DETROIT wholesale food-distribution facilities

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The members of the Urban Development Division of the Detroit Tomorrow Committee, upon whose request this study was made, were especially helpful in supplying information, arranging appointments with agencies interested in the relocation of present market facilities, and arranging public meetings to present the findings of the study. The chairman of the Urban Development Division was Arthur Bassett. The "steering committee," appointed by the mayor to study the report, was chaired by Foster Winter. Mrs. Ruth Stevens, Coordinator of the Detroit Tomorrow Committee, and her staff assisted in coordinating activities of the study group, and had charge of arrangements for the many meetings of the committee at which the report was discussed.

The work was conducted under the general supervision of William C. Crow, Director of the Transportation and Facilities Research Division, Agricultural Marketing Service. In addition to the authors, Kenneth Utter, Earl Taylor, and Paul Hanlon, of the Division, obtained and analyzed information from various sources; and A. B. Lowstuter prepared layouts of the new food-distribution center's facilities.

Fig. 9 is BN-18860; fig. 13 is BN-18862.

Washington, D. C. July 1963

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SUMMARY

A new and efficient wholesale food-distribution center at a convenient location in Detroit is recommended to replace the present facilities, which are inefficient and outmoded. The commodities include fruits and vegetables, meat and meat products, poultry, dairy products and eggs, frozen food, fish and seafood, and groceries.

Retail buyers in and about Detroit, the fifth largest city in the country, and the largest distribution area for food in Michigan, pay nearly $1 billion annually (wholesale) for the 4.74 billion pounds of food received from almost every State and many foreign countries. This food was handled by 432 independent wholesalers, 5 national food-chain organizations, 1 stockyard, and 8 cold-storage warehouses. About 48 percent was received by rail, and 43 percent by truck; the rest arrived by boat or airplane, or was locally processed.

Most facilities are concentrated in four relatively small wholesale market areas, where other types of businesses also are located. As a result, needed expansion for many wholesale food handling facilities has been made in scattered locations over the city.

The inefficiencies and other unsatisfactory conditions of the present wholesale facilities have been known for many years. Among the inadequacies of the present markets are: Narrow streets; inefficient, and outmoded multistory buildings; lack of rail connections; unsanitary conditions; and fire hazards. All of these have led to high costs of operation, and have made it difficult for many operators to remain in business.

To accommodate the 368 dealers, who badly need more adequate facilities, the following are suggested: 18 multiple-occupancy buildings, containing 1.5 million square feet, and 31 single-occupancy buildings, containing 941,500 square feet, or a total of 2.5 million square feet of space. This is only 64 percent of the space used in the present buildings, but many of these are badly arranged and much space is wasted. The plans include house tracks to unload 380 rail cars; team tracks to handle 245 cars; 500 covered stalls and 200 open stalls in the farmer's market area; 4 restaurants, with public restrooms in the basements; 141 offices and supplementary facilities for brokers, allied organizations and the like. There should be paved streets, not less than 200 feet wide, where store buildings face each other; parking space for approximately 5,400 motor vehicles; a service station and garage; an icing dock; and a public scale. Expansion areas that permit construction of additional facilities are also provided.

These facilities, with space for future expansion, would require about 320 acres. Three possible sites were evaluated in detail; Central Avenue, the Produce Terminal, and the Eastern Market. Advantages and disadvantages of each have been outlined.

Costs of cartage, handling, rents, delay to trucks, and waste and deterioration for moving the 4.74 billion pounds of food through the facilities studied, from first point of arrival in Detroit to the retail outlets, or to trucks of out-of-town buyers, were about $40.9 million. However, for the 2.23 billion pounds of the 7 food commodities handled by the 368 dealers, these marketing costs amount to $23.9 million. Costs for these dealers could be reduced by about $4 million annually, if a new and efficient wholesale food-distribution center were built at a proper site. These benefits could accrue to the consumers of greater Detroit, the wholesale and retail trade, farmers, rail lines and trucking concerns, and the city government.

To buy land and build a new wholesale food center would cost from $52.7 million to $82.9 million, depending upon the site and method of finance chosen. If the market is financed by private funds, the cost of the land, including grading, filling, and development costs, is estimated to be $55,000 per acre for the Central Avenue site, $105,000 per acre for the Detroit Union Produce Terminal site, and $133,000 per acre for the Eastern Market site. However, if Urban Renewal funds were used to subsidize the cost of the land, land costs to the market sponsors might be decreased to about $45,000 per acre on two sites; the total cost of the project then would be between $52.7 and $54.7 million.

Total revenue required, including reserves and contingency funds to meet debt service payments, real estate taxes, and operating expenses, would vary with the type of financing used. For example: Minimum rentals for fruit and vegetable stores would vary from $1.80 per square foot to $2.30 per square foot, if private funds were used to construct the facilities, and would be $1.75 per square foot, if developed with Urban Renewal funds.

DETROIT WHOLESALE FOOD-DISTRIBUTION FACILITIES

By W. Edward Blackmore and Harry G. Clowes[1]
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BACKGROUND OF THE STUDY

This study was initiated in the fall of 1957, at the request of the Detroit Tomorrow Committee. This group was a civic nonprofit organization of 250 business and industry representatives, appointed by the Mayor of Detroit, to assist in the planning of civic facilities for the proper development of the city. The request was prompted principally by its Urban Development Committee and a subcommittee on Commercial Development. The Detroit Tomorrow Committee, recognizing that proper distribution facilities for food should be provided in a comprehensive plan for the redevelopment of certain areas of the city, wished to determine the need for new food handling facilities in the Detroit metropolitan area. Also, land presently occupied by parts of two city-owned food marketing areas is included in the new Federal highway construction program. A relocation of these markets would be necessary when the new expressways are built.

The study includes wholesale food marketing facilities for seven commodity groups: Fruits and vegetables, meat and meat products, poultry, dairy products and eggs, frozen foods, fish and seafood, and groceries. This study is part of a broad program of research conducted by the Agricultural Marketing Service to help hold down costs of marketing farm and food products.

At the time the survey was made, fish and seafood was one of the seven food commodities studied. Since then, the U.S. Department of Agriculture has had no responsibility in connection with the handling and transporting of seafood and fishery products.

The study had the following objectives:

- To analyze the present wholesale food marketing situation for seven commodity groups in Detroit, and to ascertain the adequacy of present facilities in light of present and future needs.
- To develop plans and designs, and consider possible sites for new marketing facilities that will be adequate to provide efficient distribution of Detroit's food supplies.
- To estimate the costs of construction and probable operating expenses, and sources of income of the proposed facilities.
- To estimate the potential benefits to be obtained from the construction of a new and modern wholesale food-distribution center.

For the purpose of this study, "Detroit" is defined as including the city of Detroit, and all of Wayne County, plus Royal Oak Township in Oakland County, and Warren, Erin, and Lake Townships in Macomb County (fig. 1). No wholesale facility that handled any significant amount of foods was located outside this area.

[1] Before his death, Mr. Clowes directed a large part of the research, and prepared a preliminary report.

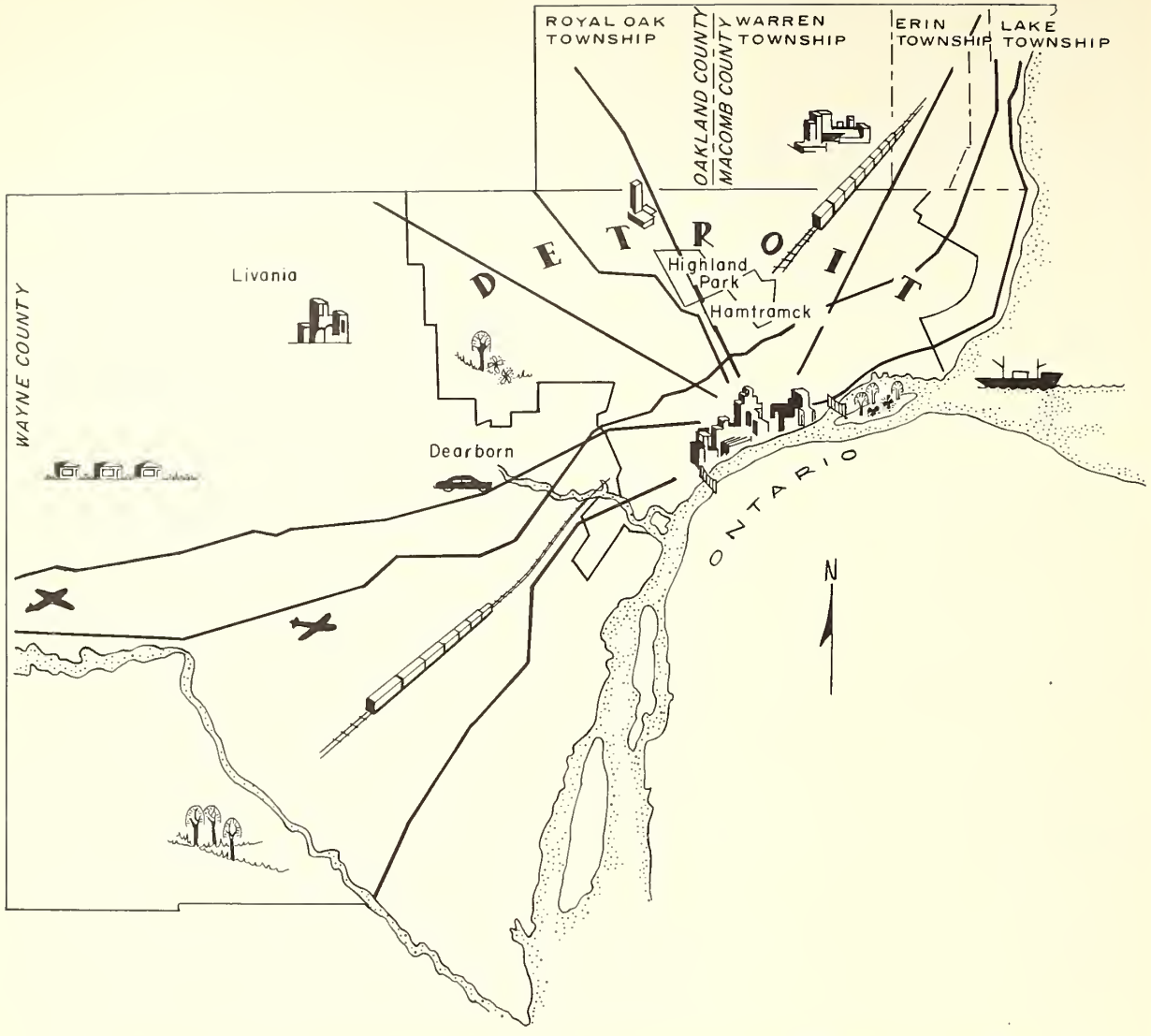


Figure 1.--Areas in the Detroit metropolitan area where wholesale food marketing facilities were studied.

All data relating to the amount of each commodity that was received by the dealers, the costs of handling the products from the point of receipt through the various wholesale facilities to the final destination, and the estimated cost of handling the food products through a new wholesale center were obtained by the contractor. The information was obtained from the U.S. Department of Agriculture Market News Service, the wholesale dealers, buyers who patronized the various markets, truckers, railroad officials, labor union officials, representatives of the city, and other persons concerned with the wholesale food industry in Detroit. These data are based on the calendar year 1956, the latest available data at the time the study was begun and, unless otherwise stated, are used throughout the report. In the text, figures are rounded to the nearest thousand; detailed figures are in tables.

The publication of this report was delayed by the death of the project leader about the time data collection was completed. However, the study was taken over by a new leader and completed. In the meantime, information was supplied as needed to the various agencies of the city of Detroit that are concerned with plans for new facilities.

CONDITION OF THE DETROIT FOOD MARKETING SYSTEM

Detroit is the fifth largest city in the country, and the largest distribution area for food in the State of Michigan. Over 4.74 billion pounds of food were received in the city in the year studied (table 1). The wholesale value of this food was nearly $1 billion. Receipts originated in almost every State, and many foreign countries.

The results of this study show that of the tonnage of foods received by wholesale dealers, 3.49 billion pounds (74 percent) was distributed to retail outlets within Detroit; about 13 percent was shipped to the five adjacent counties of Macomb, Oakland, Washtenaw, Livingston, and Monroe; and 9 percent was shipped to other areas in Michigan. About $1\frac{1}{2}$ percent was moved to Toledo and vicinity, 1 percent to Ontario and vicinity, and the remainder (about 2 percent) distributed to other areas south and southwest of Detroit and to nearby Canadian areas.

About half of the population and over half the labor force of the State is located in the Detroit metropolitan area. Detroit is the main source of supply of food for nearly 3.7 million people in the metropolitan area, and is an important supply center for several hundred thousand people in the nearby city of Windsor and in Essex County in Ontario. Approximately 1.7 million persons lived within the city itself in 1960. Forecasts indicate that the population of the Detroit metropolitan area will reach 5.4 million persons in 1980, of which 3.6 million will be living in Wayne County.[2]

According to the U.S. Bureau of the Census, there were 6,260 retail food stores in 1958, with total sales of $1 billion, in the Detroit metropolitan area; almost half of the sales (47.1 percent) were made within the city. In addition, there were 6,946 eating and drinking places in the area, with sales of $349 million; 60 percent ($212 million) of them were made in the city. These figures cover sales in Detroit only.

Five major railroads, and many over-the-road trucking firms, serve the city's wholesale and retail businesses. Railroad terminals, and holding and team tracks are

TABLE 1.--Total receipts of food commodities by wholesale dealers and percent of each[1]

Commodity group	Volume	Percentage of total
	Million pounds	Percent
Fresh fruits and vegetables	1,425.8	30.1
Meat and meat products	562.4	11.9
Poultry	139.2	2.9
Dairy products and eggs	228.6	4.8
Frozen foods	149.0	3.1
Fish and seafood	66.1	1.4
Groceries	2,170.9	45.8
Total	4,742.0	100.0

[1] In this study "receipts" include all food commodities that originate from outside the city or from points where processed within the city, and are handled by food dealers through wholesale markets in Detroit, from the first point of arrival, or origin within the city, to Detroit retail outlets, or to vehicles which move them outside Detroit. This does not include those quantities sold by one wholesale dealer to another within the city nor the quantities that are processed or produced outside the city and are moved directly to retail points within the city.

[2] 1970-80 Population Projection in the Detroit Region, Detroit Regional Planning Commission, Detroit, Michigan, Dec. 1956.

operated by the New York Central System, the Chesapeake and Ohio Railroad, the Pennsylvania Railroad, the Wabash Railroad, and the Grand Trunk Western Railroad. Several other railroads, including the Detroit Terminal Railroad, the Union Belt Line, and the Detroit, Toledo and Ironton Railroad also serve the many industries of the city. Most of the rail receipts of food were brought in by the New York Central Railroad, the Pennsylvania Railroad and its affiliates, the Wabash Railroad, and the Chesapeake and Ohio Railroad.

Motor vehicle transportation is of increasing importance to the business and industry of the city. A network of major Federal and State modern highways connects the city's wholesale food markets with many producing areas and consuming centers. Within the city itself, a large system of limited-access freeways is being constructed; when completed, they will connect all parts of the city with high-speed, limited-access roads.

A small fraction of the total receipts arrives by airplane or by boat.

VOLUME OF RECEIPTS, SOURCE OF SUPPLIES, AND METHOD OF TRANSPORTATION

In addition to the 4.74 billion pounds received by wholesalers, certain amounts of foods were shipped direct to local food processors and retail establishments, and to public storage warehouses for redistribution to local manufacturers and to localities outside the Detroit area. This volume is not considered in this report since the study is concerned with food commodities that move through wholesale markets within the city.

Approximately 48.4 percent (2,296.2 million pounds) of the direct receipts of the seven food groups included in the study arrived by rail, 43.3 percent (2,054.1 million pounds) by truck, and 8.3 percent (391.6 million pounds) was processed locally. The balance (100,000 pounds) was received by boat or air freight. Table 2 shows the estimated receipts by method of transportation and the amount locally processed.

The amount of rail receipts, truck receipts, and quantities locally processed varied by commodity, as shown in the following discussion.

Fresh Fruits and Vegetables

About 30 percent of the 4.74 billion pounds of foods received in Detroit were fresh fruits and vegetables (table 1). These fruits and vegetables originated in 41 States and several foreign countries. Michigan supplied 26 percent, California 20.5 percent and Florida 14.6 percent, which amounts to over 61 percent of the supplies (fig. 2). Even though there is an extensive truck-crop growing area in nearby Ontario, less than 0.7 percent of the total receipts of fresh fruits and vegetables originated in Canada. Nearly 8 percent of total receipts--mostly bananas and pineapples--originated in Central America.

Of the 1.4 billion pounds of fruits and vegetables received by independent dealers and food-chain warehouses, 36.2 percent (515.8 million pounds) arrived by motortruck and 63.8 percent (910.0 million pounds) by rail. These data include truck receipts at the farmers' markets operated by the city of Detroit.

The annual receipts of fruits and vegetables in Detroit are shown in figure 3. The amount of receipts by rail have not changed materially, but truck receipts have increased over the years. Other data indicate that a larger proportion of the motortruck receipts since 1951 has been delivered to wholesale stores in Detroit--while the receipts at the municipal farmers' markets have decreased considerably. Overall, the total volume has been increasing.

Detroit lies within one of the more important production areas of fresh fruits and vegetables of the State. According to the U.S. Census of Agriculture, and information supplied by the City Bureau of Markets, there were 11,000 carlot equivalents (313.3

TABLE 2.--Food receipts of wholesale dealers: From shipping points by method of transportation, and food locally processed

Commodity group	Method of transportation						Food locally processed		Total	
	Truck		Rail		Other[1]					
	Million pounds	Percent	Million pounds	Percent	Million pounds	Percent	Million pounds	Percent	Million pounds	Percent
Fruits and vegetables.....	515.8	36.2	910.0	63.8	0.0	0.0	0.0	0.0	1,425.8	100
Meat and meat products[2].....	106.1	18.9	113.1	20.1	0.0	0.0	[3] 343.2	61.0	562.4	100
Poultry.....	135.6	97.4	3.6	2.6	0.0	0.0	0.0	0.0	139.2	100
Dairy products and eggs.....	211.7	92.6	11.3	4.9	0.0	0.0	5.6	2.5	228.6	100
Frozen foods.....	89.7	60.2	58.9	39.5	0.0	0.0	0.4	0.3	149.0	100
Fish and seafood.....	56.3	85.2	9.8	14.8	0.0	0.0	([4])	([5])	66.1	100
Groceries.....	938.9	43.2	1,189.5	54.8	0.1	([5])	42.4	2.0	2,170.9	100
Total.....	2,054.1	43.3	2,296.2	48.4	0.1	([5])	391.6	8.3	4,742.0	100

[1] Air or boat.
[2] Carcass weight.
[3] Produced by slaughterers of livestock.
[4] Less than 50,000 lb.
[5] Less than 0.05 percent.

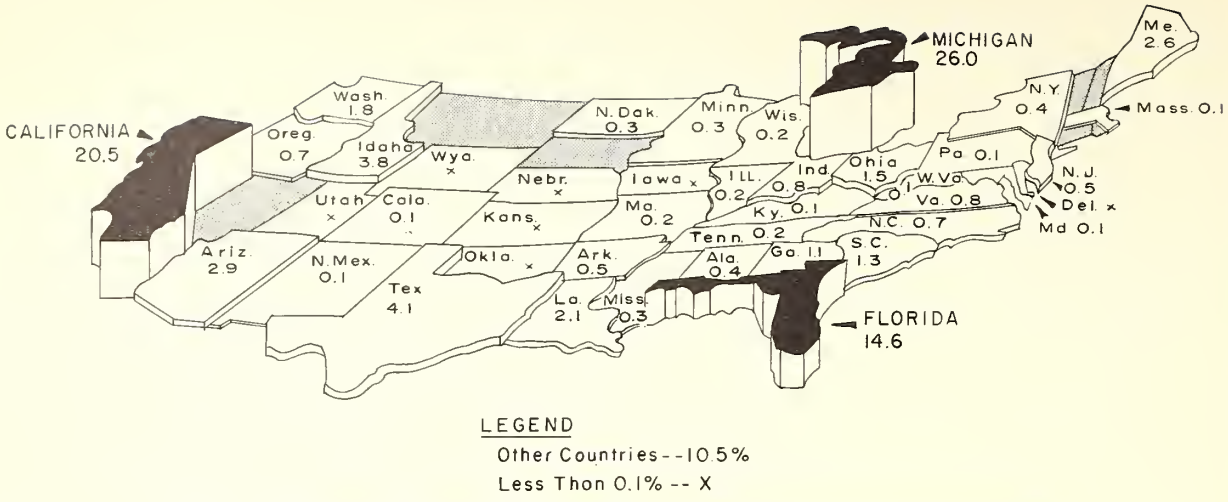


Figure 2.--Percent of total receipts of fresh fruits and vegetables in Detroit, by State of origin.

