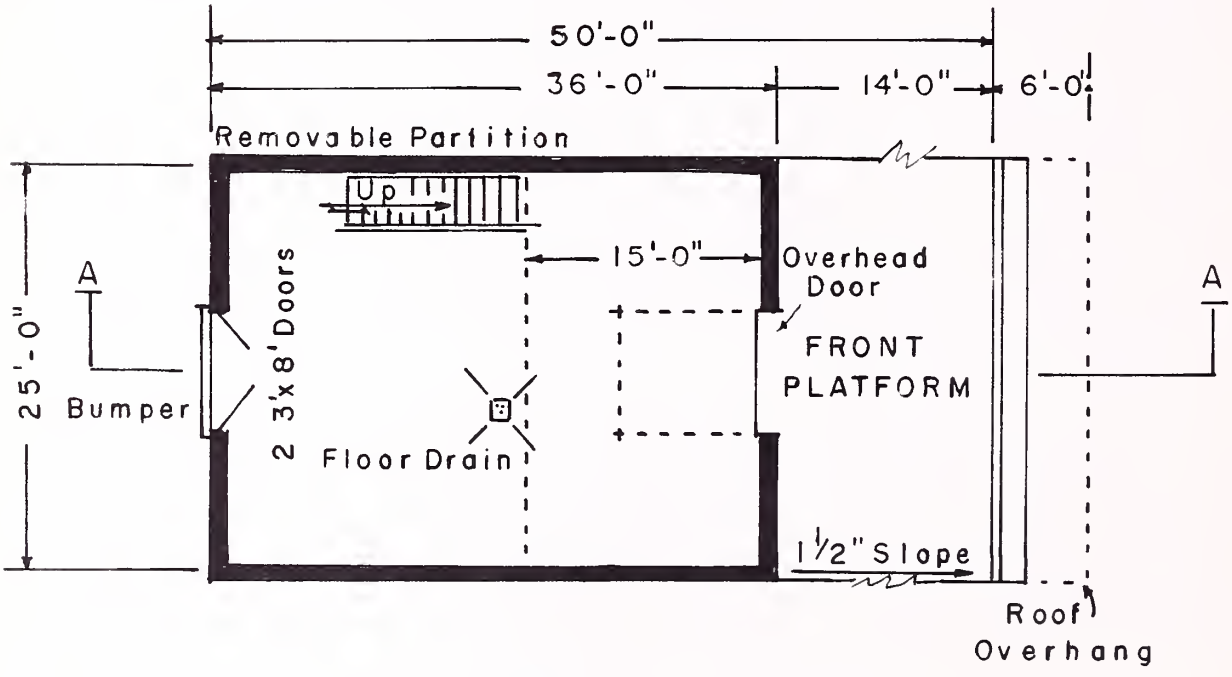
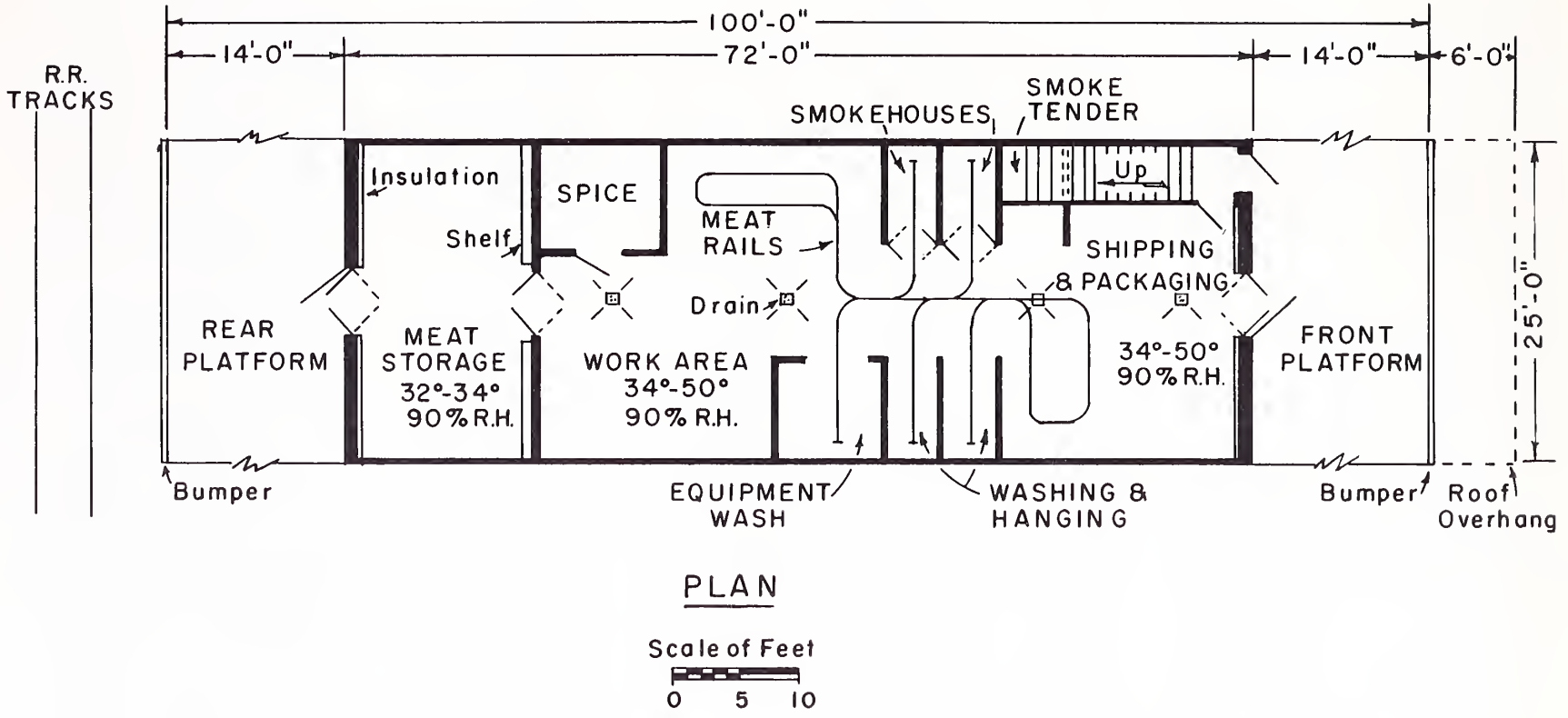


PLAN

Scale of Feet

0 5 10

Figure 8.--Layout of a small fresh fruit and vegetable unit.



PLAN

Scale of Feet

0 5 10

Figure 9.--Suggested layout of a meat processing firm, showing location of equipment. Meat rails on the platform would be needed by a standard meat wholesaler.

Hot water should be provided from a system in each unit. Care should be taken in locating the controls for lights, heating, and refrigerators. Steam and compressed air equipment could be supplied by each tenant, if needed. All plans for meat facilities should be approved by the Meat Inspection Division of the U. S. Department of Agriculture before construction.

Groceries

The wholesale grocery firms were provided with 297,500 square feet in the proposed market. This would include 20 units in a multiple-occupancy building for one general-line wholesaler and 5 specialty wholesalers. In addition, three single-occupancy buildings have been provided for the remaining three general-line wholesalers.

Twenty units are combined to form one main building 100 feet wide and 500 feet long. Each unit is 25 feet wide, 100 feet deep and 20 feet high. Included is a covered rear platform 14 feet wide.

The rear platform is unobstructed, continuous, and level to promote ease of transfer. Because rail service is provided to these stores, the platform is at rail-car level (45 inches high). A 6- by 8-inch wooden bumper guard should be installed along the rear platform to protect it from truck damage. Although there is no front platform, bumper guards should also be provided along the base of the front door openings. This door should be approximately 14 feet wide.

Each individual unit contains 2,500 square feet of first-floor space, including rear platform space. The first-floor is 86 feet by 25 feet, or 2,150 square feet. In addition, mezzanine office or storage space 15 feet deep by 25 feet wide is located at the front of the unit. The mezzanine should be high enough to permit efficient use of the space below, so the unit should have a 20-foot ceiling.

The units are designed with removable partitions to permit dealers to lease two or more units. Floors and rear platforms should be of concrete, to drain properly and provide a nonskid surface. Steps at street level should be installed to permit entrance to the unit. Slight modification in basic design to meet individual requirements should be approved if such change is found essential to specific operations. An illustration of a proposed standard grocery unit is in figure 10.

The three general-line grocery firms in single-occupancy buildings could be designed to meet individual specifications, but should conform to the overall master plan. The aggregate total space of these three buildings is 240,000 square feet, compared to 225,000 square feet now occupied by these dealers. This will provide for individual buildings of 40,000 square feet, 70,000 square feet, and 130,000 square feet. Double house tracks have been provided at the rear of these buildings. The interior layout of these buildings would be at the discretion of the tenants. 5/

5/ Bouma, John C. and Lundquist, Arnold L. Grocery Warehouse Layout and Equipment for Maximum Productivity. U. S. Dept. Agr. Mktg. Res. Rpt. 348, 55 pp. illus. 1959.