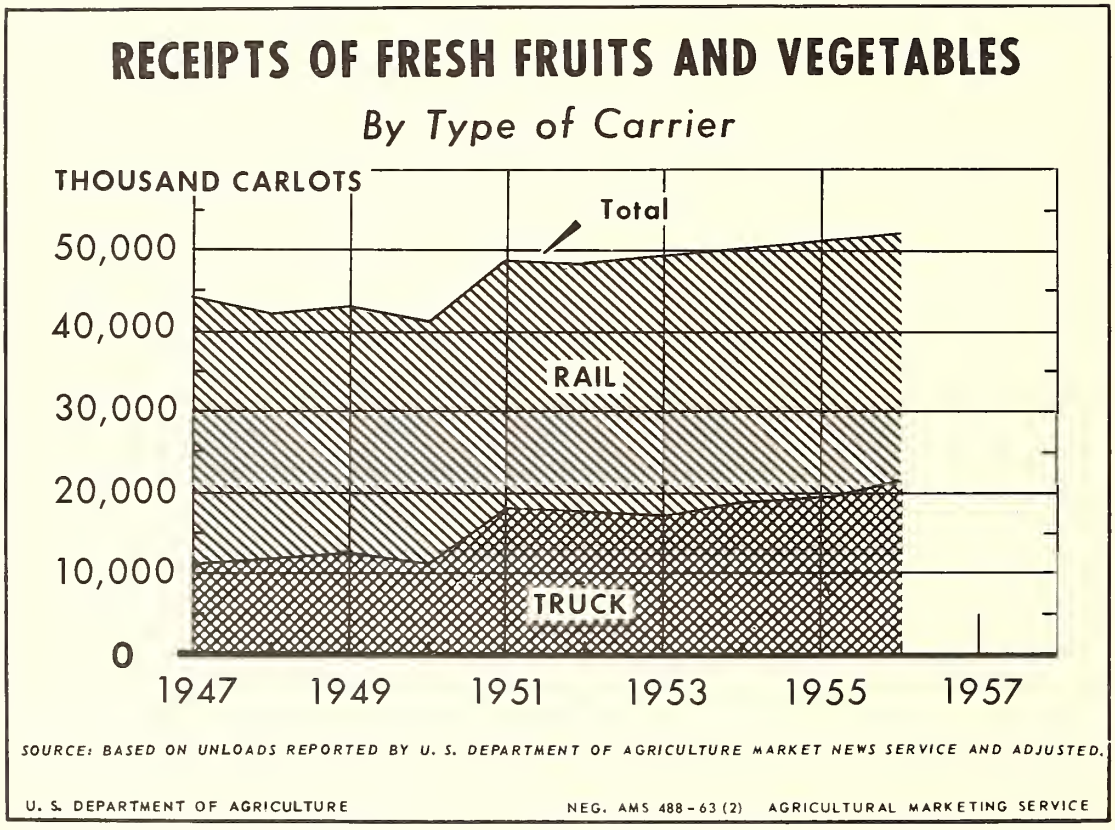


Figure 3.--Receipts of fruits and vegetables in Detroit.

million pounds) of these commodities produced in the 15 United States counties and 1 Canadian county adjacent to the city for fresh market sale at the time of the study (table 3). Over 8,000 carlot equivalents (245.4 million pounds) were sold in the municipal farmers' markets. It was reported that additional quantities of fresh fruits and vegetables produced in these counties were sold directly from the producing area to dealers in Detroit and other large population centers.

TABLE 3.--Estimated volume of fruits and vegetables produced for fresh market sales in areas adjacent to Detroit[1]

Item	Production for sale from--			Total
	Local U.S. area[2]	Secondary U.S. area[3]	Ontario[4]	
	Carlot equivalents	Carlot equivalents	Carlot equivalents	Carlot equivalents
Apples	465	396	26	887
Asparagus	2	2	--	4
Blueberries	1	8	--	9
Cabbage	959	459	22	1,440
Cantaloups	451	70	--	521
Carrots	50	175	23	248
Cherries	1	5	--	6
Cucumbers	8	38	24	70
Dry onions	360	2,078	18	2,456
Grapes	2	1	--	3
Green peas	2	37	--	39
Peaches	147	71	--	218
Pears	17	10	--	27
Plums and prunes	8	5	--	13
Potatoes	1,130	1,200	48	2,378
Raspberries	6	8	--	14
Snap beans	37	70	19	126
Strawberries	17	11	--	28
Sweet corn	2	1	29	32
Tomatoes	956	430	82	1,468
Other vegetables	530	243	43	816
Total	5,151	5,318	334	10,803
Total in million pounds	149.4	154.2	9.7	313.3

[1] Based on U.S. Census of Agriculture, and information supplied by Detroit City Bureau of Markets.
[2] Includes Wayne, Monroe, Washtenaw, Livingston, Oakland, and Macomb Counties.
[3] Includes Lenawee, Hillsdale, Jackson, Ingham, Shiawassee, Genesee, Lapier, Saint Clair, and Sanilac Counties.
[4] Includes Essex County.

Meat and Meat Products

Wholesalers, slaughterers, packers, and processors of livestock and meat products in the city received 562.4 million pounds of meat (carcass weight) and meat products in the year studied. About 18.9 percent (106.1 million pounds) arrived by motortruck, 20.1 percent (113.1 million pounds) was received by rail, and 61 percent (343.2 million pounds) from local slaughterers.

Figure 4 shows the number of livestock slaughtered in Detroit as reported by the Detroit City Department of Health. There has been an increase in the local slaughtering of meat animals, especially since 1951. About half of the livestock slaughtered in the city was received at the Detroit Union stockyards.

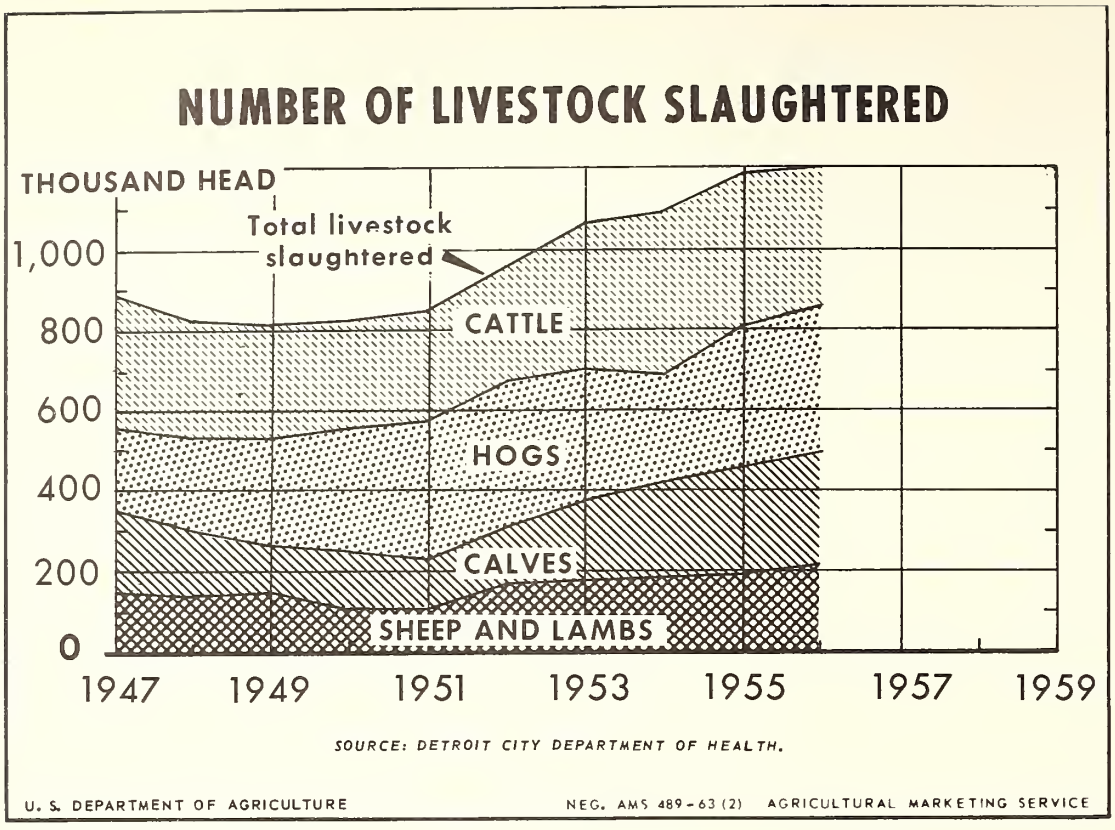


Figure 4.--Number of livestock slaughtered in Detroit.

It is significant to note that 61 percent of the total meat receipts were from local slaughter. About 12 percent of the slaughter was from Michigan livestock, 33 percent from Illinois, and most of the remainder from Ohio, Indiana, and Wisconsin.

Poultry

Detroit is the fourth largest poultry market in the United States. Approximately 139.2 million pounds of dressed and live poultry were received by independent wholesalers and food-chain warehouses. Most of these receipts were eviscerated poultry. Only 10.7 million pounds (dressed weight) arrived as live poultry, of which 1.6 million pounds was "dressed out" by wholesale handlers, leaving 9.1 million pounds that was sold as live poultry. Following a national trend, live poultry receipts are being replaced by receipts of eviscerated poultry. Total poultry receipts in Detroit have been increasing since 1947 (fig. 5). Almost all of the 139.2 million pounds (97.4 percent, or 135.6 million pounds) arrived by truck and only 2.6 percent (3.6 million pounds) was received by rail, while in 1947 nearly half (47.7 percent) of the total poultry receipts were rail receipts.

The major portion of the poultry (61.2 percent) came from Alabama and Georgia (table 4) and was largely eviscerated poultry that arrived by truck. Only 6.8 percent originated in Michigan, while Ohio, Indiana, Illinois, Kentucky, Tennessee, and North Carolina furnished 25.1 percent of the supply.

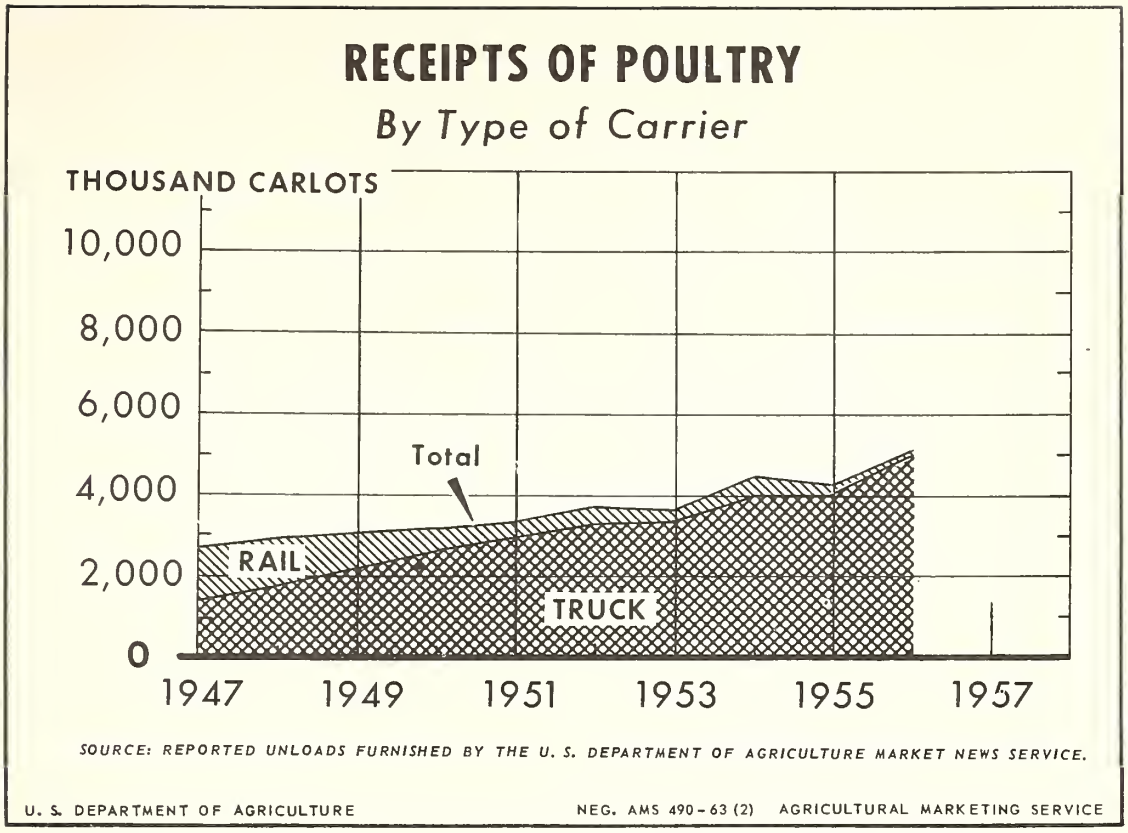


Figure 5.--Receipts of poultry in Detroit.

Dairy Products and Eggs

Table 4 shows the percent of receipts in Detroit from each State for eggs, butter, and cheese. Distributors of dairy products received large quantities (75.7 percent) of butter from Illinois, Michigan, and Minnesota, and cheese (89.1 percent) from Wisconsin, Michigan, and Illinois. There were some imports of dairy products from Denmark, Australia, and New Zealand. Over 57 percent of the shell and frozen eggs came from Michigan and Ohio and substantial quantities were also received from Minnesota, Wisconsin, Indiana, and Iowa.

Detroit was fourth among the major cities in the United States in receipts of shell eggs, New York City, Chicago, and Los Angeles having larger receipts than Detroit. It ranked fifth in receipts of frozen eggs and butter, but eighth in receipts of cheese. Of the 228.6 million pounds of dairy products and eggs received in 1956 by independent wholesalers and food chain organizations, 92.6 percent (221.7 million pounds) was received by truck, 4.9 percent (11.3 million pounds) was received by rail, and 2.5 percent (5.6 million pounds) was processed locally (table 2 and fig. 6).

Frozen Foods

Almost all of the 149 million pounds of frozen foods received in Detroit came from Chicago and other midwestern points. Of the total receipts, 60.2 percent (89.7 million pounds) arrived by truck, 39.5 percent (58.9 million pounds) by rail, and 0.3 percent (400,000 pounds) was produced locally (table 2).

TABLE 4.--Percentage of receipts of poultry, eggs, butter, and cheese, by State of origin[1]

State of origin	Poultry	Eggs	Butter	Cheese	Total
	Percent	Percent	Percent	Percent	Percent
Alabama	20.7	--	--	--	7.5
Arkansas	0.6	--	--	--	0.2
California	0.2	--	--	--	.1
Connecticut	(2)	--	--	--	(2)
Georgia	40.5	--	--	--	14.7
Illinois	2.8	3.8	46.3	14.3	10.7
Indiana	6.2	7.1	0.2	2.3	5.3
Iowa	0.3	6.1	5.5	0.1	3.4
Kansas	(2)	0.2	(2)	--	0.1
Kentucky	4.3	--	(2)	0.2	1.6
Maryland	1.4	--	0.1	--	0.5
Massachusetts	--	--	--	(2)	(2)
Michigan	6.8	27.2	12.1	21.0	17.1
Minnesota	1.8	14.6	17.3	2.5	9.4
Mississippi	0.7	--	--	--	0.3
Missouri	0.6	0.9	(2)	1.2	0.7
Nebraska	0.1	0.5	7.5	(2)	1.4
New Jersey	--	--	--	0.1	(2)
New York	(2)	0.1	0.1	1.4	0.2
North Carolina	2.5	--	--	--	0.9
North Dakota	0.2	--	--	--	0.1
Ohio	3.0	29.9	8.1	3.0	14.7
Pennsylvania	(2)	--	--	0.1	(2)
South Dakota	--	0.5	0.2	(2)	0.2
Tennessee	6.3	1.0	--	--	2.7
Utah	0.1	--	--	--	(2)
Virginia	0.5	--	--	--	0.2
West Virginia	0.1	--	--	--	(2)
Wisconsin	0.3	8.1	2.6	53.8	8.0
Total	100.0	100.0	100.0	100.0	100.0

[1] Based on U.S. Department of Agriculture Market News Service, and information obtained by the contractor.
[2] Less than 0.1 percent.

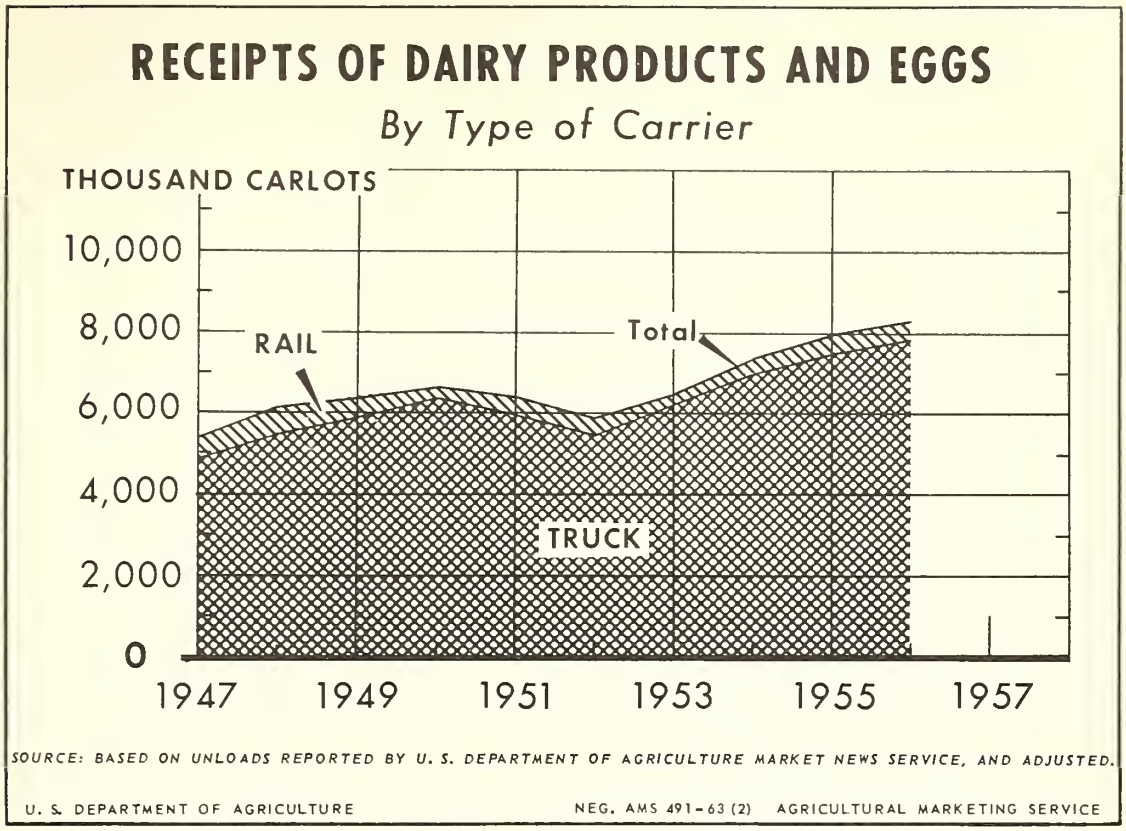


Figure 6.--Receipts of dairy products and eggs in Detroit.

Fish and Seafood

Most of the 66.1 million pounds of fish and seafood came from the Maritime Provinces of Canada and the New England States. Most of the receipts (85.2 percent or 56.3 million pounds) arrived by truck and 14.8 percent (9.8 million pounds) by rail. A small quantity (less than 0.05 percent) was received by boat or was locally produced. About 5.5 million pounds of the rail receipts that originated in Canada arrived on team tracks in Windsor, across the Detroit River. Because of a reported advantage in freight rates, these receipts were trucked to the wholesale stores in Detroit from the Windsor freight yards.

Groceries

Groceries amounted to 45.8 percent (2.17 billion pounds) of all foods received, and came from most of the States and many foreign countries. Over half (54.8 percent or 1.19 billion pounds) arrived by rail, 43.2 percent (938.9 million pounds) by truck, and about 100,000 pounds by boat. There were 42.4 million pounds produced in Detroit and handled by wholesalers in the city in the year studied.

DESCRIPTION OF PRESENT WHOLESALE MARKET FACILITIES

This chapter describes the major wholesale marketing areas, and facilities which are important in the marketing of foods, such as public refrigerated warehouses, railroads and freight yards, major highways, streets, and waterways. The types of facilities used, condition of buildings, and number of wholesale dealers are given.

In Detroit, there are four major wholesale market areas: The Eastern Market, the Western Market, the Union Produce Terminal, and the 12th Street Terminal. Other wholesale facilities are scattered throughout many sections of the city and surrounding areas (fig. 7). Farmers' markets are located in the Eastern Market and the Western Market.

All facilities known to be used by wholesale dealers and handlers of the seven food groups included in the study were visited during the survey. The volume handled, kind of business, amount of space used, and other pertinent information were obtained from each dealer.

There were 432 independent dealers and handlers, and 5 food-chain wholesale organizations in the city. Table 5 shows the number of wholesalers located in each market area. The dealers were classified according to the type of food that made up the greatest proportion of the products he handled. For example, a wholesaler may have handled more than one of the seven commodities, but if meat made up the greatest part of his annual business, he was considered as a meat dealer.

Eastern Market

The Eastern Market is the most important market in the city in terms of number of dealers. It is located in the edge of the downtown business district about 1 mile northeast of Cadillac Square and Woodward Avenue. The land value of the area based on assessed valuation is estimated at $3 per sq. ft. Approximately a third (162) of the independent wholesale food dealers in the city are located within it. They occupied 171 separate facilities; several dealers operate from more than one facility because they were unable to find suitable quarters in one building. The Eastern Market has been a center of the Detroit wholesale food business for many years. It contains about 60 acres, including a farmers' market, and is bounded by Rivard Street on the west, East Montcalm Street and Gratiot Avenue on the south, St. Aubin Avenue on the East, and Wilkins Street and Watson Place on the north (fig. 8).

Within the Eastern Market there is a general grouping of wholesalers by type of food commodity handled. In the northwest part of the area are located most of the 13 poultry dealers. The 38 wholesale fruit and vegetable dealers and the city-owned Eastern Farmers' Market are located mainly in the central and western part. Nine of the ten fish and seafood dealers are located in the southwest section. Most of the 76 meat dealers, processors, and slaughterers of livestock and 19 grocery dealers are located in the eastern half of the market. The 6 dairy products and egg dealers are scattered throughout the area.

Interspersed with these dealers were 3 cold-storage warehouses, 51 allied industries (such as cooperage and container firms, restaurants, banks, barber shops, filling stations), 42 nonmarket businesses, 30 neighborhoods of occupied and unoccupied residences, 27 parking lots, 14 vacant store buildings, and 4 vacant lots.

Most Eastern Market buildings that are occupied by independent wholesale food dealers are old and of outmoded frame or brick-veneer construction. A majority are more than one story in height. The buildings have little aisle space. The fire hazard is great and insurance rates are high. Upstairs floors generally are not used, except for storage of records and crates and boxes, or for the firms' offices. In many instances, the stores are only 18 to 20 ft. wide, but are 60 to 100 ft. deep. Almost no stores have front and rear platforms. Toilet facilities are lacking in a great many instances.

The streets average about 25 ft. wide and the sidewalks are 12 ft. wide. A 15-ft. alley separates most blocks of produce buildings and usually is too narrow for unloading large trucks. Practically all such vehicles unload or load by the front door, causing delay

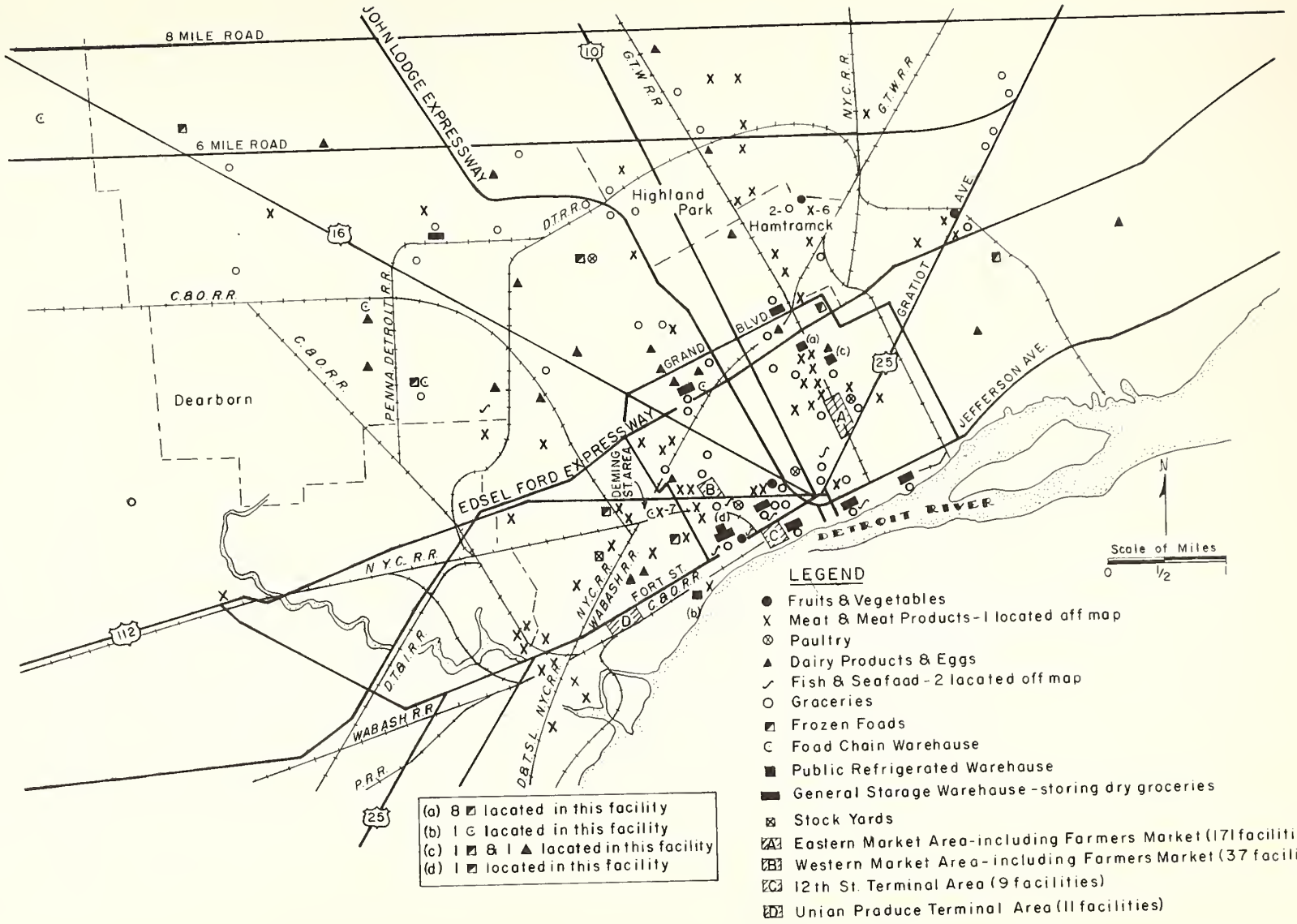


Figure 7.--Location of market areas and wholesale facilities, by commodity handled, and other facilities used in food handling.

TABLE 5.--Number of independent wholesale dealers, by type of commodity handled, and other types of wholesalers and market areas

Commodity group	Eastern Market	Western Market	Union Produce Terminal	12th Street Market	Other	Total
	Number	Number	Number	Number	Number	Number
Independent wholesalers:						
Fruits and vegetables.....	38	7	31	5	3	84
Meat and meat products.....	76	16	--	15	73	180
Poultry.....	13	3	--	--	4	20
Dairy products and eggs.....	6	5	--	--	24	35
Frozen foods.....	--	--	--	--	17	17
Fish and seafood.....	10	1	--	--	9	20
Groceries.....	19	7	--	4	46	76
Subtotal.....	162	39	31	24	176	432
Other wholesalers:						
Food-chain organizations[1].....	--	--	2	--	3	5
Total.....	162	39	33	24	179	437

[1] Types of commodities handled by chain organizations not shown.

and traffic congestion. Gratiot Avenue, the main thoroughfare along the southern edge of the market, is 120 ft. wide, and carries heavy through truck and auto traffic. Riopelle Street, a major north-south street at the edge of the Eastern Municipal Farmer's Market, is 80 ft. wide from Wilkins Street to Adelaide Street, but narrows to 39 ft. wide as it approaches East Vernor Highway.

During recent years, the city Department of Health inspection officials have recommended that the meat and poultry wholesale dealers and slaughterers rebuild or refurnish their facilities to meet the city health requirements. As a result, several facilities have been rebuilt or refurnished. These buildings are of concrete and steel; they have adequate refrigeration and are mostly fireproof. Some have pens on the second and third floors for holding animals to be slaughtered, but only one building provides adequate platforms and livestock unloading facilities. In many instances, however, the original design of the building was such that the objective of a modern, efficient operation could not be fully accomplished.

Public parking areas are provided at the north end of the farmers' market or along sidewalks, where available, but are not adequate to meet requirements during peak business hours.

The public refrigerated warehouse facilities are multistory brick and concrete structures. They do not have adequate platform space for efficient handling operations.

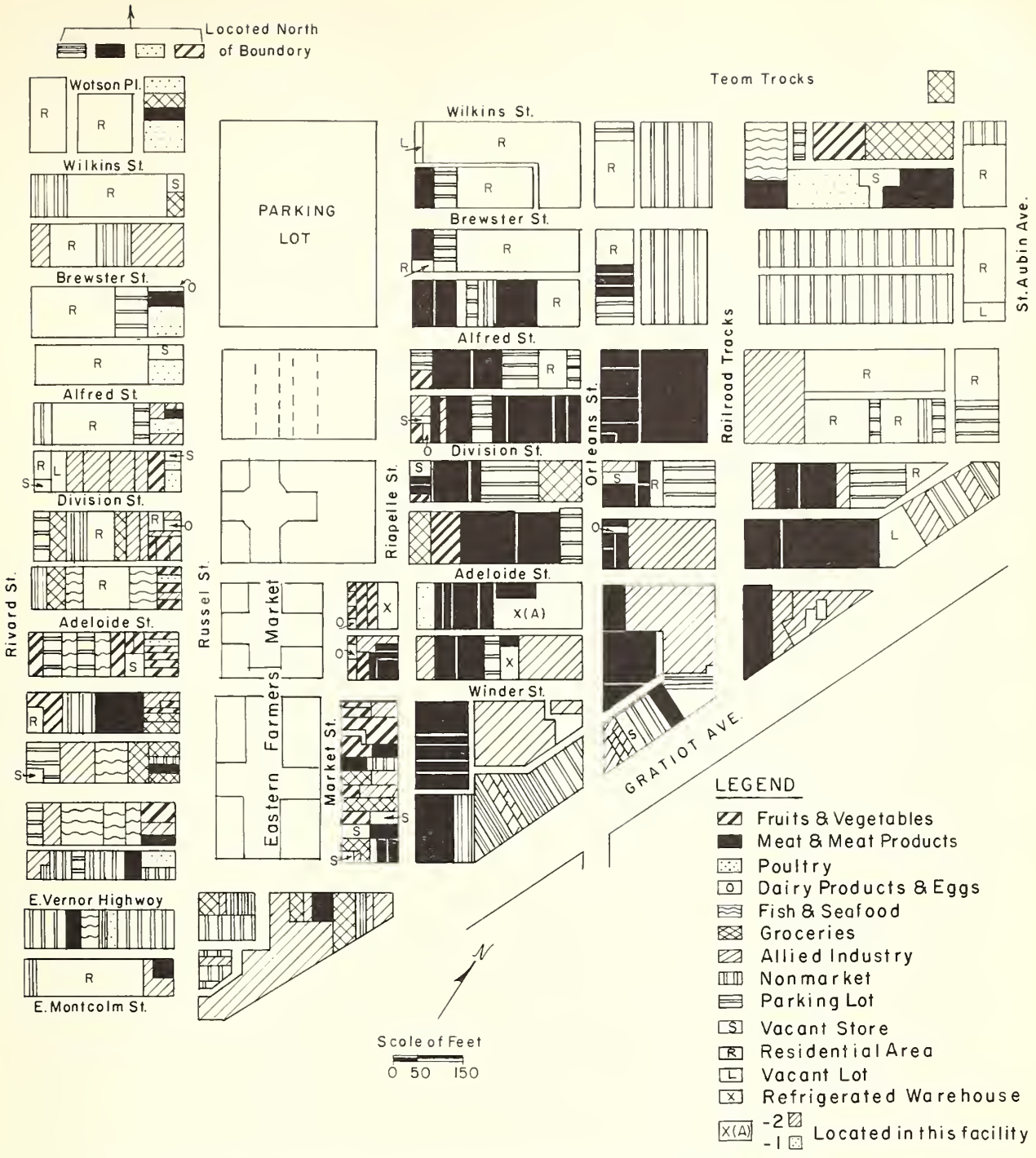


Figure 8.--Location and occupancy of wholesale food facilities, by type of commodity, in the Eastern Market.

Immediately adjacent to the market area, there is a large malt and grain elevator (with a capacity for storage of 300,000 bushels of grain and a capacity of 1,000 bushels of malt manufactured per day), four large brewers, and many food service or supply houses. The city of Detroit incinerator plant is between Orleans Street and Riopelle Street, immediately adjacent to the market area. The city auto pound, fire-department garage, and city Public Works Department storage yards are located next to the incinerator.

The Grand Trunk Western Railroad provides the only rail access to the Eastern Market but there are no spur tracks to the wholesale stores. A team-track yard is located at Wilkins Street, near St. Aubin Avenue and Orleans Street about five blocks from the center of the market. It has a capacity for unloading approximately 50 cars at one time. The main line of this railroad traverses the market between St. Aubin Avenue and Orleans Street in a partially depressed right of way and connects with eastern Canadian cities and Chicago.

Most of the residences located in the market area are 1 1/2-story, frame, detached houses. They are interspersed among the wholesale food facilities. Many have had little repair or renovation in recent years and have been classified by the City Plan Commission Residential Redevelopment Study as being of the first intensity of blight; over half of the dwellings are without private bath or running water. Approximately 100 dwellings have been demolished in the past 8 or 10 years, to provide parking space or expansion of market activities. Average assessed valuation for these residences is under $1,000 per dwelling unit.

The city-owned Eastern Municipal Farmers' Market is located in the center of the Eastern Market area and is bounded by East Vernor Highway, Russell, Wilkins, Market, and Riopelle Streets. The market consists of four buildings, three of which are shaped in the form of a cross and are connected with covered walkways across the public streets (fig. 9.)

Two of these market sheds were constructed in 1891 and 1898. In 1922, an additional shed of somewhat similar design was added to the original buildings. This is a high building, of concrete and steel, and is equpped with rolling steel doors, which can be closed during inclement weather. In these buildings there is an 18 ft. buyer's walk in the center, and a 6 ft. display and sales platform on each side of the walk, to which trucks are backed in, so that the farmers' vehicles will have a protected sales area within the building. The stalls are 7 1/2 and 8 ft. wide.

The fourth building is shaped in the form of the letter H. Constructed in 1938-39, this farmers' shed is built of steel and concrete with a wooden deck roof. The shed has 50 stalls, 8 ft. wide, with a 6 ft. display platform and a 16 ft. buyers' promenade.

The entire roofed area in the combined structures is approximately 1,500 ft. long, in addition to the six side wings. All floors and display platforms are of concrete. In addition there are 128 uncovered parking spaces with raised platforms and buyers' walkways. Also, in the spaces between wings of the buildings and on the adjacent lot, parking space is available for about 1,000 cars and trucks, with entrances from all cross streets. The total space in these buildings is 291,000 sq. ft.

There are four brick service buildings, which include the market offices and a comfort station. Also, there are four lunch stands, four platform scales, and a booth used by the extension staff of Michigan State University to assist vegetable growers in grading and packaging their products.

The market operates primarily as a wholesale market for the farmers, but is opened for retail sales after 9 a.m. on weekdays and on Saturday afternoon and evening. The Saturday afternoon and evening retail market enables jobbers and growers to sell miscellaneous lots of produce left at the week end. Retail sales amount to less than 20 percent of the total unloads at the farmers' market.

The services provided by the City Bureau of Markets include police protection, and a daily market report of types, quantities, and prices of commodities. Inspection and grading of produce is done by State officials. Major commodities handled at the Eastern Municipal Farmers' Market are fresh fruits and vegetables, plants and potted flowers, eggs, and some poultry. About 1,000 farmers hold annual stall permits, in addition to some 3,000 daily farm stall rentals.

Figure 9.--Eastern Municipal Farmers' Market. Reprinted with permission of the Detroit News.

Western Market

The Western Market, for the purposes of this study, is bounded by an alley immediately west of Humbolt Street on the west, Michigan Avenue on the south, the alley immediately east of 18th Street, Pine Street to 17th Street, on the east, and Butternut Street on the north.

Michigan Avenue is a major highway to the West and South. The market is adjacent to an old residential area, and is near a number of large food processing and other industries. The area covers approximately 19 acres (fig. 10). It is about $1\frac{1}{2}$ miles west of the main business and financial section of the city.

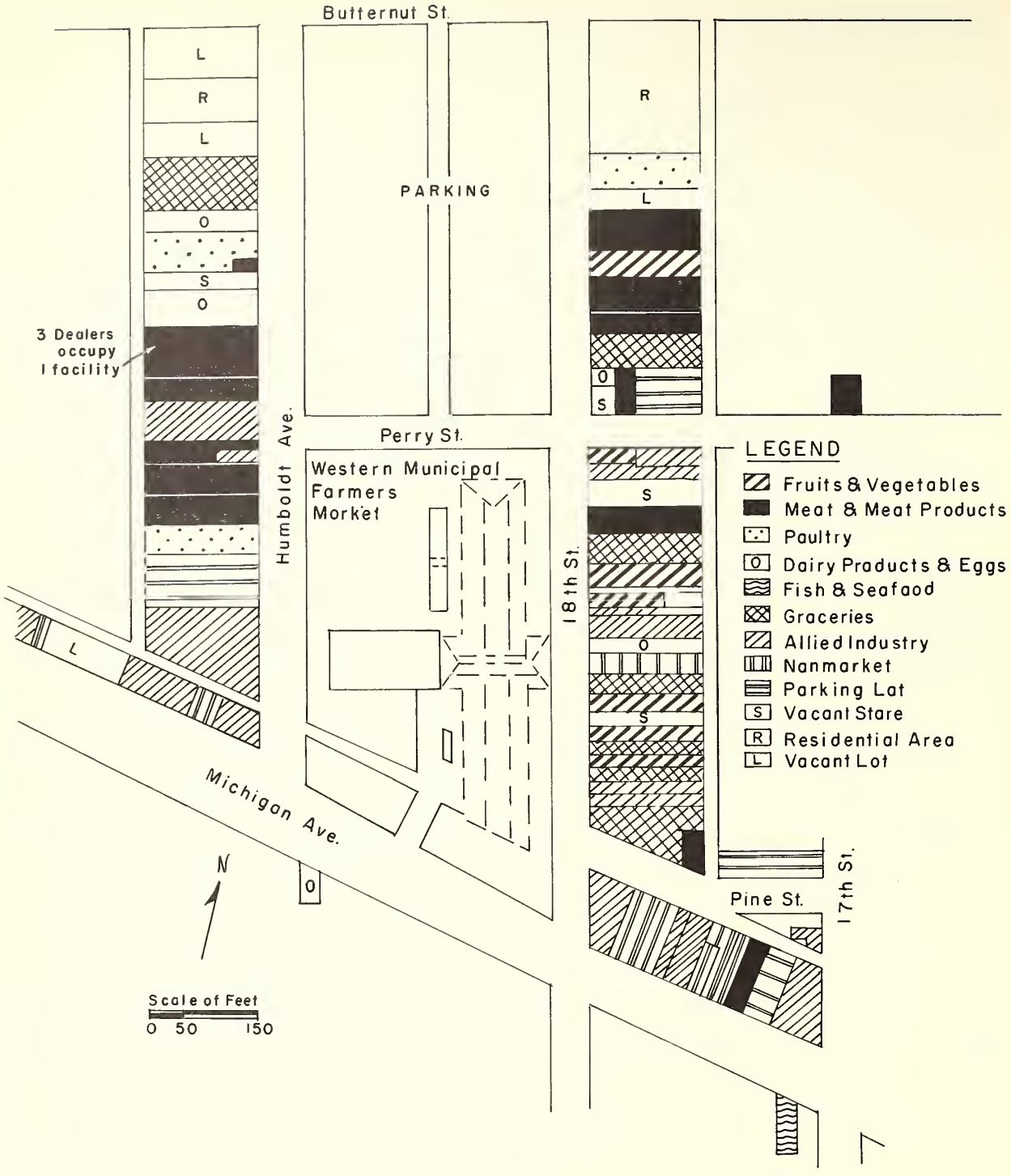


Figure 10.--Location and occupancy of wholesale food facilities, by type of commodity, in the Western Market.