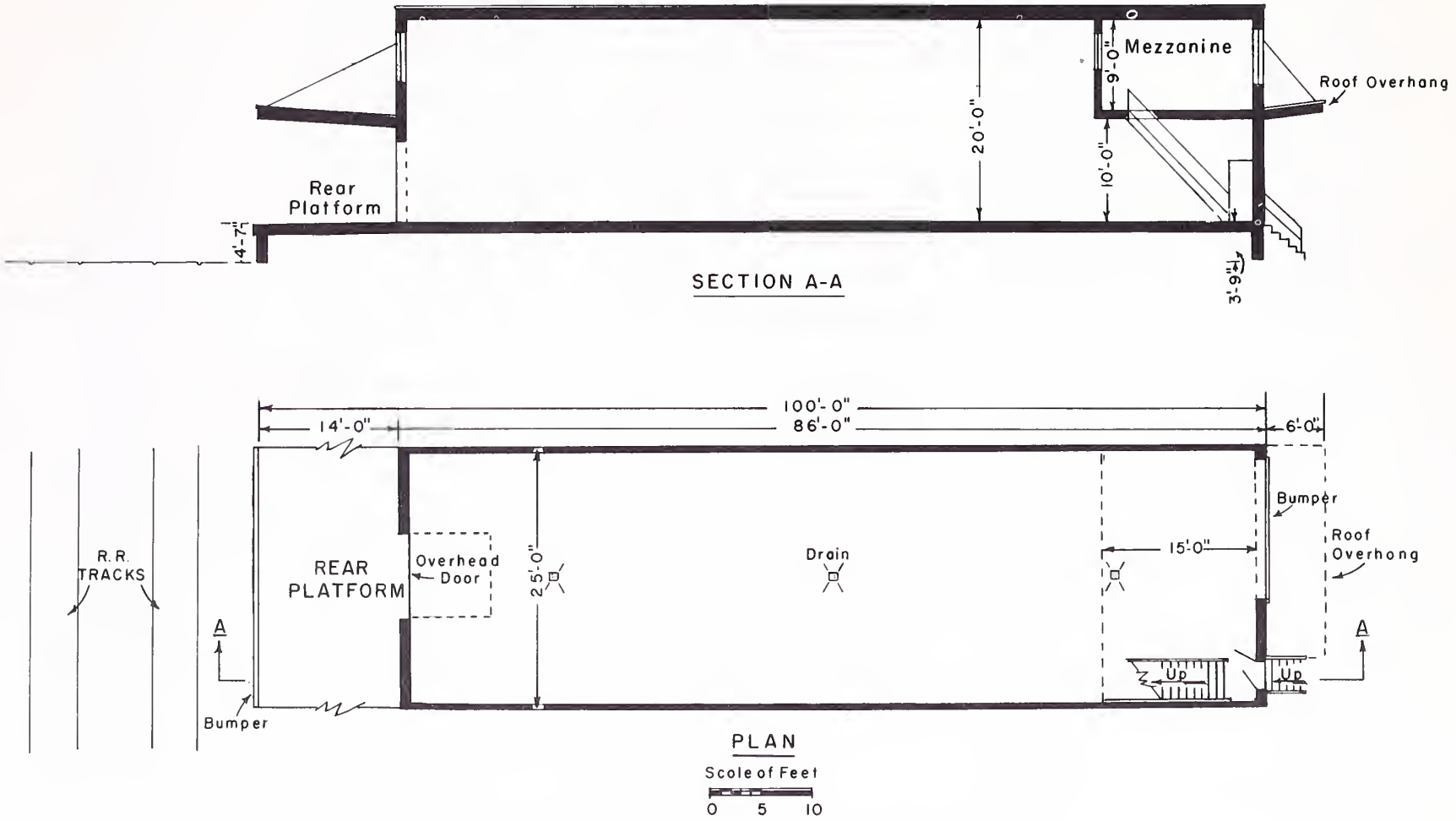


Figure 10.--Layout for a standard grocery unit.

Rail Connections to the Store

The plan provides direct rail connections to all facilities with the exception of the small fruit and vegetable and meat and poultry multiple units. The railroad track could be extended to these firms should increased volume warrant. All large multiple-units and single-occupancy buildings should have a track at the rear of the facilities. Tracks should be embedded in the pavement to permit trucks to load or unload at the platform and to permit better sanitation.

Street and Parking Area

Major streets and designated parking areas within the market should be paved. Parking spaces should be at right angles to the buildings. Where multiple-occupancy buildings face each other, a street 200 feet wide would provide adequate room for loading and unloading. This width would provide customer parking and facilitate traffic flow through the market. Parking areas should be clearly designated and be properly marked.

FACILITIES ARRANGEMENT FOR THE PROPOSED WHOLESALE FOOD-DISTRIBUTION CENTER

Figure 11 illustrates the idea of grouping by commodity which promotes compactness, but does not isolate one section from another. All multiple units for fruits and vegetables, meat and meat processing, and groceries have been placed together at one end of the project. The large multiple units have been provided with expansion area located at the end of the grocery section; while the small multiple units could be expanded to a large unit if desired by the tenant. The large meat multiple units are served by a single railroad track; the grocery multiple units are served by a double track. Adequate paved parking and wide streets serve this area.

Because of the nature of their operations, the single-occupancy buildings are located at the lower end of the project. These buildings have an additional area for expansion. These firms are served by a single track with rail spurs for each individual unit. The location of these buildings permits their development in stages like those in industrial park development. Adequate parking and wide streets have been designed to reduce the possibility of congestion. To provide sufficient land for the entire project, about 32 acres would be required. A scale model of the layout in figure 12 was displayed at a public presentation to food wholesalers, city and State officials, representatives from allied industries, and the general public.

Factors Considered

In achieving the functional and economic objectives, factors of location and arrangement preclude all others in the list of prime considerations. Any site has its own individual characteristics, so modifications are needed. There are, however, basic principles of market design which are best illustrated by assuming a level, rectangular site.

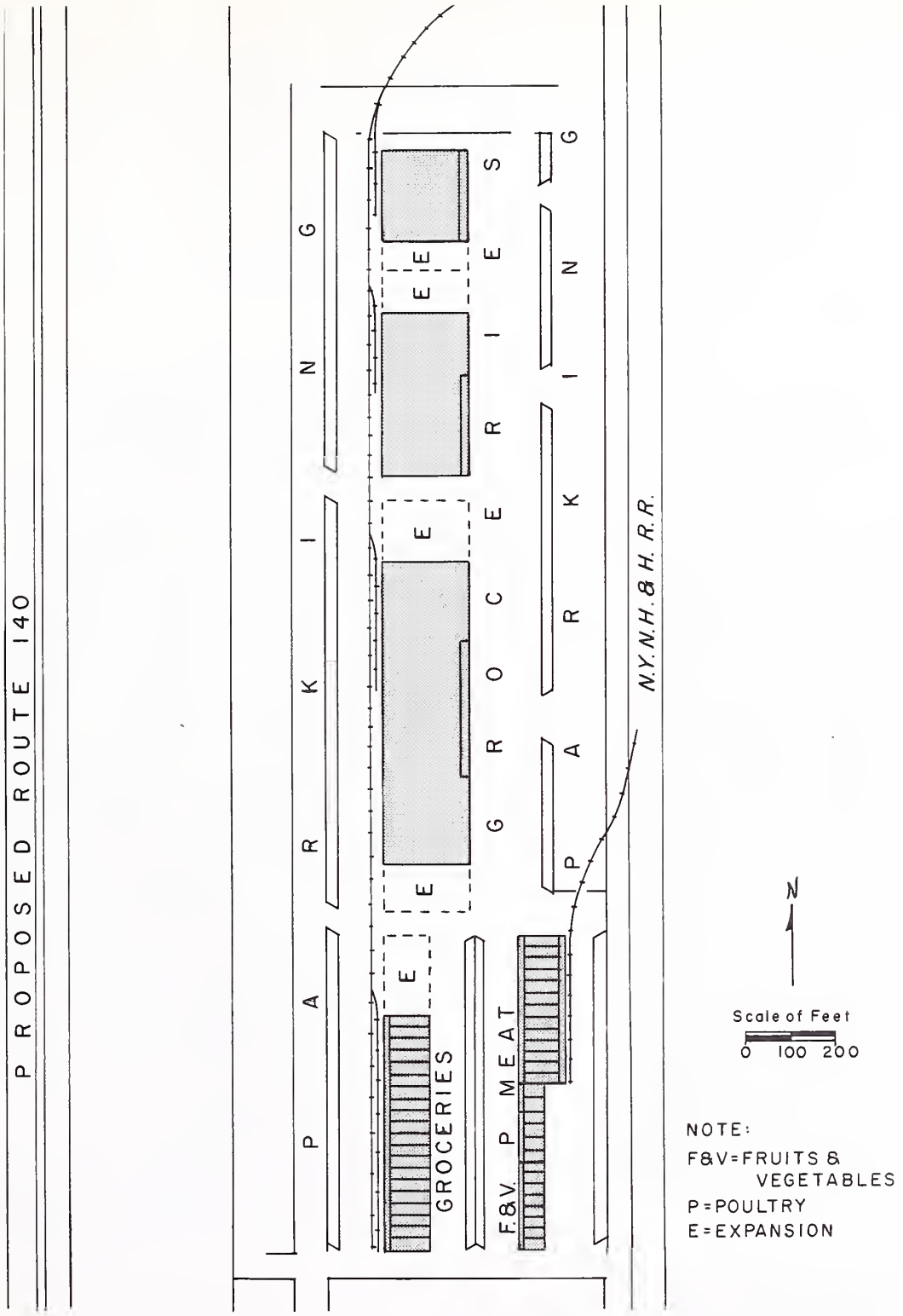


Figure 11.--Layout of the proposed market.

Future Needs

In planning a food-distribution center both immediate and future needs should be considered. Because additional store units of the type originally constructed may be needed in the future, expansion area has been provided. While the primary function of this center would be the wholesaling of food products, it is possible that other firms could use these facilities. Examples are seafood handlers, food processing operators, or the handlers of sundry items. These buildings are designed to permit reasonable modifications as functions of the market may change. Consideration should be given at the time of initial purchase of the required 32 acres to acquiring additional land, if available, for possible allied industry sites.