In the area there were 39 independent food wholesalers, occupying 37 separate facilities. This included 7 fruit and vegetable dealers, 16 wholesale meat dealers, 3 poultry dealers, 5 dairy product and egg dealers, 7 grocery dealers, and 1 fish and seafood dealer located across Michigan Avenue near 17th Street. Interspersed among the wholesale food facilities were: 17 allied industries (such as restaurants, banks, barber

shops, cooperages, and the like), 8 facilities occupied by nonmarket activities, 5 parking lots, 4 vacant stores, 4 vacant lots, and 2 areas occupied by private residences.

Most buildings in which the food wholesalers were located are of steel and wood construction, with brick facing. The stores vary from 15 to 20 ft. in width, and from 60 to 100 ft. in depth. They are not of modern design, and have had little repair in recent years. Some buildings are more than one story in height. Most of the upper floor space is used inefficiently--for the storage of old records, or discarded boxes and crates--or is vacant. Practically all stores lack front or rear platforms and use the front sidewalk for loading and unloading the products. The alleys adjacent to the facilities are too narrow for such operations. The buildings have little aisle space and lack automatic sprinkling systems. As a result, the fire hazard is great. Toilet facilities are inadequate. Public parking space is provided for farmers' market customers only, except for a small parking lot provided by one wholesaler for his customers. Otherwise it is necessary to park motor vehicles on the streets.

Michigan Avenue is 120 ft. wide, and carries a heavy volume of interstate and city motortruck and auto traffic. Humboldt Street and 18th Street, the major north-south streets serving the market, are 60 ft. wide between building lines, not including two 8-ft. sidewalks. Perry and Butternut Streets are 50 ft. wide between building lines.

There is no direct rail access to the Western Market. Rail receipts usually are carted from the New York Central System team tracks, which are on 20th Street adjacent to Beecher Street and Michigan Avenue. The area is classified by the City Plan Commission Redevelopment Study as "third intensity of blight."

The Western Municipal Farmers' Market facilities were erected in 1891. This farmers' market covers 7.2 acres, and operates as a wholesale market for growers. It is bounded by Humboldt Avenue, Butternut Street, 18th Street, and Michigan Avenue. This market building extends about 510 ft. along 18th Street, with a center wing extending about 180 ft. to the Humboldt Street side of the lot, but extending only about 40 ft. from the main structure on the 18th Street side. In construction, the layout of the buildings is similar to the arrangement of buildings in the Eastern Farmers' Market, with buyers' walks in the center, and display spaces on each side, to which trucks are backed. The main structure and wing are marked off into stalls for farmer-sellers. The market buildings provide 164 covered sales stalls, 7 1/2 ft. wide and 30 ft. deep. Sales are made from the tailgate of the seller's truck. Also there is a 20-ft. buyers' walk in the center of each building between two lines of sales stalls. There are also 142 uncovered sales stalls. The two market sales buildings are of brick and steel construction. They contain 70,350 sq. ft. of space. There also is a service building that houses the market office, a truck scale, and a women's rest room. Other facilities include a men's comfort station, a lunch stand, and telephone booths. Approximately 1.6 acres of the area is unpaved; about 600 parking spaces for buyers' vehicles are provided on paved and unpaved areas.

Services made available by the City Bureau of Markets to buyers and sellers include police protection and daily market reports; inspection and grading is provided by the Michigan Department of Agriculture.

Union Produce Terminal

The Union Produce Terminal area includes the facilities of the Detroit Union Produce Terminal, plus several wholesale food and other facilities immediately adjacent. The area is on Fort Street about 4 miles west of the downtown Detroit center. Fort Street is 100 ft. wide and is a major thoroughfare from the downtown area to the south. The area is bounded on the north by Fort Street, the east by Post Street, the south by Bacon Street, and the west by West End Avenue (fig. 11).

Twenty-six wholesalers of fresh fruits and vegetables, including the Detroit Fruit Auction Co., occupy the two terminal facilities. Immediately adjacent to the terminal are seven wholesale fruit and vegetable facilities, occupied by five dealers, plus two warehouses of national food-chain organizations. Also there are four allied industry concerns, seven nonmarket concerns, and five areas containing occupied and unoccupied residences.

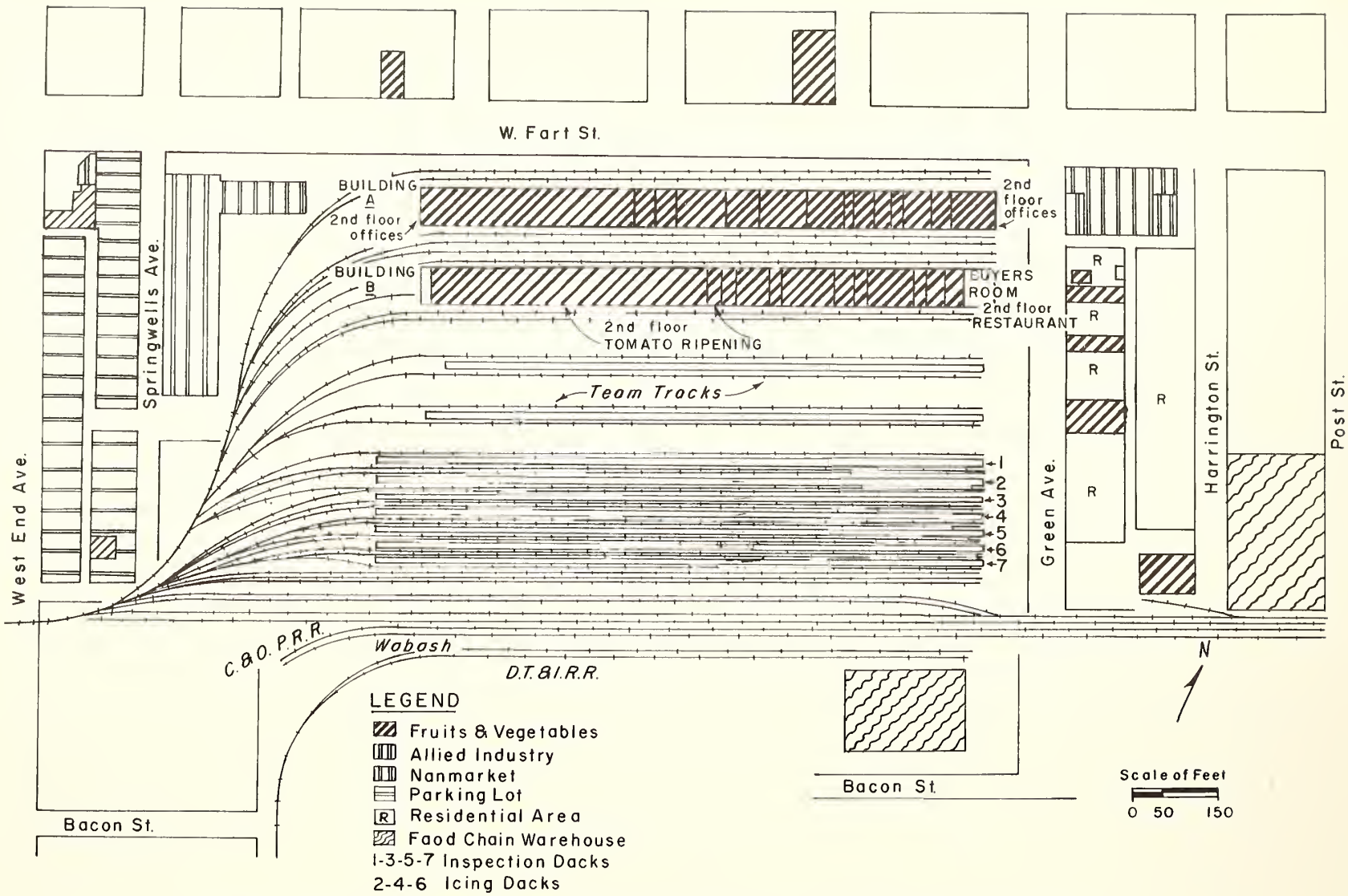


Figure 11.--Location and occupancy of wholesale food facilities, by type of commodity, in the Union Produce Terminal area.

The Detroit Union Produce Terminal was opened in the summer of 1929. It was built and is owned by the Wabash Railroad, Chesapeake and Ohio Railroad, and Pennsylvania Railroad, and is operated by the Green Realty Company, a wholly-owned subsidiary of the three railroads. Holding and transfer yards of the Wabash Railroad, the Pennsylvania Railroad, Chesapeake and Ohio Railroad, the Detroit, Toledo and Ironton Railroad, and the New York Central System are located in the vicinity of the terminal area.

The terminal contains 40 acres; about 30 acres are occupied by the terminal buildings and auxiliary facilities. The terminal and the adjacent team track yards are bounded on the north by Fort Street, on the east by Green Avenue, on the south by the jointly-owned and operated main lines of the three railroads which own the terminal property, and on the west by Springwells Avenue (which has been closed). Approximately 10 acres, which were not developed, lie directly to the south of the three railroad lines.

The terminal facilities consist of two sales and office buildings, 1,044 ft. long and 84 ft. wide including two 7-ft. loading platforms. In addition, there are two team-track areas, each 1,400 ft. long, containing seven inspection and icing platforms, each 1,104 ft. long, that vary in width from 4 ft., 8 in. to 8 ft. Team tracks and house tracks hold approximately 820 rail cars. The market streets are all paved. The two sales buildings known as the "A" and "B" buildings, are constructed of reinforced concrete with brick facing, and have double house tracks.

The first floor of building "A" consists of 58 bays, with 7-ft.-wide platforms at each side at rail-car-floor height. The Detroit Fruit Auction Company occupied 22 bays and the remainder are sales facilities of 12 fruit and vegetable dealers. The Detroit Fruit Auction Company has an auditorium for auction sales on the second floor of this building.

The second floor of building "A" is 47 ft. wide, except for 108 ft. on the east end, which is 70 ft. wide. Offices for the Green Realty Company, produce brokers, and dealers, railroads, wire services, U.S. Department of Agriculture inspection and market news services, and the like, occupy space on this floor.

The first floor of building "B" consists of 55 bays. Three bays on the east end are occupied by a buyers' room and by public toilet facilities, 34 bays by sales facilities of 11 fruit and vegetable dealers, 17 bays by the ripening and processing rooms of a banana distributor, and the repacking facilities of a tomato and vegetable packing establishment, and 1 bay by a machine room.

The second floor of building "B" is 666 ft. long and 47 ft. wide. It is occupied by a restaurant, by additional facilities of the tomato packing concern, and by offices of various allied market concerns.

Since the terminal was built, a third building (building "H") was erected, but it has been leased to a nonmarket concern for a warehouse. It is located at the extreme western end of the terminal at Fort Street and Springwells Avenue. It is of reinforced concrete and is 398 ft. long and 112 ft. wide. A partially paved parking lot, 400 ft. long and 200 ft. wide, along West End Avenue near building "H", is being used by a nearby manufacturing concern.

A concrete driveway, 60 ft. wide, for terminal vehicles, is provided along the north side of building "A", and along Green Avenue, from Fort Street to Bacon Street. Buildings "A" and "B" are separated by a 70-ft. driveway; building "B" and a team track area by a 100-ft. driveway; the two team track areas by a 65-ft. driveway; and each of the icing and inspection platforms by 15-ft. driveways. There is a 50-ft. driveway between the two team track areas and the seven icing and inspection platforms.

The seven independent wholesale fruit and vegetable facilities adjacent to the Detroit Union Produce Terminal are mostly old, multistory buildings of frame or brick-veneer construction, with no rail connections. The space above the first floors is inefficiently used or is waste space. Most have inadequate or no platform space.

The area to the south of the produce terminal (about 60 acres) is occupied by substandard residences and other buildings which have been classified by the Detroit City Plan Commission as first and second intensity of blight.

Twelfth Street Terminal

The 12th Street Terminal area consists of (1) the Central Produce Terminal, (2) a meat dock owned by the Chesapeake and Ohio Railroad and a meat dock owned by the New York Central Railroad, (3) two banana ripening and handling warehouses, and (4) four grocery facilities. Interspersed with these facilities are 11 allied industries and 2 non-market facilities, as well as numerous tracks of the New York Central Railroad and tracks of the elevated main line of the Union Passenger Terminal, jointly operated by the Wabash Railroad, the Chesapeake and Ohio Railroad, and the Pennsylvania Railroad.

The area is bounded on the south by the Detroit River, on the east by 10th Street, on the north by Fort Street, and on the west by 12th Street, except that the meat dock owned by the Chesapeake and Ohio Railroad and operated by the Motor City Cartage Company extends westward beyond 12th Street toward Vermont Avenue (fig. 12).

The Central Produce Terminal consists mainly of a two-story reinforced concrete building with brick facing. The Terminal building extends for 1,900 ft. along the New York Central Railroad tracks below West Jefferson Street and between 10th and 12th Streets. The building is 175 ft. wide, including a 12-1/2-ft. rail-car-floor-height platform at the front and rear of the building.

The Terminal building was opened in 1931 by the Michigan Central Railroad (now in the New York Central System). About 50 percent of the facility's capacity was used by produce firms for several years, but at the time the study was made, only about one fourth of the facility's space was utilized by food handlers. There are a number of food brokers and manufacturers' representatives located in the second-floor offices of the Terminal building.

There are two meat docks in the 12th Street team track area. The buildings are owned by the New York Central Railroad and the Chesapeake and Ohio Railroad. The New York Central Railroad meat dock is a one-story, reinforced-concrete building, approximately 750 ft. long and 30 ft. wide, with an enclosed 20-ft. truckbed-height platform on the north side. It lies south of West Jefferson Street, between 12th Street and 10th Street. It is occupied by four cartage companies, two of which deal exclusively in meat and meat products.

The Chesapeake and Ohio Railroad meat dock includes a terminal and an office building. The office building is 90 ft. by 50 ft., and is located along the west side of 12th Street. The meat dock, 680 ft. in length and 30 ft. deep, lies immediately to the west of the terminal and office building.

Two banana-ripening facilities and warehouses are located between West Jefferson Avenue and West Fort Street, along the main line of the New York Central Railroad, between 10th and 12th Streets. They are constructed of concrete blocks and wood. The larger building is 500 ft. long and 90 ft. wide, plus two 12-ft. platforms at rail-car-floor height on two sides of the building. The first floor contains several ripening rooms, a packaging room, a shipping room, and a sales room. The second floor contains the firm's offices. The other banana house is about 185 by 175 feet, plus a 38-by-50-ft. heating facility at one end of the property. The second floor is occupied by the firm's offices. There is a 12-ft. continuous platform on two sides of the building. The first floor contains banana-ripening, packing, and sales facilties.

The New York Central Railroad team yards contain team tracks varying from 1,000 ft. to 1,900 ft. long. They are located in the 10th to 12th Street area, from the Detroit River north to West Jefferson Street. The five main-line tracks and numerous spurs of

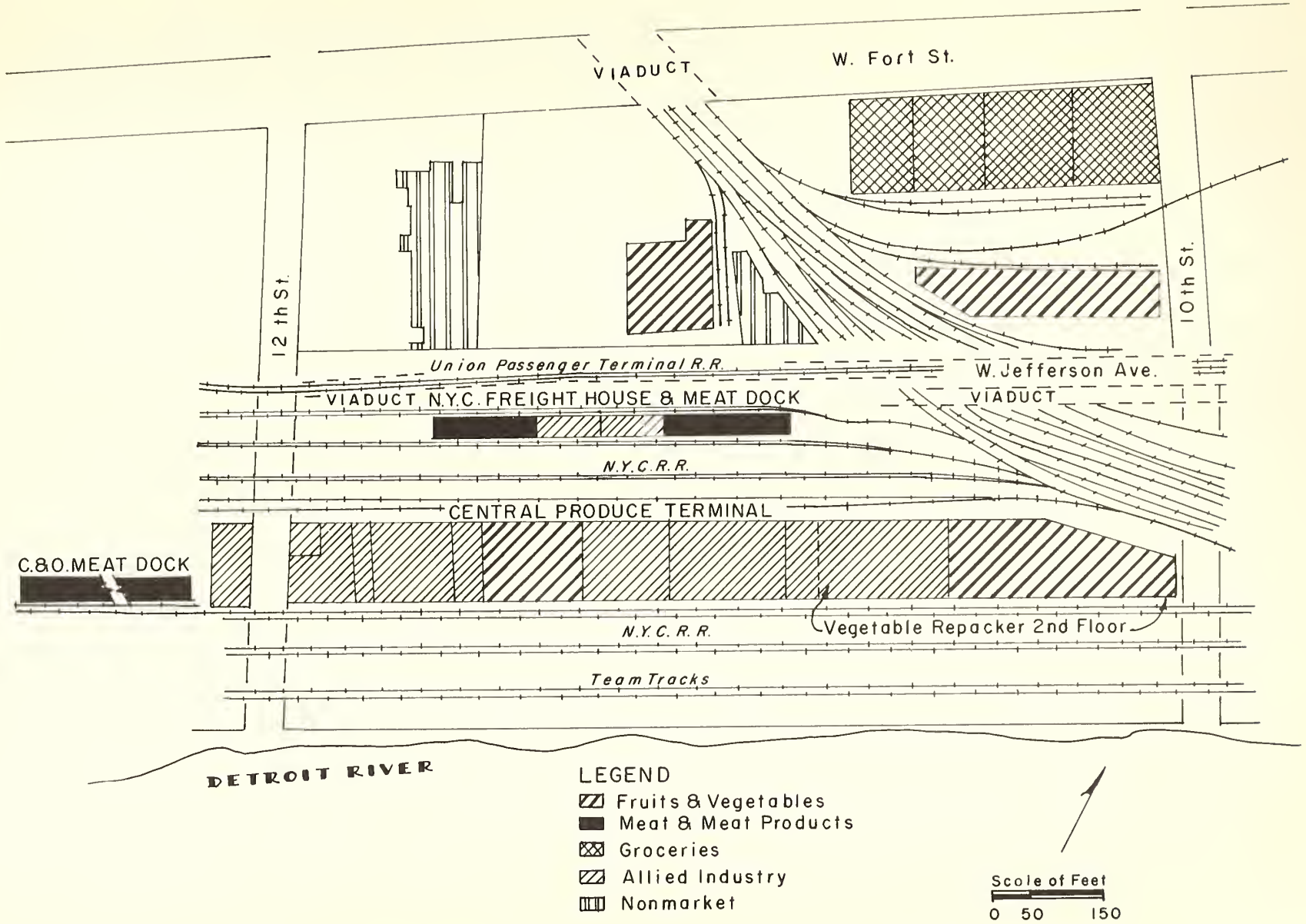


Figure 12.--Location and occupancy of wholesale food facilities, by type of commodity, in 12th Street Terminal area.

the New York Central Railroad lie at a diagonal north of Fort Street to 10th Street, in a northwest to southeasterly direction. Team track yards of the Wabash Railroad, Pennsylvania Railroad, Chesapeake and Ohio Railroad, and Union Passenger Terminal Railroad are located immediately east of the 12th Street Terminal area.

Other Wholesale Food Facilities

In the year of the study, 179 of the 437 food wholesalers in the city were located in facilities outside the four market areas previously described. The independent wholesalers outside the four market areas handled 39.1 percent (1,855.7 million pounds) of the direct receipts of the seven food items included in the study.

Forty percent (73) of the meat dealers, 69 percent (24) of dairy product and egg dealers, 60 percent (46) of the grocery wholesalers, and 100 percent (17) of the frozen food dealers were in facilities outside the four market areas. The majority of the fruit and vegetable, poultry, and fish and seafood dealers were within the four market areas (table 5).