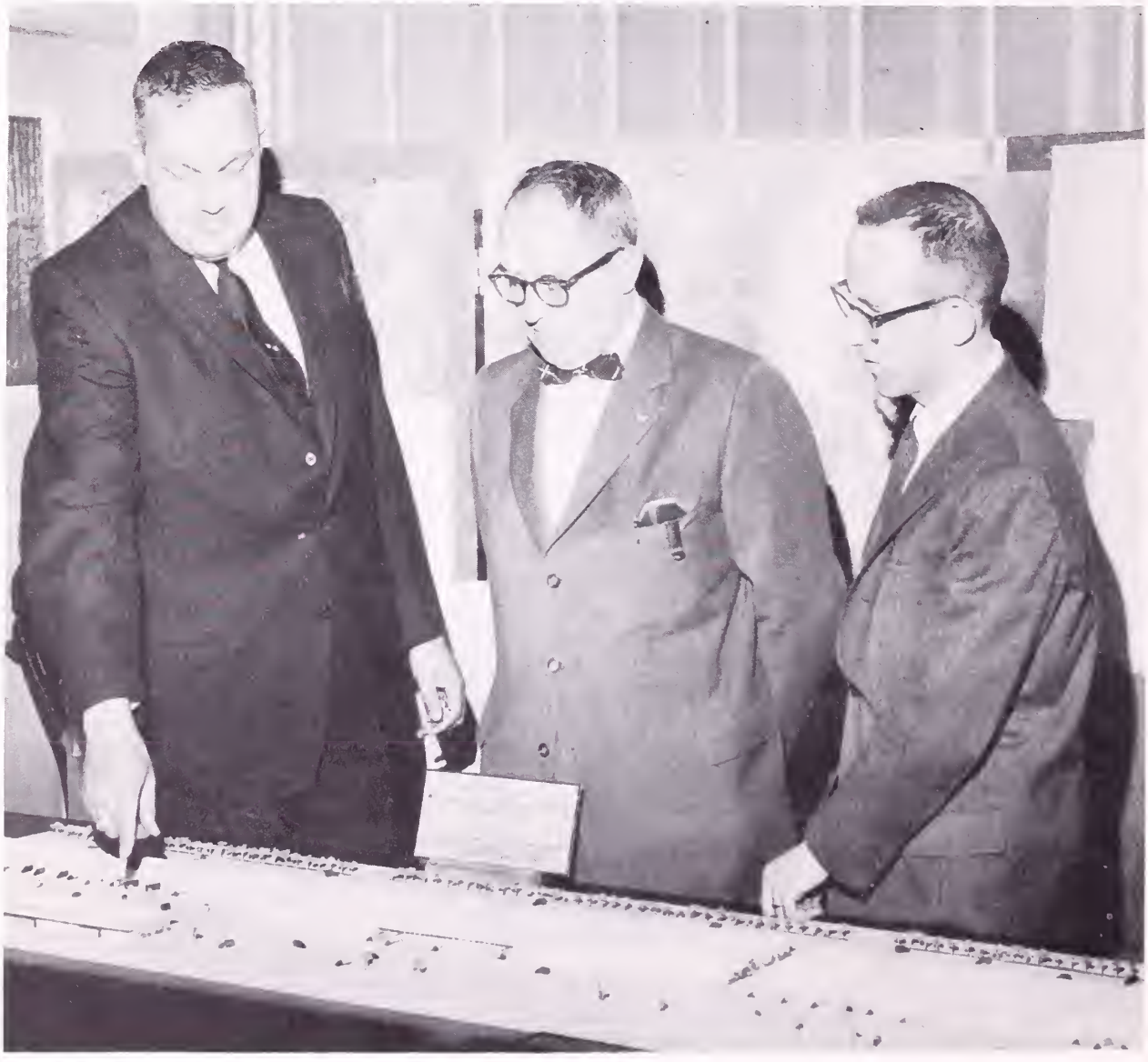


Figure 12.--New Bedford officials viewing the scale model of the wholesale food-distribution center. Reprinted with permission of the New Bedford Standard Times.

SELECTING A SITE

Various areas were examined to determine their feasibility as sites for the proposed food-distribution center. After consulting the City Planning Department's land use development plans, an analysis of selected sites was made. All of these sites were located in north New Bedford and contained at least the minimum 32 acres. Each of the sites is near present highways and will be near an interchange of a proposed limited-access highway. All sites are located with reasonable access to the main line of the New York, New Haven and Hartford Railroad. The three sites considered are shown in figure 13. These sites are: Nash Road, Tarkiln Hill Road and an area south of the industrial park. Cost estimates are given after the site description.

There were other sites available in the area. However, the areas selected meet the basic criteria required in a site. These criteria are adequate land in convenient shape, reasonable proximity to the area served and present or proposed traffic arteries, and reasonable access to railroads, and an economical price.

Nash Road Site

The Nash Road site, in New Bedford, contains the required 32 acres. The site is bounded on the north by the Paulding property; on the south by Revere Copper property; on the east by the New Haven Railroad; and on the west by proposed Route 140. It has satisfactory foundation conditions although there are a few peat areas to be removed, and some minor fill necessary. The site is about 2.5 miles from New Bedford City Hall. It has fairly good access to arterial highways and will be near the proposed Route 140 interchange. The site is served by the New Haven Railroad and is accessible to public utilities. Another advantage of this site is that substantial portions of the land considered are under city ownership and could possibly be acquired at a reasonable price per acre for this type of development. It may be possible that this site can be developed with Area Redevelopment Administration funds. Its major problem would be the disposal of sewage.

The cost of grading, filling, putting the land in condition to build would be determined upon completion of engineering studies which are presently underway.

Tarkiln Hill Road Site

The Tarkiln Hill Road site consists of approximately 39 acres in a rectangular shape in the city of New Bedford. It contains virtually no housing and is used for agriculture. The boundaries of this site are: North, 2,500 feet from Edgeworth Street; south, Edgewood Street; west, Lambeth Street; and east, New Haven Railroad. This fairly level area would be suitable for the proposed type of construction, and no foundation problems would be expected. Most of the land drains along the railroad, but there are a few scattered wet spots. It is about 3 miles from the New Bedford City Hall and would be close to a proposed interchange of Route 140. It is served by the New Haven Railroad and has public utilities available. To prepare the site for construction it would be necessary to demolish or move about four houses.

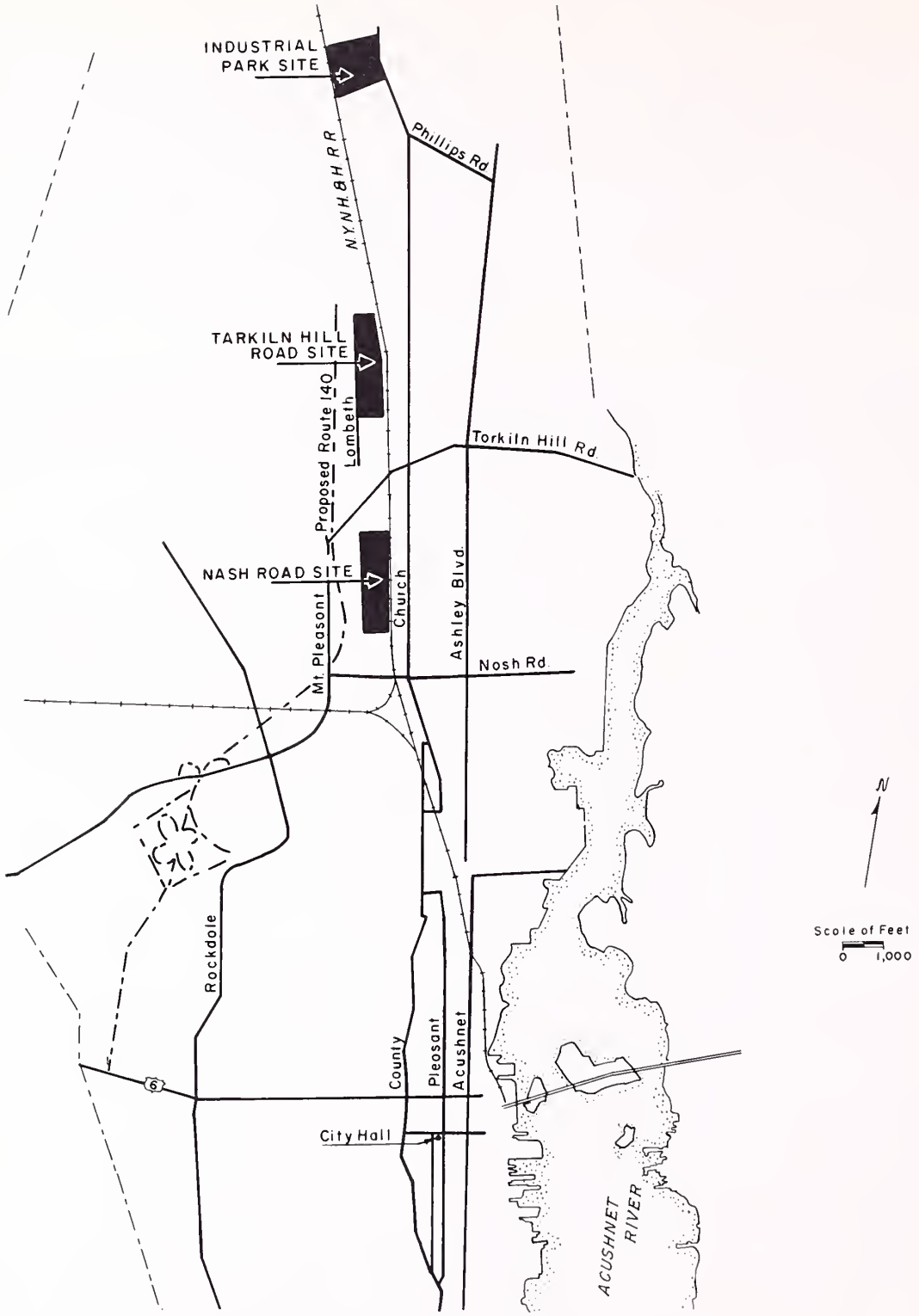


Figure 13.--Location of possible sites.

The determination of the amount of fill required would be made after suitable engineering studies, which include test borings, have been completed.

Among the advantages of this site is its closeness to the proposed interchange and reasonable proximity to present arterial highways. Among the disadvantages is the necessity of access roads to the site, and the problems of land assembly.