In certain instances, the wholesalers outside the four market areas are located in well-defined areas in other parts of the city. One such district is the Detroit stockyard area at Dix Street and Livernois Avenue. The southeastern corner of the area is at Dix and West Vernor Street, about 5 miles west of City Hall. It is served by the Michigan Central Railroad and is near the main Detroit repair facilities and classification yards of the railroad. The facilities at the stockyard are the holding pens, sales facilities, and loading facilities. An administration building, on the Dix Street side of the property, provides office space for brokers, sales representatives, wire services, Federal and State government inspection and market news services, and a restaurant and hotel. The stockyard area contains about 22.4 acres. About 13,000 carlots of livestock (626,000 head) were received at the Detroit stockyards during the year studied.

In the vicinity of the stockyards, there are four livestock packing and slaughtering facilities where cattle, hogs, and sheep are slaughtered. However, most of the heavier beef animals are trucked from the stockyards, chiefly to Eastern Market area slaughterers.

Buildings in the stockyard area are mostly obsolete, multistory, of brick and wood construction, surrounded by old, unsanitary livestock pens. The streets are narrow (except for Livernois Street) and large areas are unpaved. Toilet facilities are inadequate, in most instances. Some repairing of obsolete buildings has been accomplished, but in general the buildings were badly arranged for efficient operation.

Seven livestock slaughterers were located about 1 mile west of the Western Market area at Deming Street, Scotten Avenue, Hubbard Avenue, and on the main line of the Michigan Central Railroad. These buildings were mostly old, outmoded, brick and wood buildings, three of which had two or three floors. Most have unsanitary livestock pens and slaughtering facilities on the first floor, with cooling and holding cold-storage facilities on other floors. Only three had unloading platforms.

There are several minor clusters of processors and food commodity wholesalers in other parts of the city--for example, in the Caniff-Edwin Street area of Hamtramck. On the whole, however, most of the other food facilities are scattered singly over the city. For the most part, these dealers had obsolete, multistory facilities, similar to those in the four market areas. A few had renovated or rebuilt their facilities in recent years, and improved their operating efficiencies. In many instances, however, the original design of the building was such that this objective could not be fully accomplished. A few wholesalers have built modern facilities that permit a relatively high degree of operating efficiency. However, in only a few instances were sufficient parking space, loading platforms, and the like, provided for the customers' and the firms' trucks.

Public Refrigerated Warehouses

Over 10.3 million cu. ft. of cooler and freezer space was available in eight public refrigerated warehouses--only two of these warehouses had less than 500,000 cu. ft. of refrigerated space. Approximately 57.6 percent (5.9 million cu. ft.) was classified as freezer space with temperatures ranging from -25° to 0° F. Freezer blast facilities of 40° below zero were also available for quick freezing.

The warehouse buildings are multistory, of reinforced concrete and steel construction, and are mostly from 25 to 50 years old. Three warehouses are in the Eastern Market area, another within a mile of the Eastern Market area, and the others at various locations, mostly on the western side of the city. All but one warehouse has direct rail connections, and all have receiving and shipping platforms.

Ten wholesale handlers of frozen food, and one dairy product and egg dealer operated from one or more of the public refrigerated warehouses.

Food-Chain Warehouses

Five food-chain organizations operated from seven warehouses in Detroit. These food-chain warehouses received directly from producing areas 24.9 percent (1,179.2 million pounds) of the receipts in the year studied, the proportions varying from no fish and seafood to 33.1 percent of the grocery receipts. Table 6 shows the percentages of each of the seven commodities that were received directly by food-chain warehouses. These figures do not include purchases from local wholesalers.

Large chain warehouses are located in the northwestern section of the city and in the nearby suburban area of Livonia. Smaller warehouses are near the center of the city. The larger, newer warehouses have well-designed, one-story facilities with rail-car spurs, and truck unloading and loading bays. They have a great deal of modern handling equipment, such as forklift trucks and conveyors, to facilitate unloading and loading operations. They have ample office, refrigeration, storage, and parking space available (fig. 13).

TABLE 6.--Receipts of seven food commodity groups by food-chain warehouses[1]

Commodity group	Amount chains received	Total received in city	Chain's percentage of total
	Million pounds	Million pounds	Percent
Fresh fruits and vegetables...	367.1	1,425.8	25.7
Meat and meat products.....	26.2	562.4	4.7
Poultry.....	9.8	139.2	7.0
Dairy products and eggs.....	54.7	228.6	23.9
Frozen foods.....	3.6	149.0	2.4
Fish and seafood.....	0.0	66.1	0.0
Groceries.....	717.8	2,170.9	33.1
Total.....	1,179.2	4,742.0	24.9

[1] Excluding volume purchased from local wholesalers.

Figure 13.--View of modern food-chain warehouse. Reprinted with permission of the Detroit Free Press.

The older, smaller warehouses are multistory buildings, not arranged for efficient handling of bulky food products. One warehouse had nine floors. The older warehouses could not use the modern handling equipment efficiently, and resorted to inefficient, old-style elevators to move food items from one floor to another.

Traffic

The traffic situation, in and around the various wholesale market areas, has been of concern for many years to city officials, dealers, and other persons interested in the wholesale distribution of food. Several thousand motor vehicles of all types are engaged each day in moving food items from a market area or other facility to a retailer, or between various facilities within the four market areas. Frequent traffic tieups occur.

During the study, traffic counts were carried on at each of the four market areas, where there was the greatest concentration of traffic. A periodic count of parked motor vehicles, and of motor vehicles entering and leaving each of the four market areas, was made for 6 days during the last week of March and the last week of July. Counts of parked vehicles were made at 6 a.m., noon, 6 p.m., and midnight each day, and moving vehicles were counted every 2 hours during the periods. The physical count was supplemented by the use of city-owned traffic counters. They were placed at strategic locations, where most of the vehicles crossed when entering and leaving the market areas.

Except for Saturday, during the March period, the greatest concentration of moving and parked motor vehicles in the Eastern Market was between 6 a.m. and noon, when as many as 1,000 were counted. In the July period, however, the peak was at 6 a.m.--about 1,100 vehicles--with a sharp drop in the number before noon. A larger number of vehicles was in the area during July, because many more locally produced products were for sale in that month. Nearly twice as many incoming truck loads were in the market in July as in March. On Saturday, there were more vehicles in the market than during the other days of the week in both months. The retail Saturday market at the Eastern Municipal Farmers' Market is well known in parts of Detroit, and many consumers come to the market to buy.

As many as 3,300 vehicles were parked on a Saturday in August; about half of these vehicles were automobiles of buyers.

There were more traffic tieups in the Eastern market than in the other markets. Congestions occurred largely near the wholesale dealers' facilities, where narrow streets and lack of parking space contributed to slowing early-morning traffic.

The peak in the number of vehicles on the Western Market was at noon each day, with a sharp drop during the early afternoon. More than 400 vehicles were in the Western Market area at noon on Wednesday July 30, a greater number than on other days during that week. However, Saturday noon, in March, had 400 parked vehicles, the most during that week. There is ample parking area, and with only 37 wholesale facilities in the market, no serious traffic problems were found.

Market practices of the Detroit Union Produce Terminal were different from the market practices of the Eastern and Western Markets. The peak number of vehicles counted at the Detroit Union Produce Terminal was between 10 a.m. and 11 a.m. each day. During the March period, the number of vehicles ranged from 175 to 225 between 10 a.m. and 11 a.m. and during July the number varied between 350 and 400. Since the Detroit Union Produce Terminal is a railroad terminal market, trucks bringing products from shipping points were few, and did not contribute to traffic congestion. It should be pointed out again that only 15 percent of the receipts of the Detroit Union Produce Terminal was by truck. No receipts by out-of-State motortruck were permitted at the time of the survey. All of the area was enclosed within a fence and all vehicles at the market were assumed to have been on market business. With ample parking areas and limited truck traffic, no major traffic tieups occurred.

The count of vehicles on the 12th Street Terminal area did not show any definite pattern by time of day, other than a decrease in the number between 6 p.m. and 6 a.m. Peaks varied from 150 to 200, with little difference in the total number of vehicles at the market between the counts during the week of March 24 - 29 or during July 28 - August 2. No serious traffic problems were found in this market.

Summing up, it is in the Eastern Market area that traffic congestion is a severe problem. The streets in the wholesale area are narrow, and there is a lack of adequate parking areas and loading dock space for market vehicles at the wholesale stores. This situation contributes to the avoidable delay in getting to and from the market facilities.

FACILITY OWNERSHIP

About two-thirds (282) of the 437 wholesale food dealers and handlers reported that they rented the facilities they occupied (table 7). Those renting handled about a third (36.5 percent or 1.73 billion pounds) of the receipts included in the study, and those owning their facilities received 3.01 billion pounds or 63.5 percent of the total unloads. As shown by table 7, the proportion of those owning facilities and those that rented facilities varied considerably by commodity group; the majority of fruit and vegetable dealers and frozen food dealers rented, while the majority of the dealers in the other five commodity groups owned their stores. Most of the frozen food dealers who rented their facilities operated from public refrigerated warehouses. All of the five food-chain organizations owned their facilities.

SPACE USED

The study shows that 5,916,000 sq. ft. (136 acres) of floor space was occupied by all of the wholesale dealers handling the seven food groups in the city. Included in this total

TABLE 7.--Number of wholesalers who own or rent their facilities, by type of business and commodity group, and volume and percent of volume received

Type of dealer and commodity group	Wholesalers owning their facilities			Wholesalers renting their facilities			Total		
	Wholesalers	Volume		Wholesalers	Volume		Wholesalers	Volume	
	Number	Mil. lb.	Percent	Number	Mil. lb.	Percent	Number	Mil. lb.	Percent
Independent dealers:									
Fresh fruits and vegetables	13	103.5	9.8	71	955.2	90.2	84	1,058.7	100.0
Meat and meat products.....	63	314.2	58.6	115	222.0	41.4	180	536.2	100.0
Poultry.....	7	101.1	78.1	13	28.3	21.9	20	129.4	100.0
Dairy products and eggs....	15	115.8	66.6	20	58.1	33.4	35	173.9	100.0
Frozen foods.....	2	0.9	0.6	15	144.5	99.4	17	145.4	100.0
Fish and seafood.....	11	42.3	64.0	9	23.8	36.0	20	66.1	100.0
Groceries.....	37	1,155.2	79.5	39	297.9	20.5	76	1,453.1	100.00
Subtotal	150	1,833.0	51.4	282	1,729.8	48.6	432	3,562.8	100.00
Food-chain organizations[1]....	5	1,179.2	100.0	---	---	---	5	1,179.2	100.00
Total.....	155	3,012.2	63.5	282	1,729.8	36.5	437	4,742.0	100.0

[1] Volume received by food-chain organizations: Fresh fruits and vegetables, 367.1 million pounds; meat and meat products, 26.2; poultry, 9.8; dairy products and eggs, 54.7; frozen foods, 3.6; seafood, 0; and groceries, 717.8. These figures do not include local purchases.

were 807,000 sq. ft. (18.5 acres) used by the five food-chain organizations. The 136 acres were only a part of the total space available, since the figure excludes much of the space above the first floor in many of the multistory buildings which was not used except for storage or office space.

Approximately 23,000 sq. ft. was used for office space and 936,000 sq. ft. was refrigerated space. Table 8 shows that over 70 percent (4,183,000 sq. ft.) of the space used was first-floor space.

MOVEMENT OF THE COMMODITIES THROUGH THE WHOLESALE FOOD FACILITIES

The movement of the annual 4.74 billion pounds of food commodities through the wholesale marketing channels in the city is described in this chapter. This movement is complicated and involves handling commodities from many scattered unloading or receiving points, through the several market areas, to the retailers' or processors' facilities, or to the trucks of out-of-town buyers. Tracing this movement, or flow pattern, is further complicated by the sales and transfers of commodities from one wholesale dealer to another within and between market areas, including transfers from independent receivers to food-chain warehouses.

In order to determine the most convenient and economical location for a new market, as well as to be able to calculate the costs of handling, it is necessary to know the volume, the receiving point, and the destination of each commodity that moves through the wholesale markets. Especially is such information needed when studying the wholesale food industry of a city as large as Detroit.

A detailed explanation of the determination of the flow of each commodity through the various wholesale market areas to retail and other destinations is in the appendix.

To determine cartage and distribution costs, Detroit is divided into three geographical retail distribution areas: (1) "Northeastern Detroit," the area east of Grand River Avenue, and north and east of Grand Boulevard, to the borders of Detroit; (2) "Southwestern Detroit," the area west and south of Grand River Avenue and Grand Boulevard to the boundaries of Detroit; and (3) "Central Detroit," the area within the boundaries of Grand Boulevard to the Detroit River (fig. 14). The Eastern market, the Western market, and the 12th Street Terminal are in "Central Detroit," and the Detroit Union Produce Terminal is in "Southwest Detroit".

Of the total population "Northeastern Detroit" has about 50 percent, "Southwestern Detroit" has 40 percent, and "Central Detroit," the downtown business and hotel area of the city, about 10 percent. In land area, "Southwestern Detroit" is much larger than the other two areas combined.

Distribution points outside Detroit were classified as: (1) The five surrounding counties (Macomb, Oakland, Washtenaw, Livingston, and Monroe), (2) all other areas in Michigan, (3) Toledo, Ohio, and contiguous areas, (4) Windsor, and other areas in Ontario, and (5) all other areas.

As mentioned in an earlier chapter, 69 percent of the independent dairy-product and egg wholesalers, and 60 percent of the independent grocery dealers were located outside the four market areas and were classified under "other". Seventy-one percent (163.1 million pounds) of all dairy products and egg receipts, and 63 percent (1,376.7 million pounds) of all grocery receipts, were handled by these wholesalers. In order to determine the flow pattern, and the cartage and distribution costs for the commodities handled, these wholesalers were subclassified as being located in the three retail distribution areas: "Central, "Northeast," and "Southwest." For the other commodity groups, however, the dealers operating outside the four market areas were so widely scattered throughout the city, and their receipts were so small a part of the total receipts in Detroit, that they are grouped as "other facilities."

TABLE 8.--Floor space used by independent wholesalers and food-chain organizations, by commodity group

Commodity group	Wholesalers	Floor space used				Total	
		First floor		Other		All wholesalers	Average
		All wholesalers	Average	All wholesalers	Average		
	Number	Sq. ft.	Sq. ft.	Sq. ft.	Sq. ft.	Sq. ft.	Sq. ft.
Independent wholesalers:							
Fruits and vegetables.....	84	387,750	4,616	136,430	1,624	524,180	6,240
Meat and meat products.....	180	1,100,900	6,116	653,310	3,630	1,754,210	9,746
Poultry.....	20	93,960	4,698	20,010	1,001	113,970	5,699
Dairy products and eggs.....	35	193,020	5,515	22,170	633	215,190	6,148
Frozen foods....	17	107,990	6,352	0	0	107,990	6,352
Fish and seafood	20	95,710	4,785	12,370	619	108,080	5,404
Groceries.....	76	1,900,780	25,010	384,690	5,062	2,285,470	30,072
Total.....	432	3,880,110	8,982	1,228,980	2,845	5,109,090	11,827
Food-chain organizations[1].....	5	303,300	60,660	503,400	100,680	806,700	161,340
Grand total.	437	4,183,410	9,573	1,732,380	3,964	5,915,790	13,537

[1] Types of commodities handled by food-chain organizations not shown.

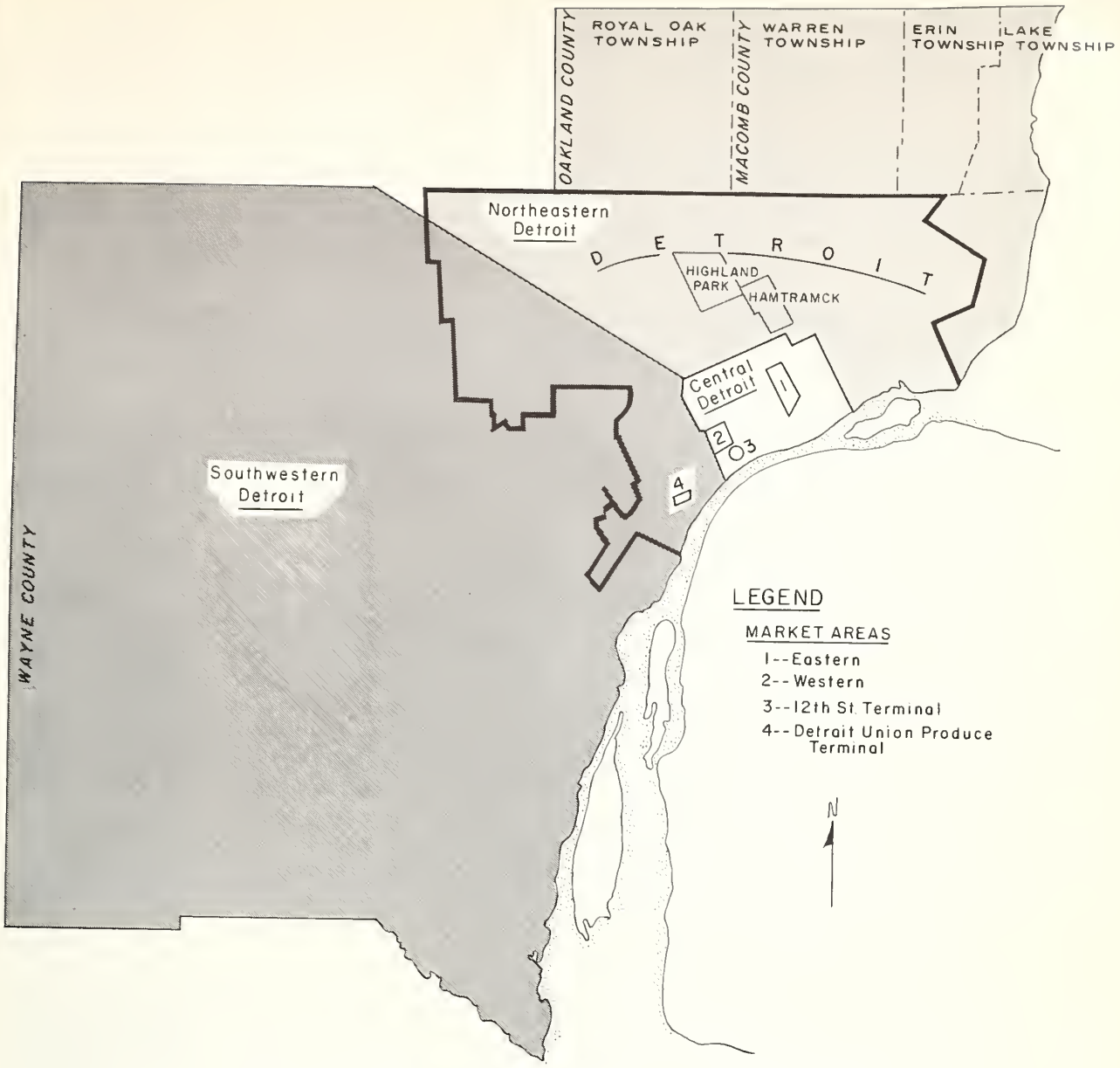


Figure 14.--Retail distribution areas of Detroit, and major wholesale markets.

In the course of moving the 4.74 billion pounds of food products from the initial point of receipt through the many facilities to their final destination, 20 percent (946.1 million pounds) were rehandled--moved through more than one wholesale facility, or handled by more than one wholesale dealer. It is estimated that 772.7 million pounds of these products were transferred from one market to another within the city--in intermarket movement--and 173.4 million pounds were moved between wholesale facilities within marketing areas--in intramarket movement.

Total receipts by independent dealers in the various market areas, the volume of receipts at the chain warehouses, intermarket and intramarket transfers, the amounts distributed to retail areas in Detroit, and the amounts moved out of the city, are shown in table 9.