South End of the Industrial Park

The south end of the New Bedford Industrial Park site consists of about 250 acres adjoining the main industrial park. The boundaries are: North, 2,500 feet from the south end of the industrial park; south, extended line from the south boundary of the Polish National Cemetery; east, Phillips Road; and west, New Haven Railroad. Conditions on this site vary; foundation conditions near the railroad are doubtful. The site is covered with trees and certain areas have extremely poor surface conditions. It is approximately 5.5 miles from the city hall, but would be near access roads serving the industrial park. The site would be served by the New Haven Railroad, and public utilities would be available.

The primary advantage of this site is its proximity to the industrial park, where there is sufficient land for development of allied industries. Because of the limited number of owners, land assembly would not present a problem. This land would be available at a reasonable price. A major disadvantage is that unknown subsoil conditions might add to the cost per acre to put it in condition to build. If piling should be required, the price is estimated between $1.50 to $2.00 per square foot of building space. However, test borings would be required to determine if this is necessary. The location is inconvenient for firms serving downtown New Bedford or the fishing fleet.

Costs of Sites

The actual cost per acre of these sites cannot be definitely determined until an option to buy is signed. However, in order to draw reasonably sound conclusions regarding the value per acre, it was necessary to compile a composite value for light industrial land sold in the area of the sites. Determinations by this method indicate that land for this type of development would cost about $13,000 per acre or $.30 per square foot. 6/ There could be some variation, depending on the site selected and the conditions of sale. An appropriate adjustment from the estimated cost could be made in the project cost at the time of land acquisition.

6/ Source of value: Estimates secured by the New Bedford City Planning Department.

FACILITIES

Facility costs are based upon Boston construction indices of August 1962, recent construction costs in the New Bedford area, and estimates made by local contractors.

Estimated construction costs are not intended to replace firm estimates made by local architects and contractors, and should be considered only as illustrative cost estimates.

Estimates are for facilities described in this report. The small and large multiple unit structure would be similar throughout the center. None of the units would have finished offices. The following would be included: mezzanine with stairway, toilet, fluorescent lighting fixtures, display lighting outlets, gas or electric space heaters, and lighting for the platform. Estimates are for the shell only and do not incorporate such features as refrigeration or specialized equipment. Cost estimates are based on light mill construction.

Paving estimates have been prorated for each commodity to provide a fair share cost of market street construction. Paving costs assume 7 inches of gravel or crushed rock foundation, 4 inches of macadam base, and 2 inches of asphaltic concrete surface. For areas where oil or gasoline drippings would be commonplace, concrete paving 6 inches deep is suggested because of the softening or dissolving effect these liquids have upon asphalt.

All utility connections (including electric connections) were assumed to be underground. Other costs, such as the 6-percent architect's fee, the 5-percent construction loan, and the 10 percent contingency fund, are the rates charged for or included in the cost of construction. The cost of the construction loan (5 percent) is the total cost of the loan and is not an interest rate.

The second floors of the meat multiple store units would be finished and ready for occupancy, but would not include office equipment or furnishings.

The following pictorial summaries -- not drawn to scale -- present estimated costs of facilities for each food commodity group (figs. 14 - 18).

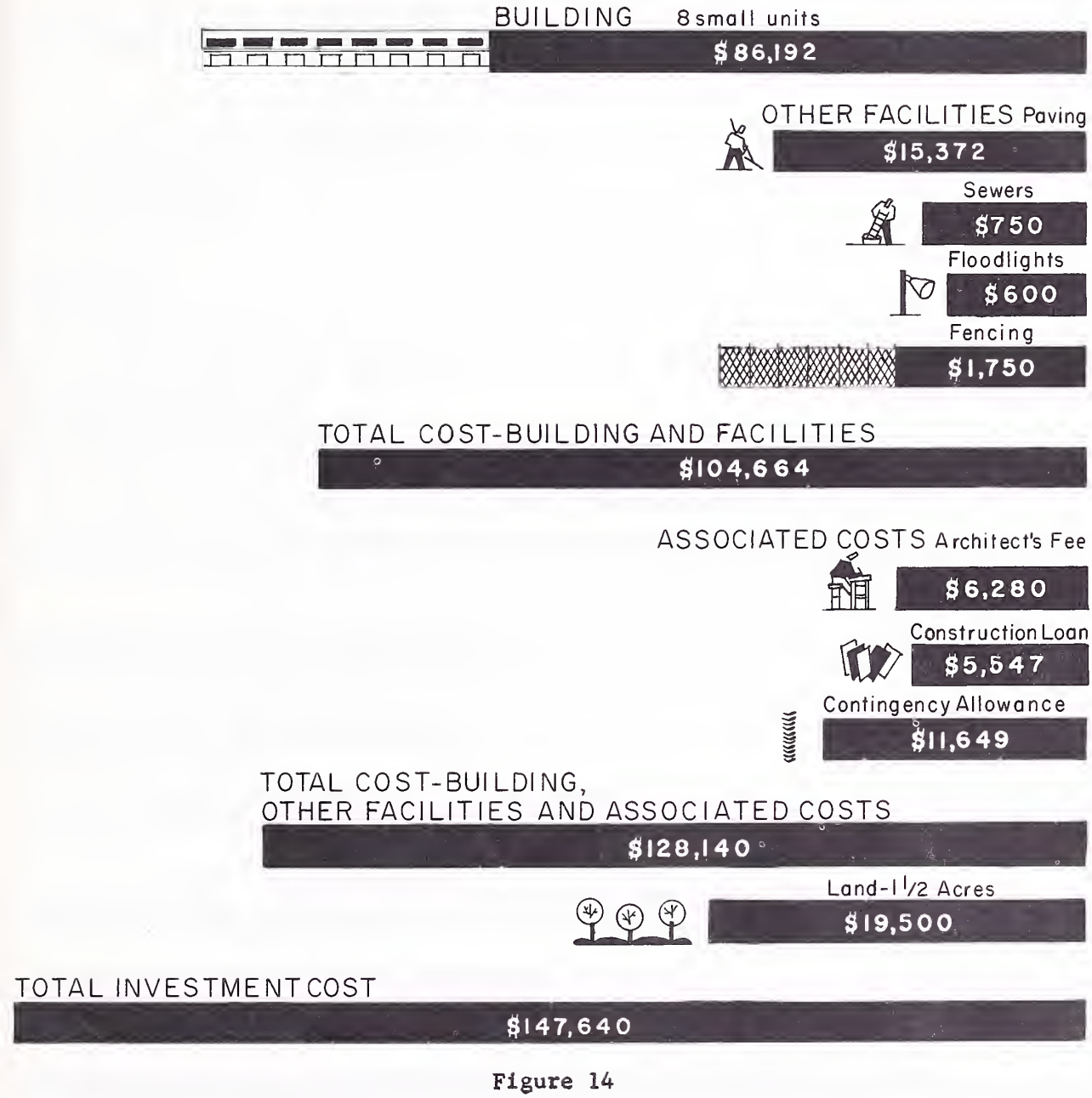

BUILDING 8 small units
$86,192
OTHER FACILITIES Paving
$15,372
Sewers
$750
Floodlights
$600
Fencing
$1,750
TOTAL COST-BUILDING AND FACILITIES
$104,664
ASSOCIATED COSTS Architect's Fee
$6,280
Construction Loan
$5,547
Contingency Allowance
$11,649
TOTAL COST-BUILDING,
OTHER FACILITIES AND ASSOCIATED COSTS
$128,140
Land-1 1/2 Acres
$19,500
TOTAL INVESTMENT COST
$147,640

Figure 14

MEAT AND POULTRY

BUILDINGS 6 small units--13 two-story units

$533,086

OTHER FACILITIES Paving

$31,238

Sewers

$2,543

Floodlights

$1,800

Fencing

$2,800

Tracks

$8,750

TOTAL COST- BUILDINGS AND FACILITIES

$580,217

ASSOCIATED COSTS Architect's Fee

$34,813

Construction Loan

$30,752

Contingency Allowance

$64,578

TOTAL COST- BUILDINGS, OTHER FACILITIES AND ASSOCIATED COSTS

$710,360

Land 3 1/2 Acres

$45,500

TOTAL INVESTMENT COST

$755,860

Figure 15

BUILDING 20 units

$419,180

OTHER FACILITIES Paving

$46,668

Sewers

$4,200

Floodlights

$1,200

Fencing

$4,550

Tracks and Switches

$17,000

TOTAL COST-BUILDING AND FACILITIES

$492,798

ASSOCIATED COSTS Architect's Fee

$29,568

Construction Loan

$26,118

Contingency Allowance

$54,848

TOTAL COST-BUILDING, OTHER FACILITIES AND ASSOCIATED COSTS

$603,332

Land-6 Acres

$78,000

TOTAL INVESTMENT COST

$681,332

Figure 16

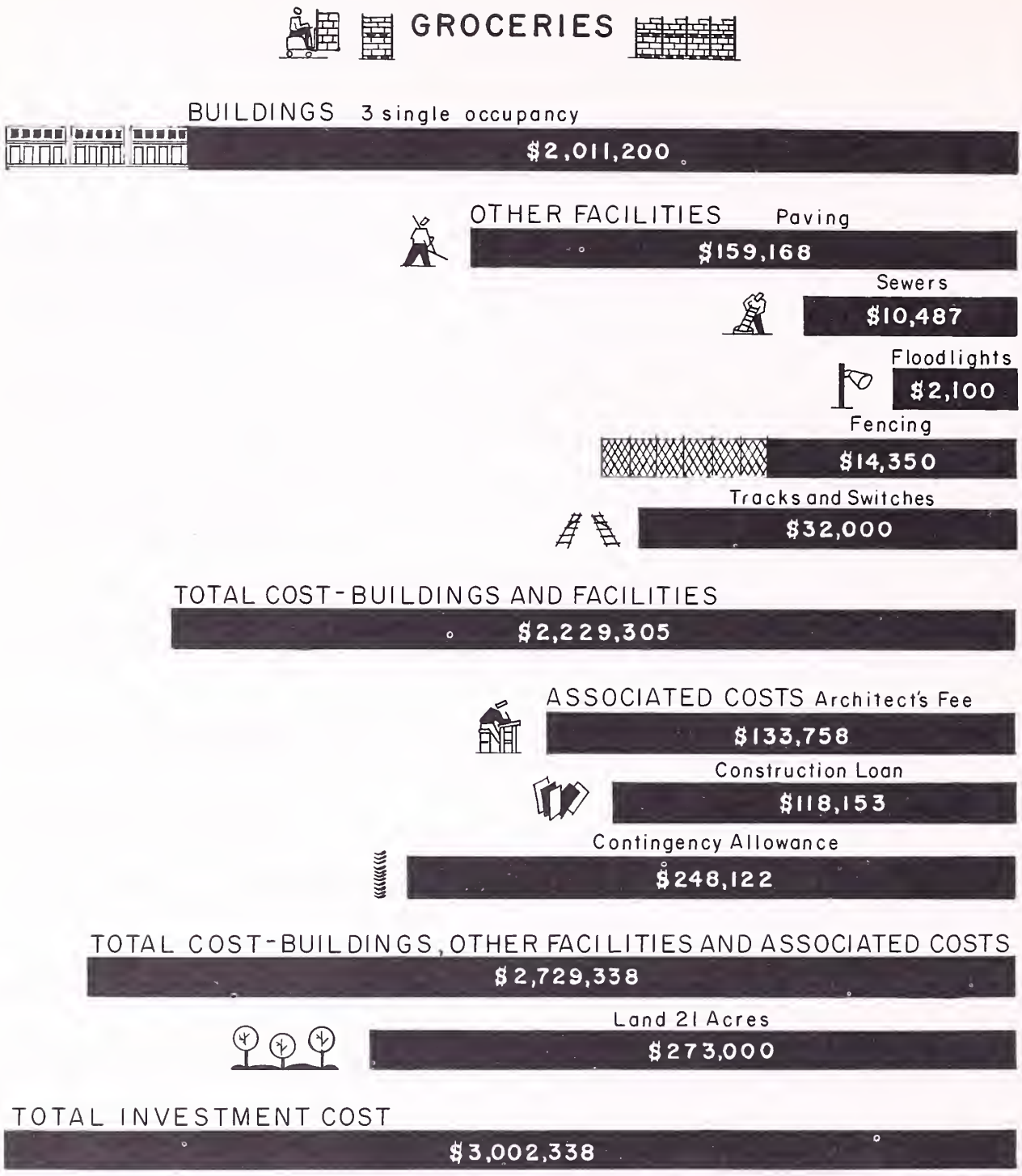

GROCERIES
BUILDINGS 3 single occupancy
$2,011,200
OTHER FACILITIES Paving
$159,168
Sewers
$10,487
Floodlights
$2,100
Fencing
$14,350
Tracks and Switches
$32,000
TOTAL COST - BUILDINGS AND FACILITIES
$2,229,305
ASSOCIATED COSTS Architect's Fee
$133,758
Construction Loan
$118,153
Contingency Allowance
$248,122
TOTAL COST - BUILDINGS, OTHER FACILITIES AND ASSOCIATED COSTS
$2,729,338
Land 21 Acres
$273,000
TOTAL INVESTMENT COST
$3,002,338

Figure 17

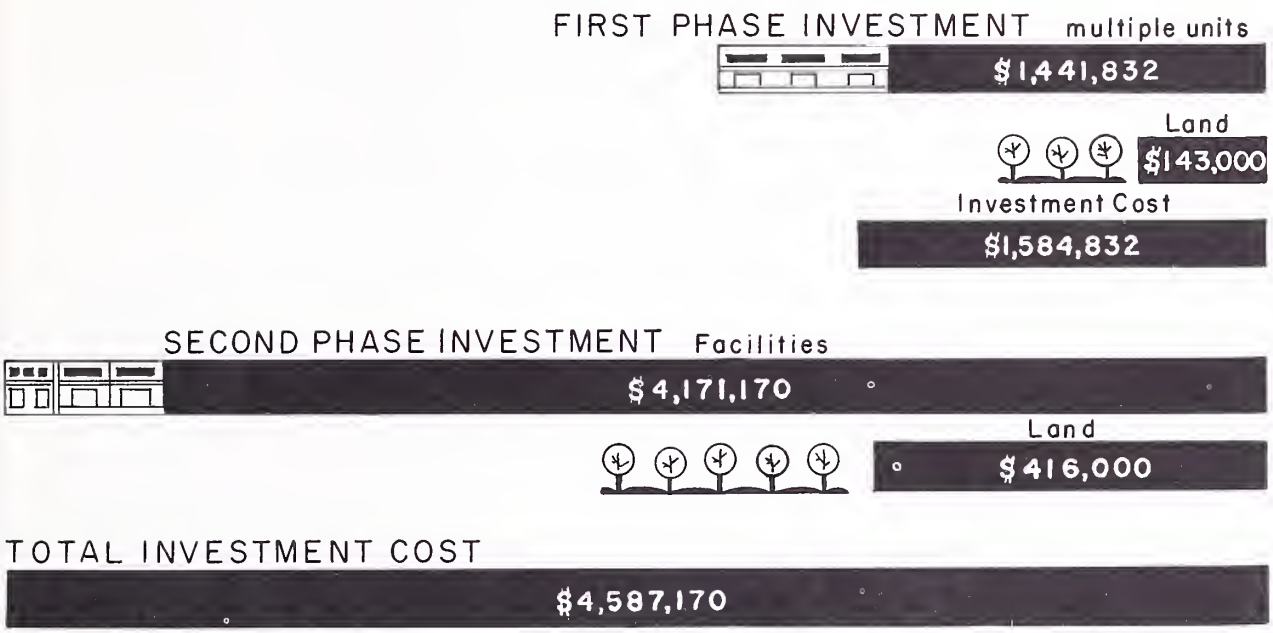


Figure 18

OWNERSHIP AND MANAGEMENT OF A WHOLESALE FOOD DISTRIBUTION CENTER

Types of Ownership

Some of the more common means of financing a food-distribution center are: (1) Private corporations, (2) public benefit corporations, (3) direct public ownership, (4) a combination. The following descriptions of these methods are adapted from a report 7/ on types of ownership and methods of financing.

Private Corporations

A private corporation is a legal entity, organized in conformity with State statutes and made up of individuals bound together for a common purpose or objective. A private corporation usually is organized for profit, but may be operated as a nonprofit organization.

When a private corporation is operated for profit, there are usually no restrictions on the sale of voting stock to any individual because of his occupation or profession, nor are there restrictions on the number of shares of voting stock that may be held by any one individual. Stockholders have one vote in corporate affairs for each share of voting stock held.

7/ Clowes, H. G., Elliott, W. H., and Crow, W. C. Wholesale Food Market Facilities--Type of Ownership and Methods of Financing. U. S. Dept. Agr., Mktg. Res. Rpt. No. 160. 96 pp., illus. 1957.

The primary advantage of corporate ownership is that the owners have complete control over operations, subject to generalized legal restrictions. In addition, when the period of amortization expires, the entire investment belongs to the stockholders; tenancy changes have no effect upon stock ownership, and transfer of stock is unrestricted. The major problem of corporate ownership of a food-distribution center lies in the fact that a substantial financial equity is necessary.

When a private corporation is operated on a nonprofit basis, the sale of shares of voting stock usually is restricted. A nonprofit market corporation probably would restrict the sale of this stock to farmers, truckers, wholesalers, and others directly concerned with the operation of the market, and would base the amount of stock sold to one individual or firm on the amount of facilities used. In some cases, eligible purchasers of voting stock also would be required to purchase a specified number of shares of nonvoting stock. Through these restrictions on stock sales, the number of stockholders' votes and the voice in management exercised by any one shareholder are limited. Under the laws in some States, nonprofit corporations are referred to as cooperative corporations or societies.

A number of wholesale markets are owned and operated by private corporations. In some instances, the principal stockholders in these corporations are food wholesalers. In other cases, the corporation may be a railroad company or some other company primarily organized for other types of business. Most of the large terminal produce markets built in the 1920's were sponsored by railroad companies which believed that such markets would increase the volume of traffic handled by their lines.

Public Benefit Corporations

Public benefit corporations, sometimes called "market authorities," offer some desirable features not found in other types of ownership. They differ from nonprofit private corporations only in that they usually are publicly owned.

A public benefit corporation is a nonprofit agency. As such, rentals and other charges do not exceed the amount needed to pay the costs of operation, amortize the original investment, and maintain a limited reserve for contingencies. Because under public ownership the revenues would be considered as public funds, the reserve fund could not be paid to lessees as dividends. However, there is the possibility that reserve funds might be appropriated for other public used, while the bonds remained outstanding, unless such reserves are specifically committed to redemption of bonds.

Public benefit corporations usually have the power of eminent domain, which can be useful in the acquisition of a site. Such corporations usually finance market improvements through the sale of revenue bonds. This type of financing normally is not a full obligation of a State or a political subdivision. These revenue bonds are often tax exempt, thereby lowering the interest cost. A public agency, such as a market authority, is more likely than some type of private ownership to provide for future expansion and to work toward the establishment of a complete wholesale food distribution center. A market authority may or may not be required to pay taxes to the community in which it is located.

Market authorities also have certain limitations, especially with respect to the financing and management of the facilities. They find it difficult to raise funds through revenue bonds unless considerable equity funds are provided in some way or the bonds are guaranteed by the city, county, or State. Some State or city governments have appropriated part of the funds needed for land acquisition and original construction. The continuity of management may be dependent on the continuance of a State or municipal government administration in office. As a whole, market authorities do not have as complete freedom of operation as is possible under private ownership.