TABLE 9.--Receipts, transfers, and distribution of seven food commodities by independent dealers in market areas and by food-chain organizations

Receipts, transfers, and distribution	Volume of foods received by--									
	Food-chain warehouses	Produce terminal	12th street terminal	Eastern market	Western market	Dairy products, eggs and grocery facilities[1]			Other facilities	Total
						Central	Northeast	Southwest		
	Mil. lbs.	Mil. lbs.	Mil. lbs.	Mil. lbs.	Mil. lbs.	Mil. lbs.	Mil. lbs.	Mil. lbs.	Mil. lbs.	Mil. lbs.
Receipts										
Direct.....	1,179.2	611.9	200.2	706.9	188.1	770.9	244.1	524.8	315.9	4,742.0
Intermarket...	346.8	0.0	0.0	165.3	46.9	4.3	44.5	45.5	119.4	772.7
Total.....	1,526.0	611.9	200.2	872.2	235.0	775.2	288.6	570.3	435.3	5,514.7
Intramarket transfers.....	0.9	42.6	0.0	55.3	17.9	20.1	7.2	0.0	29.4	173.4
Intermarket transfers to:										
Food-chain warehouse...	0.0	133.9	32.5	72.1	1.6	76.6	2.3	3.0	24.8	346.8
Eastern market	0.0	86.5	29.0	0.0	12.9	28.4	0.0	0.0	8.5	165.3
Western market	0.0	15.8	7.5	3.6	0.0	13.8	4.8	1.0	0.4	46.9
Dairy products, eggs and grocery facilities[1]:										
Central...	0.0	0.0	0.0	0.0	0.0	0.0	1.7	2.6	0.0	4.3
Northeast	0.0	0.0	0.0	0.0	0.0	44.5	0.0	0.0	0.0	44.5
Southwest	0.0	0.0	0.0	0.5	0.0	45.0	0.0	0.0	0.0	45.5
Other facilities[2].....	0.0	37.6	8.1	59.4	14.3	0.0	0.0	0.0	0.0	119.4
Total.....	0.0	273.8	77.1	135.6	28.8	208.3	8.8	6.6	33.7	772.7
Distribution										
Retail within Detroit.....	1,102.3	208.6	85.0	516.9	188.3	379.4	264.4	390.9	355.9	3,491.7
Outside Detroit	423.7	129.5	38.1	219.7	17.9	187.5	15.4	172.8	45.7	1,250.3

[1] Includes facilities of independent wholesalers of dairy products and eggs, and groceries, located outside the four principal marketing areas. [2] Includes facilities of independent wholesalers of fruits and vegetables, meat and meat products, poultry, frozen foods, and fish and seafood, located outside the four principal marketing areas.

Figure 15 shows, in graphic form, for the food-chain warehouses and each of the wholesale market areas, the amounts of: (1) Direct receipts, (2) movement through each market, and food-chain warehouses (3) intermarket transfers, (4) moved to retail areas in Detroit, and (5) distributed to points outside the city.

The amount of food products that moved through the food-chain warehouses or a market area is the total of the direct receipts and the intermarket receipts. This is shown in figure 15 as a circled item under each market area and the food-chain warehouses. The amount of final distribution within and outside Detroit for a market area is the amount moved through such market area less the amount of intermarket transfers to other wholesalers.

Of the 4.74 billion pounds of food commodities received in Detroit, 3.49 billion pounds (74 percent) were distributed to the three retail areas within the city. The rest (1.25 billion pounds) was loaded onto trucks that moved the products out of the city.

The chain warehouses ranked first in direct receipts of all food commodities, with 1,179.2 million pounds (24.9 percent) of the total unloads. Independent wholesale firms in the "Central" area were the second largest with 770.9 million pounds (16.3 percent), and the Eastern Market dealers ranked third with 706.9 million pounds (14.9 percent) of the total.

The chain warehouses also received the largest amount of the intermarket transfers. Of their total receipts (1,526 million pounds), 346.8 million pounds (22.7 percent) were intermarket receipts purchased from the independent wholesale dealers. Of this total quantity, 1,102.3 million pounds (72.2 percent) were distributed to the three retail areas within the city and 423.7 million pounds (27.8 percent) were moved to points outside Detroit. Of the total 3,491.7 million pounds distributed to the retail areas in Detroit, 1,102.3 million pounds (31.6 percent) were handled through the food-chain warehouses. They also handled 423.7 million pounds (33.9 percent) of the 1,250.3 million pounds that were moved to points outside the city, or a total of 32.2 percent of all food commodities that reached retail outlets within and outside Detroit.

In addition to the 1,102.3 million pounds of food products that were distributed by the food-chain warehouses to their retail stores within the city, certain amounts moved from the wholesale facilities of independent dealers direct to the retail stores of food chains. This was especially true in the case of eggs, frozen foods, and fish and seafoods.

Fruits and Vegetables

Of the 1,425.8 million pounds of fruits and vegetables received by the independent wholesale dealers and food-chain warehouses, about 74 percent (1,055 million pounds) was moved to retail consuming points within the city. About one-fourth (370.8 million pounds) was shipped to points outside Detroit (fig. 16). Of these receipts, 430.1 million pounds (30.2 percent) were handled through two wholesalers; 356.4 million pounds were intermarket transfers, and 73.7 million pounds were intramarket transfers (table 10).

Food-chain warehouses handled 567.3 million pounds of fruits and vegetables (367.1 million pounds of direct receipts and 200.2 million pounds that were purchased from independent wholesale dealers in the city). Of this total, 409.1 million pounds (72.1 percent) were moved to retail stores in the city, and 158.2 million pounds (27.9 percent) moved to areas outside Detroit.

Of the total volume of fruits and vegetables distributed to retail areas in Detroit, 38.8 percent (409.1 million pounds) were handled through the chain warehouses. They also distributed 158.2 million pounds (42.7 percent) of the 370.8 million pounds that were moved to points outside the city. Thus, of the total volume of fruits and vegetables (1,425.8 million pounds) that moved from Detroit wholesale facilities to retail outlets, inside and

MOVEMENT OF SEVEN FOOD COMMODITIES THROUGH DETROIT WHOLESALE MARKETS

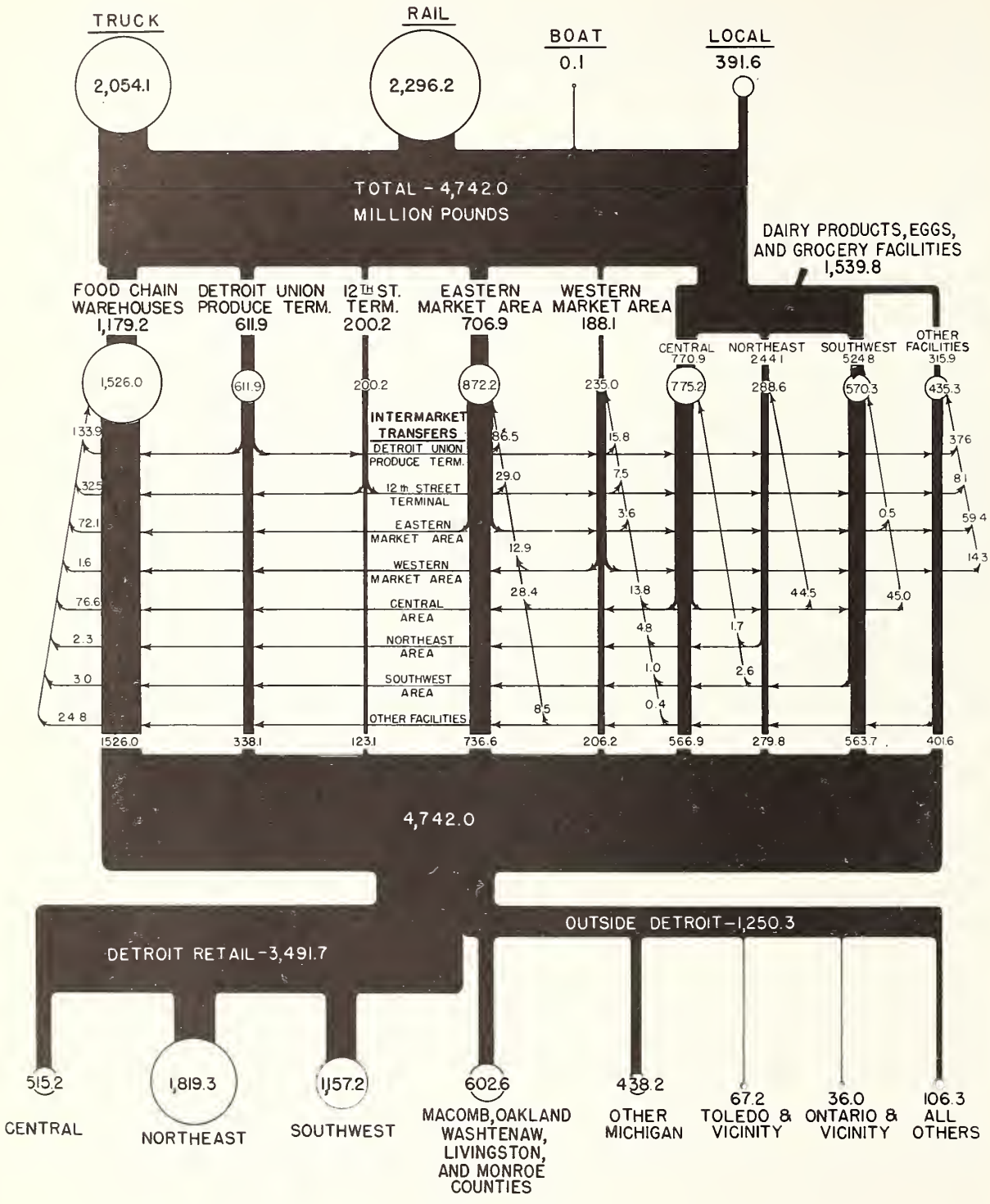


Figure 15

MOVEMENT OF FRUITS AND VEGETABLES THROUGH DETROIT WHOLESALE MARKETS

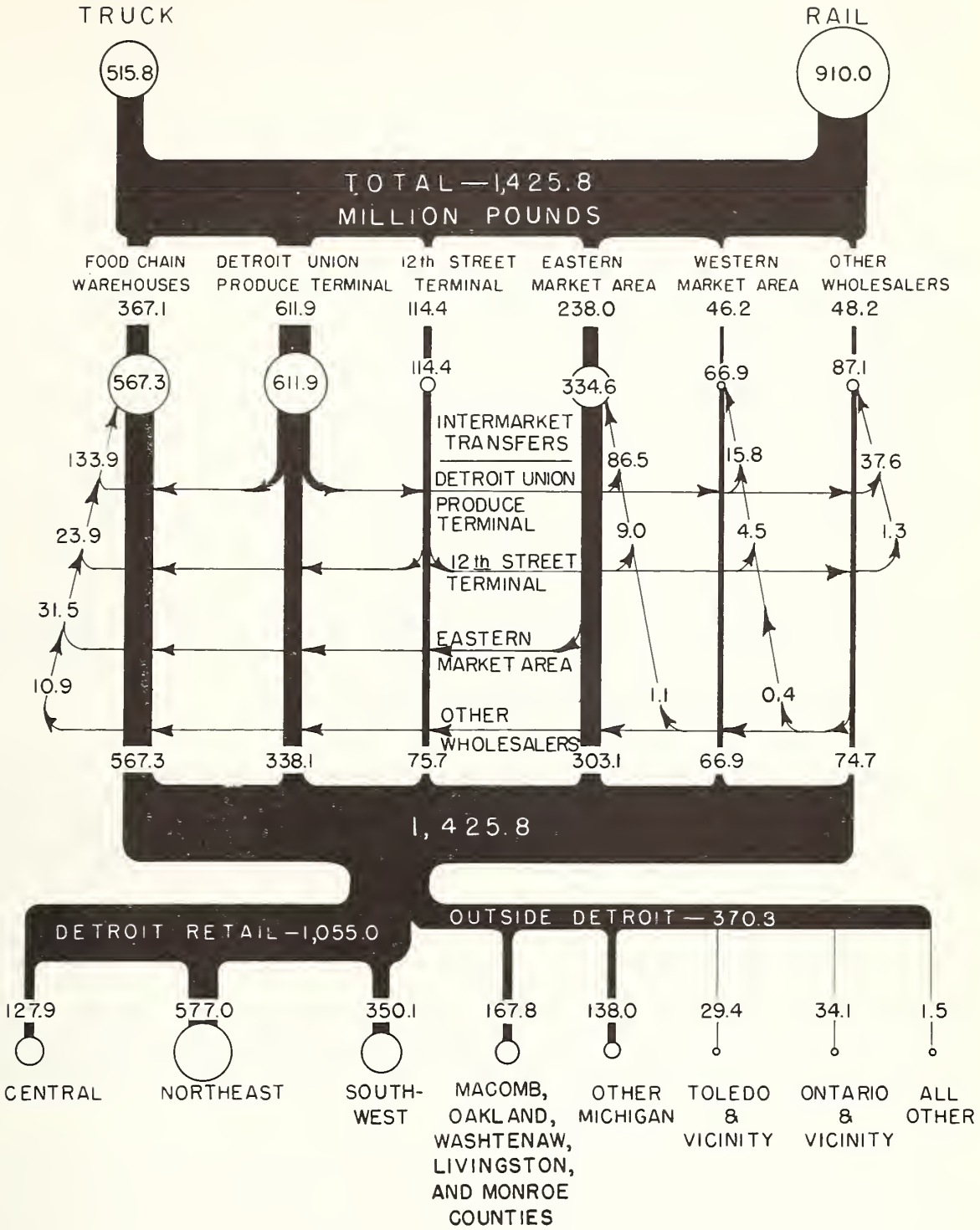


Figure 16

TABLE 10.--Receipts, transfers, and distribution of fruits and vegetables by independent dealers in market areas, and by food chains

Receipts, transfers, and distribution	Volume of fruits and vegetables received by--						
	Food-chain warehouses	Produce Terminal	12th Street Terminal	Eastern Market	Western Market	Other	Total
	Million pounds	Million pounds	Million pounds	Million pounds	Million pounds	Million pounds	Million pounds
Receipts--							
Direct	367.1	611.9	114.4	238.0	46.2	48.2	1,425.8
Intermarket	200.2	0.0	0.0	96.6	20.7	38.9	356.4
Total	567.3	611.9	114.4	334.6	66.9	87.1	1,782.2
Intramarket transfers	0.0	42.6	0.0	18.5	12.3	0.3	73.7
Intermarket transfers to:							
Food-chain warehouses	0.0	133.9	23.9	31.5	0.0	10.9	200.2
Eastern Market	0.0	86.5	9.0	0.0	0.0	1.1	96.6
Western Market	0.0	15.8	4.5	0.0	0.0	0.4	20.7
Other wholesalers	0.0	37.6	1.3	0.0	0.0	0.0	38.9
Total	0.0	273.8	38.7	31.5	0.0	12.4	356.4
Distribution:							
Retail within Detroit	409.1	208.6	39.9	263.1	61.9	72.4	1,055.0
Outside Detroit	158.2	129.5	35.8	40.0	5.0	2.3	370.8

outside Detroit, 39.8 percent (567.3 million pounds) were handled through the chain warehouses and the remaining 60.2 percent (858.5 million pounds) was distributed by independent wholesalers.

Meat and Meat Products

The 562.4 million pounds of meat and meat products received directly by wholesale dealers in Detroit were distributed to the three retail areas in the city and to various points outside Detroit as shown in figure 17. Seventy percent (393.6 million pounds) was moved to the three retail areas of the city, and 30 percent (168.8 million pounds) went to areas outside the city.

The volume moved between wholesalers within the city amounted to 222.6 million pounds, or 39.6 percent of the total receipts. The intermarket movement amounted to 168.9 million pounds and the intramarket transfers were 53.7 million pounds (table 11).

Food-chain warehouses received 26.2 million pounds of direct unloads and 49.3 million pounds in purchases from independent wholesale dealers in the various market areas of the city, totaling 75.5 million pounds handled. Of this total, 54.4 million pounds (72.1 percent) went to retail outlets in Detroit and 21.1 million pounds (27.9 percent) to outlets outside Detroit.

Of the 562.4 million pounds of meat and meat products that were moved to retail outlets both within and outside the city only 75.5 million pounds (13.4 percent) were handled through the food chain warehouses. This small portion is attributed to large quantities of processed meats that moved directly from the independent processing facilities to the retail chain stores. Also a certain volume of packaged meats are carted direct from the 12th Street meat dock and from slaughtering facilities to these stores.

MOVEMENT OF MEAT AND MEAT PRODUCTS THROUGH DETROIT WHOLESALE MARKETS

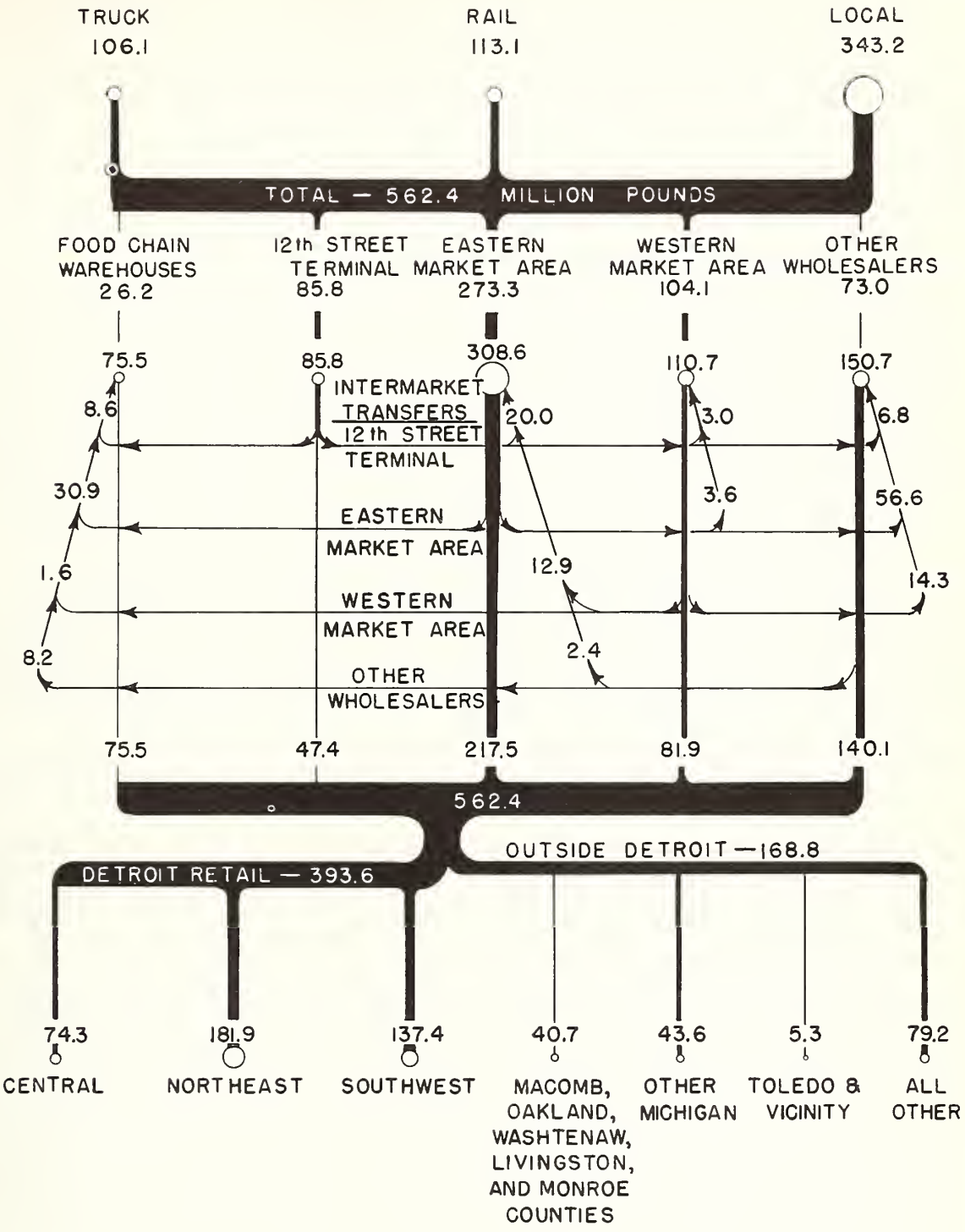


Figure 17

TABLE 11.--Receipts, transfers, and distribution of meat and meat products by independent dealers in market areas, and by food-chains

Receipts, transfers, and distribution	Volume of meat and meat products received by--					
	Food-chain warehouses	12th Street Terminal	Eastern Market	Western Market	Other	Total
	Million pounds	Million pounds	Million pounds	Million pounds	Million pounds	Million pounds
Receipts:						
Direct	26.2	85.8	273.3	104.1	73.0	562.4
Intermarket	49.3	0.0	35.3	6.6	77.7	168.9
Total	75.5	85.8	308.6	110.7	150.7	731.3
Intramarket transfer	0.0	0.0	27.6	5.3	20.8	53.7
Intermarket transfers to:						
Food-chain warehouses	0.0	8.6	30.9	1.6	8.2	49.3
Eastern market	0.0	20.0	0.0	12.9	2.4	35.3
Western market	0.0	3.0	3.6	0.0	0.0	6.6
Other	0.0	6.8	56.6	14.3	0.0	77.7
Total	0.0	38.4	91.1	28.8	10.6	168.9
Distribution:						
Retail in Detroit	54.4	45.1	86.1	70.0	137.9	393.6
Outside Detroit	21.1	2.3	131.4	11.8	2.2	168.8

Poultry

Of the 139.2 million pounds of poultry received in Detroit, an estimated 115.5 million pounds (83.0 percent) was distributed to retail stores in Detroit, and 23.7 million pounds (17.0 percent) was loaded onto trucks that moved the products outside the city. The amount which was handled through two wholesalers amounted to 13.3 percent (18.5 million pounds) and included 12.5 million pounds of intermarket movements and 6.0 million pounds of intramarket transfers (table 12).

The flow of poultry through the wholesale marketing channels of Detroit is shown in figure 18.

Eastern Market area poultry dealers received 86.0 million pounds of direct unloads. They sold 2.8 million pounds (3.2 percent) to dealers in other Detroit market areas and 9.7 million pounds (11.3 percent) to food chain warehouses. Of the rest, 61.2 million pounds (71.2 percent) was distributed to retail stores in Detroit, and 12.3 million pounds (14.3 percent) to points outside the city.

Chain warehouses had direct receipts of 9.8 million pounds and purchases from Eastern Market area dealers of 9.7 million pounds. Of the total amount handled (19.5 million pounds) 14.1 million pounds (72.3 percent) was delivered to retail stores in Detroit and 5.4 million pounds (27.7 percent) to areas outside the city. Only 14 percent (19.5 million pounds) of the poultry receipts was distributed to retail outlets by the chain warehouses; 12.2 percent (14.1 million pounds) to outlets in Detroit and 22.8 percent (5.4 million pounds) to retail stores outside Detroit. As mentioned previously, the major portion of the poultry receipts (61 percent) came from Alabama and Georgia and mostly consisted of eviscerated poultry. Dealers in the Eastern Market area handled the greater part of poultry receipts and delivered a large portion direct to food-chain retail stores. Many chain organizations received poultry at the public cold-storage warehouses and delivered direct to their retail stores.

TABLE 12.--Receipts, transfers, and distribution of poultry by independent dealers in market areas, and by food chains

Receipts, transfers, and distribution	Volume of poultry received by--				
	Food-chain warehouses	Eastern Market	Western Market	Other	Total
	Million pounds	Million pounds	Million pounds	Million pounds	Million pounds
Receipts:					
Direct	9.8	86.0	13.0	30.4	139.2
Intermarket	9.7	0.0	0.0	2.8	12.5
Total	19.5	86.0	13.0	33.2	151.7
Intramarket transfers	0.0	5.7	0.3	0.0	6.0
Intermarket transfers to:					
Food-chain warehouses	0.0	9.7	0.0	0.0	9.7
Eastern market	0.0	0.0	0.0	0.0	0.0
Western market	0.0	0.0	0.0	0.0	0.0
Other	0.0	2.8	0.0	0.0	2.8
Total	0.0	12.5	0.0	0.0	12.5
Distribution:					
Retail in Detroit	14.1	61.2	11.9	28.3	115.5
Outside Detroit	5.4	12.3	1.1	4.9	23.7

MOVEMENT OF POULTRY THROUGH DETROIT WHOLESALE MARKETS

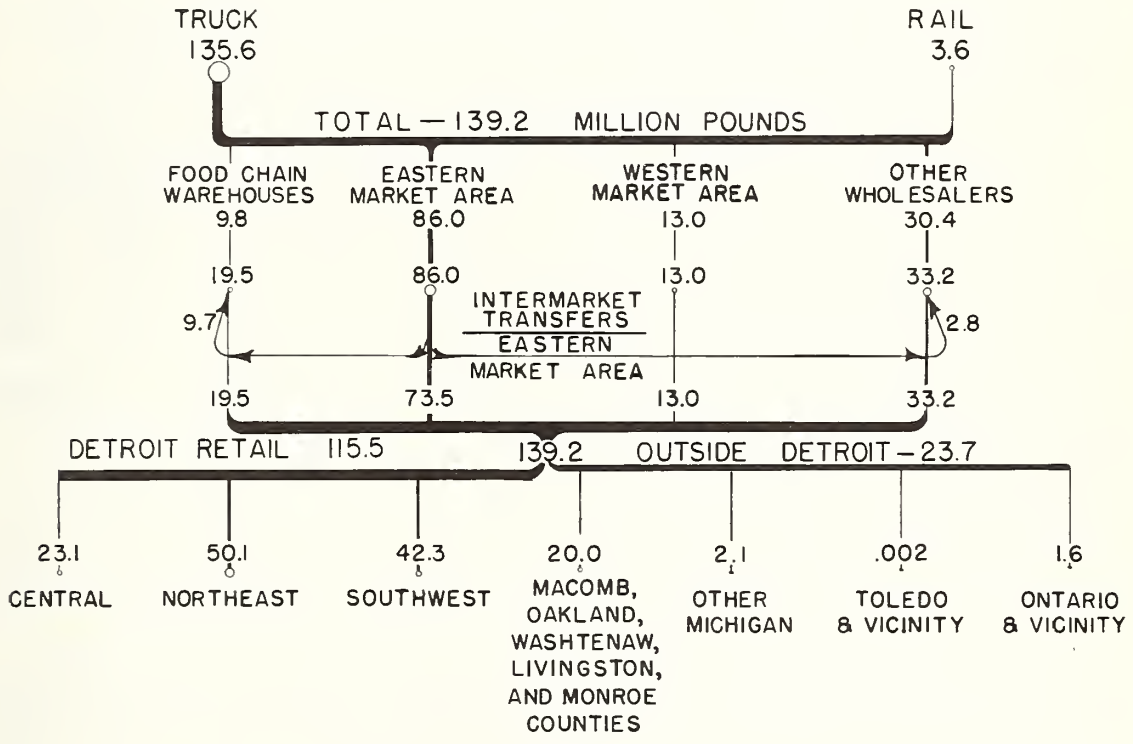


Figure 18

Detroit wholesalers received 228.6 million pounds of dairy products and eggs. About 82 percent (187.5 million pounds) was delivered to retail stores in Detroit and the balance (41.1 million pounds) to areas outside Detroit. Of the 228.6 million pounds received, 10.7 percent (24.4 million pounds) was second-handled. Intermarket transfers were 23 million pounds and intramarket transfers 1.4 million pounds (table 13).

The flow of dairy products and eggs through the wholesale marketing facilities of Detroit in the year of this study is shown in figure 19.

The wholesalers in the Central area handled most of the dairy-product and egg receipts (88.4 million pounds), 87.1 million pounds of direct receipts and 1.3 million pounds of intermarket transfers. Of this total volume, 24.5 percent (21.7 million pounds) was sold to independent dealers in the other market areas, 52.3 percent (46.2 million pounds) moved to retail outlets in Detroit, and 23.2 percent (20.5 million pounds) moved to areas outside the city.

The food-chain warehouses received 54.7 million pounds of dairy products and eggs directly from producing areas. They handled no intermarket transfers and moved 39.6 million pounds (72.4 percent) of their volume to their Detroit retail stores and 15.1 million pounds (27.6 percent) to retail stores outside Detroit. Of the total quantities that reached retail outlets (228.6 million pounds), the chain warehouses handled only 23.9 percent, or 54.7 million pounds, which included 39.6 million pounds (21.1 percent) of the quantities distributed to retail in Detroit, and 15.1 million pounds (36.7 percent) of the volume that moved out of the city.

TABLE 13.--Receipts, transfers, and distribution of dairy products and eggs by independent dealers in market areas, and by food-chains

Receipts, transfers, and distribution	Volume of dairy products and eggs received by--					
	Food-chain warehouses	Eastern Market	Other market areas			Total
			Central	Northeast	Southwest	
	Million pounds	Million pounds	Million pounds	Million pounds	Million pounds	Million pounds
Receipts:						
Direct	54.7	10.8	87.1	34.5	41.5	228.6
Intermarket	0.0	5.0	1.3	9.1	7.6	23.0
Total	54.7	15.8	88.4	43.6	49.1	251.6
Intramarket transfers	0.0	0.0	1.4	0.0	0.0	1.4
Intermarket transfers to:						
Food-chain warehouses	0.0	0.0	0.0	0.0	0.0	0.0
Eastern market	0.0	0.0	5.0	0.0	0.0	5.0
Other market areas:						
Central	0.0	0.0	0.0	1.3	0.0	1.3
Northeast	0.0	0.0	9.1	0.0	0.0	9.1
Southwest	0.0	0.0	7.6	0.0	0.0	7.6
Total	0.0	0.0	21.7	1.3	0.0	23.0
Distribution:						
Retail in Detroit	39.6	15.8	46.2	38.1	47.8	187.5
Outside Detroit	15.1	0.0	20.5	4.2	1.3	41.1

MOVEMENT OF DAIRY PRODUCTS AND EGGS THROUGH DETROIT WHOLESALE MARKETS

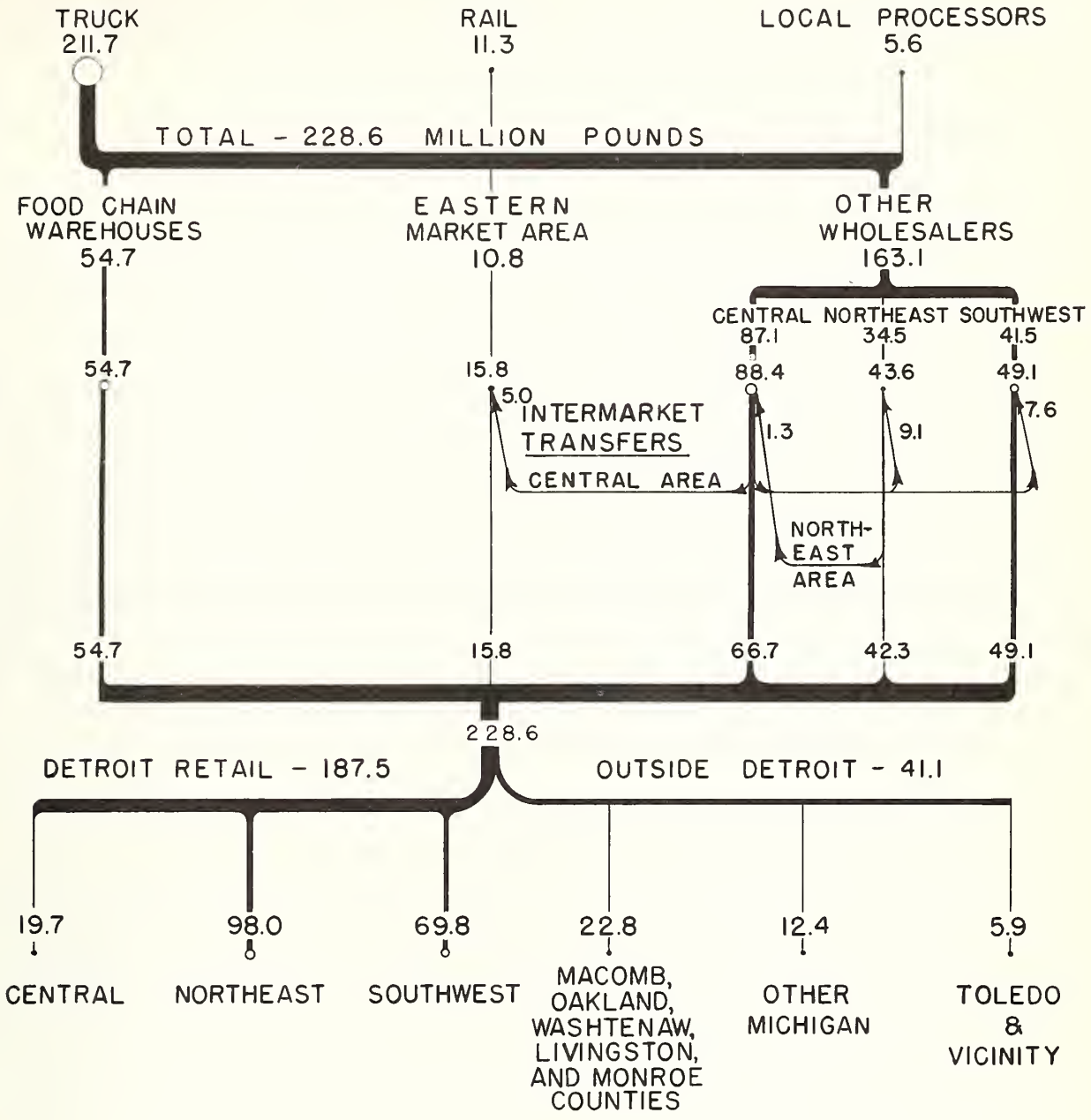


Figure 19

A few chains depended upon the independent large-volume receivers of dairy products and eggs to supply their retail stores in Detroit. Eight of these wholesalers specialized in in egg distribution, and operated in relatively efficient facilities. They handled over 40 percent of the egg receipts and served as suppliers for local retail stores, including the food chains.

Frozen Foods

The independent wholesale dealers and chain warehouses in Detroit received 149.0 million pounds of frozen foods. About 76 percent (113.2 million pounds) was moved to retail areas in Detroit and 24 percent (35.8 million pounds) was sold to buyers outside Detroit. Only 8.3 percent (12.3 million pounds) was rehandled. The independent dealers sold 5.7 million pounds to the food chain warehouses and 6.6 million pounds to other dealers in the city (table 14).

The flow pattern of frozen foods through the wholesale marketing facilities is shown in figure 20.

The independent dealers received 145.4 million pounds of frozen foods and, as mentioned earlier, about 80 percent of these receipts were handled through public cold-storage warehouses. These dealers moved 104.7 million pounds (72 percent) to retail dealers in Detroit, 5.7 million pounds (3.9 percent) to food-chain warehouses, and 35 million pounds (24.1 percent) to areas outside the city. Intramarket transfers amounted to 6.6 million pounds.

The chain warehouses received 3.6 million pounds and purchased 5.7 million pounds from independent dealers in Detroit. Of these 9.3 million pounds handled, 8.5 million pounds (91.4 percent) was delivered to Detroit retail stores and 800,000 pounds (8.6 percent) was moved outside the city.

Only 7.5 percent (8.5 milliom pounds) of the frozen foods that reached retail outlets in Detroit was handled by food chain warehouses and only 2.2 percent (800,000 pounds) of the volume that moved out of the city, or a total of 6.2 percent of all frozen foods that reached retail outlets, moved through food-chain warehouses. Many of these warehouses were not equipped to handle frozen foods, and they supplied their retail stores through independent wholesalers.

TABLE 14.--Receipts, transfers, and distribution of frozen foods by independent dealers, and by food-chains

Receipts, transfers, and distribution	Volume of frozen foods received by--		
	Food-chain warehouses	Independent dealers	Total
	Million pounds	Million pounds	Million pounds
Receipts:			
Direct	3.6	145.4	149.0
Intermarket	5.7	0.0	5.7
Total	9.3	145.4	154.7
Intramarket transfers	0.0	6.6	6.6
Intermarket transfers to food-chain warehouses	0.0	5.7	5.7
Distribution:			
Retail in Detroit	8.5	104.7	113.2
Outside Detroit	0.8	35.0	35.8

MOVEMENT OF FROZEN FOODS THROUGH DETROIT WHOLESALE MARKETS

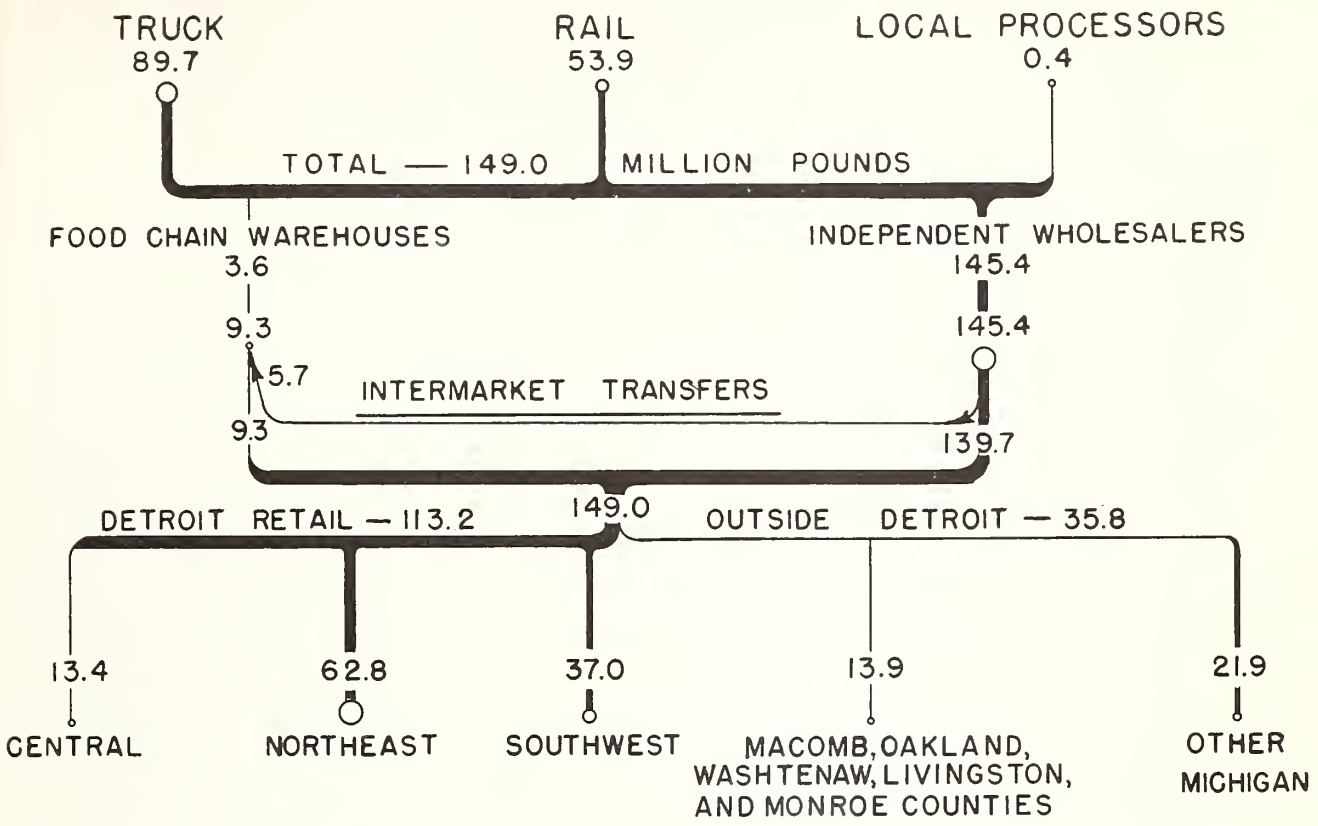


Figure 20

Fish and Seafood

Detroit wholesale dealers received 66.1 million pounds of fish and seafood in the year of this study. Over half (35.8 million pounds) went to retail outlets in Detroit; 46 percent (30.3 million pounds) was sold to buyers outside Detroit. The chain organizations reported that they handled no fish or seafood through their warehouses in the year studied. Their retail stores were supplied by independent wholesalers. Of the 66.1 million pounds received, 11.2 percent (7.4 million pounds) was second-handled; 5 million pounds was intermarket transfers, and 2.4 million pounds changed hands within the market areas (table 15).

The flow pattern of fish and seafood through the wholesale marketing facilities is shown in figure 21.

Groceries

The receipts of groceries amounted to 2,170.9 million pounds, of which 73 percent (1,591.1 million pounds) was consumed in Detroit and 27 percent (579.8 million pounds) was moved out of the city. In the wholesale movement of the groceries from the initial point of receipt to the final destination, 10.6 percent (230.8 million pounds) was handled through more than one wholesaler. Of this amount, 201.2 million pounds was transferred between market areas and 29.6 million pounds was intramarket movements (table 16.)