Direct Public Ownership

A number of wholesale food market facilities have been financed, constructed, and operated by States, counties, or municipalities. Several States and a number of municipalities have enabling legislation covering the improvement or establishment of produce markets.

Direct State ownership and operation usually can be differentiated, from ownership and operation by a state market authority by the methods of financing used and the delegations of authority made by the State legislature. Although a number of States have appropriated funds and otherwise assisted market authorities with financial problems, they do not usually underwrite the total cost of a market constructed by an authority, nor have the States always assumed responsibility for the operation of these markets. Direct State ownership contemplates that a market facility will be financed in whole or in part by an appropriation of State funds. If the financing is not entirely by this method, the State usually is obligated for the remainder unless this balance is obtained through grants or donations. Also, the State is responsible for maintenance and other expenses involved in the operation of a State-owned market.

Municipal ownership of a wholesale food market is comparable in many of its basic aspects to direct State ownership. A number of municipalities are authorized in their charters to construct and operate food markets. However, in some cases, city councils or commissions are not authorized to make appropriations from general funds in the city treasury for the construction of market facilities on a basis comparable to that of a State legislative body. Three methods are usually open to municipalities for financing a market program: (1) Issuance of municipal bonds, (2) issuance of revenue warrants, and (3) loans from public corporations. In most cities the issuance of bonds for such purposes must be approved by a majority of the qualified electorate voting in a referendum. States may finance, construct, and operate wholesale food market facilities because legislative bodies feel that improved facilities will, in themselves, serve the public interst. Facilities constructed with municipal or county funds would necessarily be owned by the county or municipality, and rent would have to be paid by the tenants indefinitely.

Combinations

Wholesale food-distribution centers have been established combining two or more types of ownership and operations previously described. For example, in Philadelphia, a food-distribution center has recently been built by a nonprofit corporation on land owned and put in condition for building by the city.

In New Bedford, it would be possible to use two or more of these methods of financing a food-distribution center. The entire project could be constructed and operated by a single agency or various parts could be constructed and operated by different agencies. To illustrate:

1. The city could put the land in condition to build and could either rent or lease land to tenants.

2. The city could build the multiple-occupancy buildings and lease or rent them to tenants and allow private sources to develop the single-occupancy buildings.

3. Each commodity group could form individual corporations and lease or buy land or facilities from the city or a private developer.

Revenue Required and Sources of Revenue

Revenue required could vary according to the methods used to finance the development. For example, city or State ownership would not only reduce interest costs, but could materially affect the amortization period. If a corporation with substantial assets were constructing its own facilities it obviously could expect better financing arrangements than one with limited assets. It is not feasible in this report to illustrate all possibilities; it has been necessary, therefore, to make certain assumptions.

If a food-distribution center were built containing the suggested facilities, it might follow the general layout in figure 6. It was assumed that the entire facilities would be constructed by a single agency and leased to the occupants. Such assumptions are not intended to suggest the most desirable arrangements, nor are they intended to exclude other arrangements, but they are presented so that some estimate of probable operating expenses may be included in this report.

For purposes of this report, revenue requirements will be considered under three different categories: (1) Cost of management and upkeep, (2) taxes on real estate, and (3) debt service. The reader is reminded that estimated costs are rounded in the text; exact computations appear in the tables.

Management and Upkeep

The management expenses are based upon estimates of such costs in New Bedford. These management costs for the market facility do not include the cost of management of the individual firms. 8/ These costs are prorated among the firms on the basis of building, other facility, and associated costs:

8/ Management would be provided through a voluntary board (serving without pay) with each individual firm appointing one member and the chairman elected from the group. It would administer the market throught a service whose primary purpose would be to take care of general management functions.

Management Expenses 9/

Managerial service.....	$3,500
Watch service.....	3,600
Advertising and promotion.....	800
Travel and per diem.....	600
General market sanitation.....	2,500
Snow removal.....	1,000
	12,000

Upkeep

Estimates of the cost of insurance, maintenance, and repair were based on construction costs. Fire and extended coverage insurance was based on those rates for fire and extended coverage which would most probably apply to the structures considered. The rates applied were $2.10 per $1,000 valuation for 80 percent of the facility cost for fire and extended coverage. Liability insurance covering all liabilities of the food center to the limit of $300,000 would cost about $2,900 annually, computed on the basis of $7.90 per $1,000. The total annual cost of insurance would be about $10,000. Maintenance and repairs, assumed to be one-half percent of facility costs, would amount to about $21,000.

The lump sum costs have been allocated so they apply to the entire project. These costs have been prorated or allocated to the various groups of lessees considered. The primary means of prorating was based on the relative value of facilities within the food center. A reserve or contingency fund of 10 percent of the amount required for management and upkeep was included to allow for variations. The fund would be $4,000 per year. The total estimated annual income needed for operation of the proposed food distribution center would be about $47,000. The lump sum costs of management and upkeep by commodity group may be seen in table 11.

Real Estate Taxes

The entire project might pay taxes on land, buildings, and other taxable facilities on the current tax rate and based on assessed valuation of the property. For the purposes of this report, $79.60 per $1,000 of assessed valuation is used. This assessed valuation has been based upon the valuation placed on similar structures by New Bedford's assessors. It is possible that in later years the assessed valuation may be adjusted upward, or the tax rate may increase. For this reason, a reserve of 20 percent has been included. This reserve could probably be discontinued when it amounts to a full year's tax payment. The taxes paid by the fresh fruit and vegetable section would amount to $5,600; by the meat and poultry section, $29,000; and by the grocery section, $130,000. For the entire center, with an assessed valuation of $1,726,000, the taxes and reserve would be $165,000, as illustrated in table 12.

9/ Management expenses may be adjusted, depending upon the services desired by the tenants.

Table 11.--Estimated annual income, by commodity group, required for management and upkeep in the proposed wholesale food-distribution center

Commodity group	Management expense	Fire, extended coverage, and liability insurance 1/	Maintenance and repair 2/	Reserve or contingency 3/	Total
	Dollars	Dollars	Dollars	Dollars	Dollars
Fresh fruits and vegetables	360	295	626	128	1,409
Meat and poultry:					
Small multiple units	240	197	417	85	939
Multiple units	1,800	1,476	3,128	640	7,044
Subtotal	2,040	1,673	3,545	725	7,983
Grocery:					
Multiple units	1,680	1,378	2,920	598	6,576
Single-occupancy units:					
A	1,346	1,104	2,340	479	5,269
B	2,297	1,884	3,992	817	8,990
C	4,277	3,509	7,434	1,522	16,741
Subtotal	7,920	6,497	13,766	2,818	31,000
Total	12,000	9,843	20,857	4,269	46,968

1/ Liability insurance cost was divided on the basis of the total square feet in a building. For fire and extended coverage the building would be insured at 80 percent of its value. This coverage was applied only to the value of the building and the cost of construction.

2/ Assuming one-half percent of the cost of building of the facilities and associated costs.

3/ Ten percent of preceding items.

Table 12.--Estimated real estate taxes to be paid by the proposed wholesale food-distribution center

Commodity group	Assessed Value 1/	Income required for real estate taxes		
		Tax 2/	Reserve 3/	Total
	Dollars	Dollars	Dollars	Dollars
Fresh fruits and vegetables	59,056	4,701	940	5,641
Meat and poultry:				
Small multiple units	45,366	3,611	722	4,333
Multiple units	257,074	20,463	4,093	24,556
Subtotal	302,440	24,074	4,815	28,889
Groceries				
Multiple units	272,533	21,694	4,339	26,033
Single-occupancy units:				
A	185,627	14,776	2,955	17,731
B	316,657	25,206	5,041	30,247
C	589,637	46,935	9,387	56,322
Subtotal	1,091,921	86,917	17,383	104,300
Total	1,725,950	137,386	27,477	164,863

1/ Based on the valuation of similar structures by New Bedford assessors.
2/ Assuming 1962 tax rate at $79.60 per $1,000
3/ Assumed to be 20 percent of taxes because of eventual rise in market value.

Income Required for Debt Service

The third major group of costs that must be paid by a food-distribution center is debt service. The proportion of the total that might be borrowed on a mortgage loan and the terms of the loan would depend upon the availability of money and interest rates at that time. Facilities of the type described should not be obsolete in less than 20 to 30 years and could be useful for longer periods. These facilities have been designed so that with minor alterations they could be converted for use by many types of industry.

If private financing were used, money could be obtained from: First mortgage bonds, second mortgage or preferred stock, and equity capital. Depending on the money situation, and whether urban renewal funds were available, various amounts could be obtained from each of these sources. About 65 percent might be obtained by first mortgage, and an additional 20 to 25 percent by second mortgage or by issurance of preferred stock. The remaining 10 to 15 percent would be required as equity capital.

Because of the general money market situation in New Bedford, a rate of 6 percent, amortized over 25 years, was assumed. This rate would represent a composite of the various rates charged for capital from each of these sources. For instance, if the first mortgage were obtained at 5 1/2 percent, the second for 6 1/2 percent, then the equity capital would have a value of 7 percent, so the average interest rate would be approximately 6 percent. In the event equity capital were supplied by tenants in proportion to the relative cost of the facilities, because of the tax situation, payment of dividends to stockholders may not be desirable. Under this assumption the 6-percent interest rate might be slightly higher than the actual cost of borrowing the money.

If bonds were issued, financiers and persons purchasing bonds might demand that current income exceed expenses by some stipulated amount and that this remain as a reserve fund. Amounts required would vary according to the tightness of the money market, the financial rating of the bond issuer, and the value of collateral. The reserve fund should amount to 20 percent of the annual costs. However, after a full year's amortization fund has been accumulated, it might be possible to discontinue such a fund. In these computations a 20-percent reserve or contingency allowance was included.

Until a financial plan is worked out, the terms of the loan cannot be determined. However, the amount of rental on the various facilities was based on the rate of 6 percent for 25 years. Table 13 shows, by commodity groups, the estimated annual income required for debt services to amortize the cost of the project. Should the city, county, or State lend its credit or tax exempt status, interest rates might be substantially reduced.

Table 13.--Estimated annual income required for debt service, by commodity groups, in the proposed wholesale food facilities

Commodity group	Investment in land and facilities	Amortization charge 1/	Reserve or contingency 2/	Total
	Dollars	Dollars	Dollars	Dollars
Fresh fruits and vegetables	147,640	11,550	2,310	13,860
Meat and poultry:				
Small multiple units	113,379	8,870	1,774	10,644
Multiple units	642,481	50,261	10,052	60,313
Subtotal	755,860	59,131	11,826	70,957
Groceries:				
Multiple units	681,332	53,301	10,660	63,961
Single-occupancy units:				
A	510,397	39,928	7,986	47,914
B	870,678	68,113	13,623	81,736
C	1,621,263	126,832	25,366	152,198
Subtotal	3,002,338	234,873	46,975	281,848
Total	4,587,170	358,855	71,771	430,626

1/ Assuming 6-percent annual interest rate for 25 years.
2/ Computed at 20 percent of amortization charge.

Total Annual Income Required

Estimates of the amount of revenue needed to operate this development, including costs of management and upkeep, taxes and debt service are shown in table 14. Costs of operation for individual businesses occupying these facilities are not included. The total ammount needed to operate the project would be about $642,000.

Cost of operating, owning and managing various sections of the food center would be approximately:

Fresh fruits and vegetables	$ 20,900
Meat and poultry.	107,800
Groceries	
Multiple units.	96,600
Single-occupancy units.	417,100

Sources of Revenue

While there are minor sources of income, such as revenue from vending machines and public telephones, the only source of revenue assumed for this development is from rents charged for the facilities. As mentioned previously, these rents could be materially affected by the methods used to finance and operate the market. In computing revenue requirements, it was assumed that private financing and private operation would be used.

Rental charges are based on a total computed cost per square foot. These costs represent an annual revenue required of $1.61 for the small multiple fruit and vegetable units; $1.63 per square foot for small multiple meat and poultry units; $1.64 per square foot for the large meat multiple units; and $1.68 per square foot for the standard grocery unit. The detached buildings in the grocery section were $1.77 per square foot for 40,000 square feet; $1.73 per square foot for 70,000 square feet; and $1.73 for the 130,000-square-foot unit. The overall average annual rental required would be $1.71 per square foot. Specifics may be seen in table 15.

The minor variations in revenue required per square foot between similar facilities in the various commodity sections are due to differences in land required, the amount of paving necessary, building costs, and other such items. From a practical viewpoint, however, it might be desirable to charge similar rents for similar facilities. Computed rents differ for similar facilities because of different expansion areas, different proportion of public streets and management costs. The rentals presented are sufficient to cover costs and reserves.

If procedures used in other markets were followed, certain reductions in operating costs might be achieved. In some markets, governmental agencies have assumed such cost items as market sanitation, and railroads have constructed lead-in tracks. If such agencies would provide these services in New Bedford, costs of operations could be reduced.

Table 14.--Estimated total annual income required by commodity groups, for the proposed wholesale food center

Commodity group	Management	Taxes	Debt service	Total
	Dollars	Dollars	Dollars	Dollars
Fresh fruits and vegetables	1,409	5,641	13,860	20,910
Meat and poultry:				
Small multiple units	939	4,333	10,644	15,916
Multiple units	7,044	24,556	60,313	91,913
Subtotal	7,983	28,889	70,957	107,829
Groceries:				
Multiple units	6,576	26,033	63,961	96,570
Single occupancy units;				
A	5,269	17,731	47,914	70,914
B	8,990	30,247	81,736	120,973
C	16,741	56,322	152,198	225,261
Subtotal	31,000	104,300	281,848	417,148
Total	46,968	164,863	430,626	642,457

Table 15.--Estimated annual revenue charges required, by commodity groups, for the proposed wholesale food center

Commodity group	Space planned	Revenue required	Annual revenue required per square foot
	Sq. Ft.	Dollars	Dollars
Fresh fruits and vegetables	13,000	20,910	1.61
Meat and poultry:			
Small multiple units	9,750	15,916	1.63
Multiple units	55,900	91,913	1.64
Subtotal	65,650	107,829	1.64
Groceries:			
Multiple units	57,500	96,570	1.68
Single occupancy units:			
A	40,000	70,914	1.77
B	70,000	120,973	1.73
C	130,000	225,261	1.73
Subtotal	240,000	417,148	1.74
Total	376,150	642,457	1.71

ESTIMATED BENEFITS AND EFFECTS OF IMPROVED FACILITIES ON OPERATING COSTS

Selected marketing costs which would be affected most by improved facilities were estimated for various food wholesalers in New Bedford. These were: (1) Handling, (2) interdealer movement, (3) spoilage, deterioration, shrinkage, and breakage, and (4) rentals. Although these are not the only marketing costs, they represent readily measurable costs that are most affected by a move to new facilities. These costs in present facilities were compared with comparable anticipated costs in the recommended facilities.

Handling

One of the largest areas of potential savings in the proposed facilities would be from increased labor efficiency. The recommendations provide for handling commodities on one floor of buildings adapted to the use of modern handling equipment, with floors at rail-car level and front platforms at truck-bed height.

One of the best ways to reduce costs is to use modern materials-handling equipment to handle merchandise and to use the unit load principle whenever possible. The larger facilities have been designed to take full advantage of this principle where feasible. Commodities received in boxes or cartons could be loaded on skids or pallets in a car or truck or on the platform and moved into the store.

Bulk products could be loaded on efficient handling equipment and transported to display areas, coolers, or platforms. It would not be necessary to have power equipment for these operations. Even without such equipment, savings would result because of improved operations and facilities used by food handlers. These cost reductions have been classified as "handling costs," which include flow of commodities through a facility from unloading to loading on outbound trucks.

Computation of possible cost reductions because of improved facilities was based largely on cost estimates developed through research. Supplementing this research, percentage cost reductions in operation of dealers in other markets who have moved to new facilities were considered.

The greatest savings in handling costs would amount to about $1.89 per ton of merchandise handled for the meat processors. Other commodity groups would save various amounts. The fresh fruit and vegetable wholesalers might save $1.35 per ton; the meat and poultry wholesalers might save $1.34 per ton. In groceries, general-line wholesalers might save $.85 per ton, while specialty wholesalers might save $1 per ton. Possible reductions in handling costs shown in table 16 amount to $154,000.

Table 16.--Comparison of handling costs in present facilities compared with those in the proposed wholesale food center

Commodity group	Tonnage incurring cost	Cost per ton		Total cost		Cost reduction
		Present	Proposed	Present	Proposed	
	Tons	Dollars	Dollars	Dollars	Dollars	Dollars
Fresh fruits and vegetables	17,143	3.85	2.50	66,000	42,858	23,142
Meat and poultry:						
Wholesalers	9,780	5.24	3.90	51,247	38,142	13,105
Processors	3,720	7.49	5.60	27,863	20,832	7,031
Groceries:						
General-line wholesalers	122,220	2.85	2.00	348,327	244,440	103,887
Specialty wholesalers	6,747	3.60	2.60	24,289	17,542	6,747
Total or average	159,610	5.01	3.52	517,726	363,814	153,912

Interdealer Handling

The cost of interdealer handling in the proposed center should be reduced, because of the shorter distance between facilities. At present it is necessary for meat wholesalers located in the central area to transport meat to processors in the south end of the city. In the proposed facilities such movement could be effected by moving meat on a common platform. The facilities of other dealers would be reasonably accessible to simplify such movement and resultant costs. An estimate of the present costs of such movement was compared with possible reductions determined by research and estimates of the dealers. It was assumed that the volume subject to interdealer movement would remain constant. The estimated savings from this area amount to $8,000, as may be seen in table 17.

Spoilage, Deterioration, Breakage, and Shrinkage

Spoilage, deterioration, breakage, and shrinkage should be substantially reduced in a new wholesale food center because outside storage of perishable commodities would no longer be necessary. Pilferage would be negligible and there should be less handling breakage. Bruising and subsequent spoilage would be reduced. Cost reduction estimates are based upon the experience of dealers who have recently moved to new facilities, and on the results of research. It is estimated that wholesalers would save about $59,400, as may be seen in table 18.

Rents

Rents in the new food-distribution center would have to be increased in certain commodity sections. This increase would be partially compensated for by the savings made possible through improved facilities. Higher rents would be due to the increased building replacement costs and the costs of debt service payments. Increased rents are the price which must be paid for relocation, modern buildings, and improved working conditions. These increases would amount to $170 per year in the fruit and vegetable section, $76,200 in the meat and poultry section, $56,600 in the grocery multiple units, and $288,200 in the three detached buildings of the general-line grocery firms. The space is reduced substantially in the fruit and vegetable section, but is increased in the meat and poultry and grocery areas. Details of space recommendations and the rents required for such space may be seen in table 19.

Summary of Measurable Costs

The possible savings would partially offset increased rentals required by movement to a new food-distribution center. The fresh fruit and vegetable section, because of reduced space, would effect savings of about $32,600 annually over present cost of operations. The meat and poultry section because of increased space and improved facilities would have increased annual operating costs in the amount of $48,000. The cost of grocery multiple units would increase by $46,000 and grocery single-occupancy buildings by $138,000. Upon completion of the entire project, food dealers in the city would increase their present cost of operations by an estimated $200,000 (table 20).

Table 17.--Comparison of interdealer handling costs by commodity group

Commodity group	Tonnage incurring cost 1/	Cost per ton		Total cost		Cost reduction
		Present	Proposed	Present	Proposed	
	Tons	Dollars	Dollars	Dollars	Dollars	Dollars
Fresh fruits and vegetables	1,837	1.75	1.00	3,215	1,837	1,378
Meat and poultry:						
Wholesalers	2,300	2.10	1.05	4,830	2,415	2,415
Processors	475	2.10	1.05	997	499	498
Groceries:						
General-line wholesalers	3,560	1.90	1.10	6,764	3,916	2,848
Specialty wholesalers	1,250	1.90	1.20	2,375	1,500	875
Total or average	9,422	1.93	1.08	18,181	10,167	8,014

1/ Tonnage subject to interdealer handling in the proposed facilities assumed the same as in present facilities.

Table 18.--Spoilage, deterioration, breakage, and shrinkage costs in present facilities compared with those in the proposed wholesale food center

Commodity group	Tonnage incurring loss 1/	Cost per ton		Total cost		Cost reduction
		Present	Proposed	Present	Proposed	
	Tons	Dollars	Dollars	Dollars	Dollars	Dollars
Fresh fruits and vegetables	17,143	2.73	2.25	46,800	38,572	8,228
Meat and poultry:						
Wholesalers	9,780	2.15	1.80	21,027	17,604	3,423
Processors	3,720	2.28	1.85	8,482	6,882	1,600
Groceries:						
General-line wholesalers	122,220	1.40	1.05	171,108	128,331	42,777
Specialty wholesalers	6,747	1.75	1.25	11,807	8,434	3,373
Total or average	159,610	1.62	1.25	259,224	199,823	59,401

1/ Includes 9,422 tons handled intermarket.

Table 19.--Comparison of rentals in present facilities with those in the proposed food center

Commodity group	Space used		Rent		Increase
	Present	Proposed	Present	Proposed	
	Sq. ft.	Sq. ft.	Dollars	Dollars	Dollars
Fresh fruits and vegetables..	51,240	13,000	20,740	20,910	170
Meat and poultry.....	55,289	65,650	31,640	107,829	76,189
Groceries:					
Multiple units 1/.....	64,500	57,500	40,000	96,571	56,571
Single-occupancy units....	228,873	240,000	128,900	417,147	288,247
Total or average	399,902	376,150	221,280	642,457	421,177

1/ Combined to avoid disclosure of one company's operations.

Table 20.--Summary of cost reduction in the proposed wholesale food center

Commodity group	Handling cost reduction	Interdealer Handling cost reduction	Spoilage, deterioration: breakage and shrinkage cost reduction	Rental cost	Total
	Dollars	Dollars	Dollars	Dollars	Dollars
Fresh fruits and vegetables..	23,142	1,378	8,228	-170	+32,578
Meat and poultry.....	20,136	2,913	5,023	-76,189	-48,117
Groceries: 1/					
Multiple units.....	6,747	875	3,373	-56,571	-45,576
Single-occupancy units....	103,887	2,848	42,777	-288,247	-138,735
Total or average....	153,912	8,014	59,401	-421,177	-199,850

1/ Weighted to prevent disclosure of an individual firm's operations.

This does not mean that the costs of each wholesale food dealer would be increased: Not all would be affected in the same way. These costs for the industry as a whole may be altered by subsidies, such as tax adjustments or changes in the money market. If the city were to develop the market, the cost of operations could also be materially affected. Many members of the wholesale food trade must move because they cannot remain in their present locations. The problem, therefore, is one of providing them with the least possible increase in operating costs. Building costs now are much higher than they were when the facilities now in use were built.

Nonmeasurable Benefits

In considering new wholesale food-distribution facilities there are certain benefits which cannot be shown in terms of dollar savings. However, this does not lessen the value of these benefits. Wholesalers could benefit through removal of defects which exist in their present operations. Improvements in working conditions could improve attitudes or morale and thus contribute to an improved distribution system.

Benefits to Tenants

By centralizing wholesale food-distribution facilities, the advantage of more unified action is possible. The advantages of reduced construction costs would be available. Selling hours could be regulated by the market tenants. Many defects enumerated earlier could be corrected in a wholesale center. Reduced handling would be reflected in higher quality products. Customers who may now shun the New Bedford market because of its scattered facilities might use the proposed facilities.

Benefits to Other Groups

It might be possible, with the proposed facilities located on one site with adequate highway access, to encourage retailers to shop at more than one dealers facilities in the market. Although this situation does not exist at present, adequate parking and wide streets could encourage this type of market.

The transportation agencies would find that the new market offers benefits to them. Many New Bedford firms are not served adequately, if at all, by rail. In the new facilities most wholesalers would be provided with rail service. Truckers making deliveries to various firms could reduce delivery time. The occasional congestion that now exists would be eliminated by adequate streets and sufficient parking areas.

One of the most important benefits to be derived from a new center is that many firms would not be forced out of business or to locate outside the city. New Bedford wholesalers who are faced with the necessity of relocating could have efficient new facilities with the least possible increase in operating costs. This project could also provide desirable locations for allied industry.

APPENDIX

The following tabulations present estimated costs of facilities for each food commodity group on the basis of values in mid-1962. The limitations and specifications are those given in the text, p.38.

Fresh Fruits and Vegetables

Multiple-occupancy building	
8 small units containing 1,625 sq. ft. per unit (including sprinkler systems) @ $10,774 per unit or $6.63 per sq. ft. (including mezzanine)	$ 86,192
Other facilities:	
Paving 1/ - blacktop combination - 6,149 sq. yd @ $2.50 per sq. yd	15,372
Sewers:	
100 feet--12-inch (sanitary) @ $2.25	225
150 feet--15-inch (storm) @ $3.50	525
Floodlights:	
4 @ $150 each	600
Fencing:	
7 feet high--500 feet @ $3.50	1,750
Cost of building and facilities	104,664
Architect's fee--6% of building and facilities cost	6,280
Cost of construction including architect's fee	110,944
Construction loan @ 5%	5,547
Cost of construction, including architect's fee and cost of construction loan	116,491
Contingency allowance--10% of construction cost, architect's fee, and construction loan	11,649
Total cost of buildings, other facilities, and associated costs	128,140
Cost of 1.5 acres of land @ $13,000 per acre	19,500
Total investment cost	147,640

1/ Includes prorated share of streets and parking.

Multiple-occupancy buildings	
6 small units 1,625 sq. ft. per unit (including sprinkler systems) @ $10,774, or $6.63 per sq. ft. (including mezzanine)	$ 64,644
13 two-story units containing 4,300 sq. ft. (including sprinkler system) @ $36,034 per unit, or $8.38 per sq. ft.	468,442
Other facilities:	
Paving - blacktop combination - 12,495 sq. yd. @ $2.50 per sq. yd.	31,238
Sewers:	
342 feet--12-inch (sanitary) @ $2.25	769
507 feet--15-inch (storm) @ $3.50	1,774
Floodlights:	
12 @ $150 each	1,800
Fencing:	
7-feet high--800 feet @ $3.50	2,800
Tracks (house and associated lead-in) 875 feet @ $10 per linear foot	8,750
Cost of building and facilities	580,217
Architect's fee--6% of building and facilities costs	34,813
Cost of construction including architect's fee	615,030
Construction loan @ 5%	30,752
Cost of construction, including architect's fee and cost of construction loan	645,782
Contingency--10% of construction costs	64,578
Total cost of buildings, other facilities, and associated costs	710,360
Cost of 3.5 acres of land @ $13,000 per acre	45,500
Total investment cost	775,860

Multiple-occupancy buildings	
20 units containing 2,875 sq. ft. per unit (including sprinkler system) @ $20,959 per unit or $7.29 per sq. ft. (including mezzanine)	$419,180
Other facilities:	
Paving - blacktop combination - 18,667 sq. yd. @ $2.50 per sq. yd	46,668
Sewers:	
700 feet--12-inch (sanitary) @ $2.25	1,575
750 feet--15-inch (storm) @ $3.50	2,625
Floodlights:	
8 @ $150 each	1,200
Fencing	
7-feet high--1,300 feet @ $3.50	4,550
Tracks (house and associated lead-in) 1,400 feet @ $10 per linear foot	14,000
Switches (railroad) 1 @ $3,000	3,000
Cost of building and facilities	492,798
Architect's fee-- 6% of buildings and facilities costs	29,568
Cost of construction including architect's fee	522,366
Construction loan @ 5%	26,118
Cost of construction, including architect's fee and cost of construction loan	548,484
Contingency--10% of construction costs	54,848
Total cost of buildings, other facilities and associated costs	603,332
Cost of 6 acres of land @ $13,000 per acre	78,000
Total investment cost	681,332

Groceries

Single-occupancy buildings	
3 buildings (including sprinkler system) containing 240,000 sq. ft. @ $8.38 per sq. ft. 1/	$2,011,200
Facilities:	
Paving--blacktop combination-63,667 sq. yd. @ $2.50 per sq. yd.....	159,168
Sewers:	
1,550 feet--12-inch (sanitary) @ $2.25.....	3,487
2,000 feet--15-inch (storm) @ $3.50.....	7,000
Floodlights:	
14 @ $150 each.....	2,100
Fencing:	
7-feet high, 4,100 feet @ $3.50 for detached units.....	14,350
Tracks (house and associated lead-in) 2,300 feet @ $10 per linear foot.....	23,000
Switches (railroad) 3 @ $3,000 each.....	9,000
Cost of building and facilities	2,229,305
Architect's fee - 6% of buildings and facilities cost.....	133,758
Cost of construction including architect's fee.....	2,363,063
Construction loan @ 5%.....	118,153
Cost of construction including architect's fee and cost of construction loan.....	2,481,216
Contingency--10% of construction costs, architect's fee and construction loan.....	248,122
Total cost of buildings, facilities, and associated costs.....	2,729,338
Cost of 21 acres of land @ $13,000 per acre.....	273,000
Total investment cost.....	3,002,338

1/ Represents a composite square foot cost for the 3 buildings.

Summary of Investment Costs

First phase investment costs	
Cost of facilities	$1,441,832
Cost of land	143,000
Multiple-occupancy building investment costs	1,584,832
Second phase investment costs	
Total cost of facilities in project	4,171,170
Total cost of land in project	416,000
Total investment cost	4,587,170