TABLE 15.--Receipts, transfers, and distribution of fish and seafood by independent dealers in market areas

Receipts, transfers, and distribution	Volume of fish and seafood received by--		
	Eastern Market	Other	Total
	Million pounds	Million pounds	Million pounds
Receipts:			
Direct	47.2	18.9	66.1
Intermarket	5.0	0.0	5.0
Total	52.2	18.9	71.1
Intramarket transfers	0.7	1.7	2.4
Intermarket transfers to:			
Eastern market	0.0	5.0	5.0
Distribution:			
Retail in Detroit	23.2	12.6	35.8
Outside Detroit	29.0	1.3	30.3

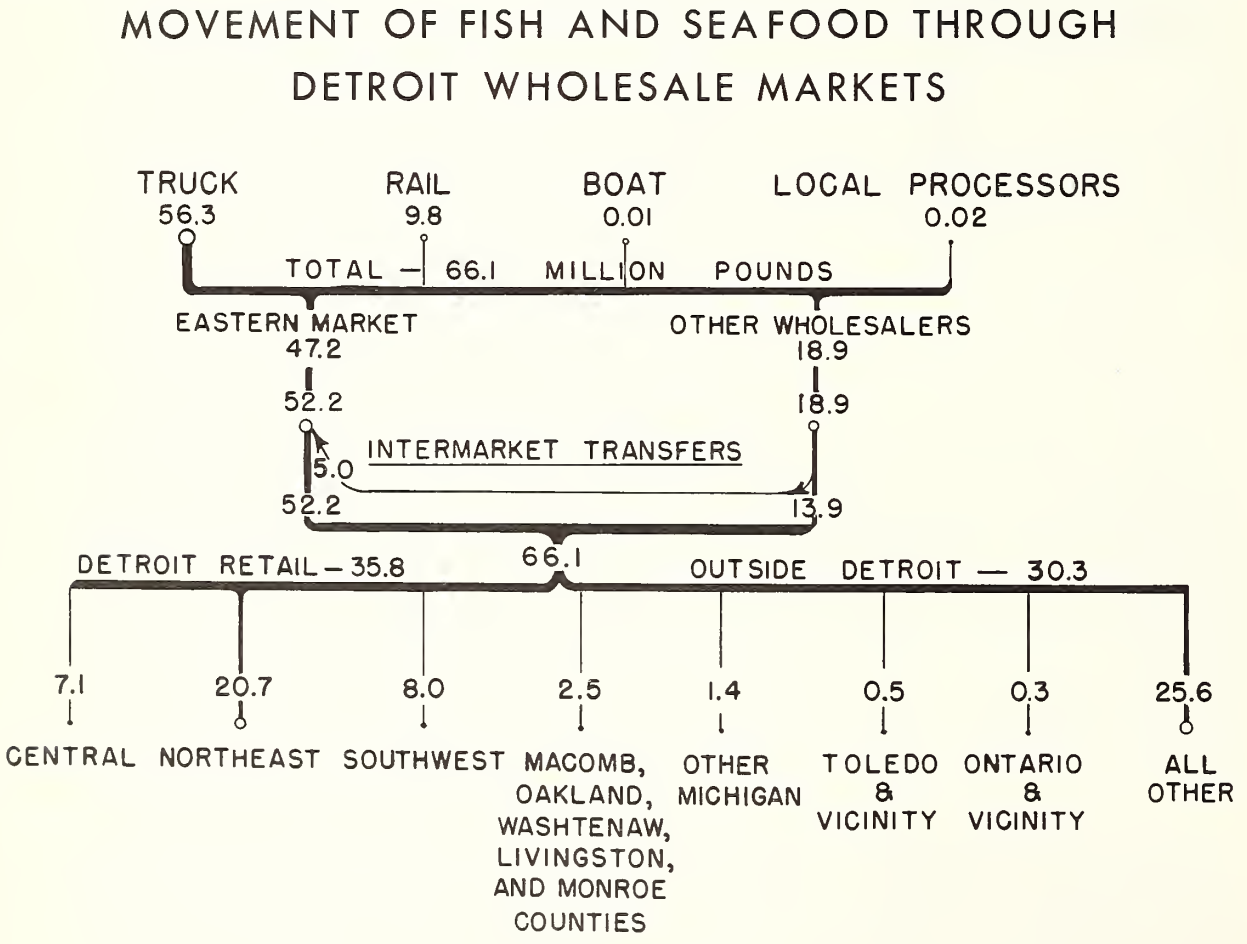


Figure 21

TABLE 16.--Receipts, transfers, and distribution of groceries by independent dealers in market areas, and by food-chains

Receipts, transfers, and distribution	Volume of groceries received by--						
	Food-chain warehouse	Eastern Market	Western Market	Other market areas			Total
				Central	Northeast	Southwest	
	Million pounds	Million pounds	Million pounds	Million pounds	Million pounds	Million pounds	Million pounds
Receipts:							
Direct.....	717.8	51.6	24.8	683.8	209.6	483.3	2,170.9
Intermarket.....	81.9	23.4	19.6	3.0	35.4	37.9	201.2
Total.....	799.7	75.0	44.4	686.8	245.0	521.2	2,372.1
Intramarket transfers.....	0.9	2.8	0.0	18.7	7.2	0.0	29.6
Intermarket transfers to:							
Food-chain warehouses.....	0.0	0.0	0.0	76.6	2.3	3.0	81.9
Eastern market...	0.0	0.0	0.0	23.4	0.0	0.0	23.4
Western market...	0.0	0.0	0.0	13.8	4.8	1.0	19.6
Other market areas:							
Central.....	0.0	0.0	0.0	0.0	0.4	2.6	3.0
Northeast.....	0.0	0.0	0.0	35.4	0.0	0.0	35.4
Southwest.....	0.0	0.5	0.0	37.4	0.0	0.0	37.9
Total.....	0.0	0.5	0.0	186.6	7.5	6.6	201.2
Distribution:							
Retail in Detroit	576.6	67.5	44.4	333.2	226.3	343.1	1,591.1
Outside Detroit..	223.1	7.0	0.0	167.0	11.2	171.5	579.8

The flow pattern of dry groceries through the wholesale marketing facilities is shown in figure 22.

Food-chain warehouses received 717.8 million pounds directly from points outside the city and purchased 81.9 million pounds from independent wholesalers in Detroit, making a total of 799.7 million pounds that moved through these warehouses. All of this volume was moved to retail outlets, 72.1 percent (576.6 million pounds) to retail stores in Detroit, and 27.9 percent (223.1 million pounds) to retail outside Detroit. Transfers of groceries between food-chain warehouses amounted to 900,000 pounds.

Of the total quantity of groceries that reached retail outlets, 36.8 percent was handled through the chain warehouses. They handled 36.2 percent (576.6 million pounds) of the volume that was distributed to retail in Detroit, and 38.5 percent (223.1 million pounds) of the amount that moved out of the city.

MOVEMENT OF GROCERIES THROUGH DETROIT WHOLESALE MARKETS

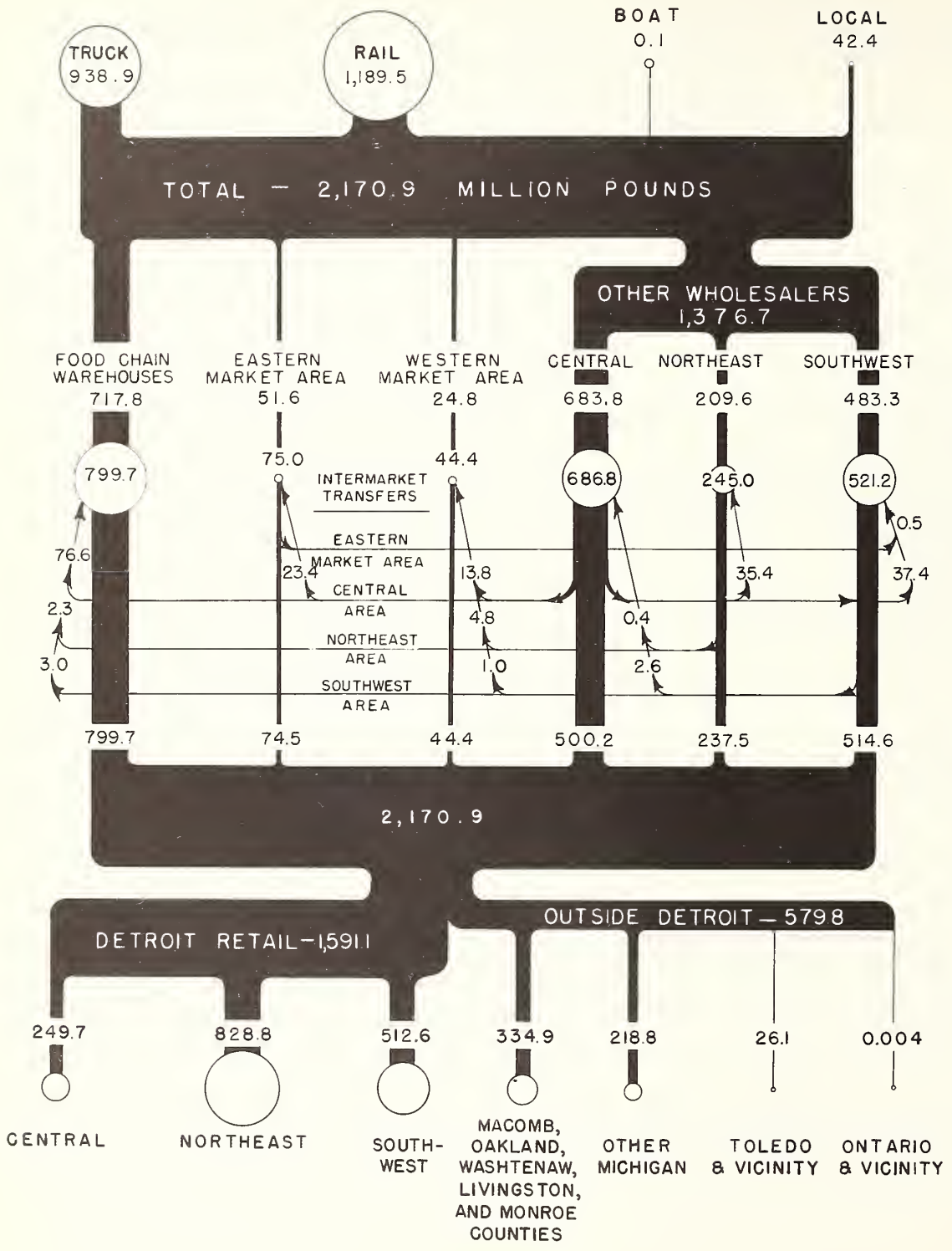


Figure 22.

To eliminate or reduce excessive marketing costs, it is first necessary to determine why the handling and other operations are inefficient and wasteful. Then a plan to improve or eliminate as many operations as possible can be worked out.

The costs discussed in this report are confined to those that are incurred between the point of arrival or origin in Detroit and the retail outlets. The costs considered also are confined to those which are subject to change because of improvement in facilities and methods. Thus, costs of such items as heat, light, telephone, management, and wages for office staff are not included. The costs include only the direct costs or charges for handling the food products that pass through the various Detroit marketing channels. Such costs and charges consist of:

1. Costs of cartage from first point of arrival to the wholesalers' facilities.
2. Handling costs at the wholesale market areas.
3. Other costs, such as rentals, demurrage, waste, spoilage, deterioration, and the like.
4. Transportation and other costs of handling from the wholesalers' store facilities to retail outlets, and costs of loading trucks that move the products out of the city.

This section does not give a complete breakdown of all these costs and the explanations as to how they were calculated. Detailed costs and their explanation appear in the appendix.

The data from which the various cost estimates were made came from several sources. Handling costs within the wholesale facilities were based on the cost records of a number of dealers in the several marketing areas. Cartage, loading, and unloading costs were computed from the man-hours required to perform the various operations, from wage rates supplied by the local unions and the wholesalers, and from information furnished by local cartage companies. Other costs, such as those for intermarket movement of the products and movement between stores within market areas, were based on actual time elapsed on various trips, cost of operating the trucks, drivers' time, and wage rates of drivers and helpers. Warehousing service charges paid by dealers were computed from the local rates and the average time that a specific product was in storage. Other sources of cost information are discussed later in this report.

The total costs incurred in moving the 4.74 million pounds of seven food commodities through the several marketing areas in Detroit to the retail outlets in the city, or loading on trucks which moved them out of the city amounted to $40.9 million, or an average of $0.86 per hundredweight. Of this amount, approximately 1.1 percent ($450,000) was spent for cartage from the first point of arrival, or origin in the city, to the wholesale dealers' facilities. These cartage costs were for moving products to the wholesale facilities from team tracks in Detroit and Windsor, from boat docks, from rail yards that handled "piggyback" freight, and from establishments of local producers of butter, cheese, frozen foods, and various grocery items (table 17.)

The costs for avoidable delay time to incoming trucks amounted to $124,000 (0.3 percent) and are based on the costs of truck and driver time spent in waiting to unload. This waiting time is due to traffic congestion in the market areas and around the wholesale facilities. Trucks from shipping areas incurred avoidable delay mostly during rush hours in the Eastern Market area and at some of the chain warehouses. There was little avoidable delay to trucks waiting to unload at the other market areas.

Handling costs in the market areas amounted to 34.5 percent of total costs, or $14.1 million. These costs included unloading the products at the stores or warehouses, handling the goods within the facilities, moving the items to the buyers' trucks, unloading rail cars at team tracks into buyers' trucks, intramarket transfers from store to store, and repair, operating costs, and depreciation of handling equipment.

TABLE 17.--Estimated costs of moving 4.74 billion pounds of seven food commodities from first point of arrival through the wholesale markets

Cost item	Volume	Cost
	Million pounds	1,000 dollars
Cartage and delay:		
Cartage to dealers' facilities from:		
Team tracks	230.3	269.4
Boat docks	0.1	0.1
Rail docks (piggyback)	87.7	122.8
Detroit processors	48.4	58.0
Total cartage	366.5	450.3
Receipts with no cartage:		
Rail cars on house tracks	1,777.4	0
Sales from team tracks	200.8	0
Trucks from shipping points	1,808.7	0
Locally slaughtered meat	343.2	0
Farmers' market receipts	245.4	0
Total receipts, no cartage	4,375.5	0
Costs for avoidable delay to inbound trucks	(474.3)	124.0
Total cartage and delay	4,742.0	574.3
In the market areas:		
Handling:		
Labor:		
Unloading at the facilities	(4,725.2)	2,647.9
Handling within stores	(3,501.8)	6,484.0
Loading out to buyers' trucks	(5,313.9)	4,391.8
Sales from team tracks (unloading rail cars)	(200.8)	139.7
Intramarket transfers	(173.4)	300.8
Use of handling equipment	(3,203.0)	157.4
Total handling	(4,742.0)	14,121.6
Other:		
Rentals:		
Wholesale facilities	(4,130.1)	2,785.4
Detroit Union Produce Terminal charges to dealers	(611.9)	104.3
Produce terminal rental charges paid by railroads	(611.9)	195.0
Total rent and rental equivalent	(4,742.0)	3,084.7
Public warehouse service charges to wholesale dealers	(780.9)	3,878.0
Demurrage	(1,155.3)	57.5
Waste and deterioration	(4,742.0)	1,974.8
Intermarket transfers to:		
Food-chain warehouses	(346.8)	681.5
Other Detroit wholesalers	(425.9)	865.2
Total	(4,742.0)	10,541.7
Total, in the market areas	4,742.0	24,663.3
Moving products away from the markets:		
Transporting to retail in Detroit	3,491.7	14,892.7
Loading trucks hauling to points outside Detroit	1,250.3	788.0
Avoidable delay to buyers' trucks	(1,544.1)	(246.8)
Total, moving products away from the markets	4,742.0	15,680.7
Grand Total	4,742.0	40,918.3

The volume loaded out to buyers' trucks is 588.6 million pounds greater than the volume unloaded at the facilities. This difference consists of locally slaughtered meat (343.2 million pounds) and farmers' market receipts (245.4 million pounds). The local slaughters of livestock were classified as meat wholesalers and the tonnage of meat that originated at the slaughtering plants was not considered as unloaded at these facilities. Similarly, the receipts at the farmers' markets arrived by truck, were sold from the tailgates of the trucks, and not unloaded at the wholesale facilities.

These two items are included in the total tonnage loaded out to buyers' trucks, since a handling cost is involved in this operation.

The total tonnage unloaded at the wholesale facilities was obtained by deducting, from the total receipts, the amount of locally slaughtered meat, the farmers' market receipts, and the sales from team tracks. To this result was added the intermarket transfers to food-chain warehouses and to other Detroit wholesalers.

The unloading costs for intermarket transfers are assigned to the receivers of the commodities, since the cartage costs described earlier do not include unloading into the dealers' facilities. For the purpose of consistency, cartage costs for intermarket transfers were computed in the same manner as other cartage costs.

Other costs, in addition to handling costs, in the market areas amounted to 25.8 percent ($10.5 million) of the total. Rents paid by the dealers, or a rental equivalent if the facilities were owned by the dealers, amounted to about $2.8 million. In lieu of rent, the dealers who operated in the Detroit Union Produce Terminal were assessed about $5 a carlot equivalent for their annual receipts, which amounted to $104,000. This charge did not meet all the expenses of operating and maintaining the terminal. In order to make the rental charges as closely comparable as possible to rentals paid for similar facilities in Detroit, an additional charge of $195,000 was included as rental charges absorbed by the railroads. For purposes of this report these two items were considered as rentals at the terminal, which makes total rents amount to 7.5 percent ($3.1 million).

Public warehouse service charges to wholesale dealers amounted to approximately $3.9 million (9.5 percent). As stated previously, the greater part of the frozen foods was received and handled through public refrigerated warehouses. Also, about 25 percent of the dry groceries was handled through public warehouses. The wholesale dealers handling these two commodities paid 80 percent ($3.1 million) of the total public warehouse service charges (table 18). Demurrage, waste, and deterioration amounted to $2 million.

The costs for intermarket transfers from the independent dealers' stores to the chain warehouses amounted to $682,000, and the other item of intermarket movement (between independent wholesale facilities) amounted to $865,000 or a total of $1.5 million (3.8 percent of all costs).

Costs for moving the commodities from the facilities to retail points in Detroit and loading the trucks that move products outside Detroit amounted to 38.3 percent ($15.7 million) of the total costs.

The costs for transporting to retail areas in Detroit amounted to $14.9 million, or 36.4 percent of total costs. This included the operating costs for the time required for trucks to load, or wait to load, at the wholesale facility, the round trip to destination, the unloading operation and waiting time to unload, together with the cost of drivers' and helpers' time. Loading trucks for out-of-town buyers amounted to $788,000 (1.9 percent).

The costs for avoidable delay to the trucks that moved the products away from the market amounted to 247,000, and are included in the costs for transporting the commodities to retail in Detroit, and the costs for loading trucks for out-of-town buyers.

Because of the many inadequacies in the wholesale distribution system, several of the costs described are too high. Later sections of this report deal with methods whereby

many costs can be reduced and others eliminated. The several items of costs differ in degree among commodity groups largely because of the methods of handling and type of food commodity. Table 18 shows for each of the seven commodity groups the major items of distribution costs as the products moved through the wholesale markets.

For a detailed tabulation of these costs by commodity group, showing the volume handled in each phase of wholesale distribution and the costs per hundredweight, see table 36, appendix.

Fruits and Vegetables

Cartage costs from first point of arrival to dealers' stores amounted to only 1.6 percent ($190,100) of the total costs ($12.2 million) of handling fruits and vegetables through the wholesalers' facilities in Detroit. However, costs of handling fruits and vegetables at dealers' stores, including unloading into these facilities, handling within, loading out, intramarket sales, sales from team tracks and use of handling equipment amounted to 23.7 percent ($2.9 million) of the total costs. Rental of present facilities (including produce terminal charges to dealers and estimated rental charges absorbed by railroads) amounted to 5.6 percent ($686,000) of the total costs. The fruit and vegetable dealers did not use the services of public warehouses and paid no such service charges, but demurrage, waste, and deterioration amounted to 15.5 percent ($1.9 million), of which $1.8 million was waste and deterioration.

Intermarket transfers from independent wholesale dealers to chain warehouses and to other Detroit wholesale areas amounted to 6.6 percent ($803,000). Thus other costs, in addition to handling costs, in the market areas amounted to 27.7 percent ($3.4 million) of the total.

Total costs for transporting from the dealers' facilities to retail outlets and costs of loading trucks of out-of-town buyers constituted the largest item--47 percent ($5.7 million)--of the total expenditure for moving fruits and vegetables through the wholesale markets in Detroit. The cartage costs to retail made up $5.3 million of this item.

Meat and Meat Products

Approximately $6.9 million was spent by wholesale handlers of meat and meat products in cartage and other charges from the first point of arrival in Detorit to all outlets, including loading trucks of out-of-town buyers. Only 1.1 percent ($80,000) of the $6.9 million was accounted for by cartage and other costs for delivery to dealers' facilities, which included $53,000 costs for avoidable delay to trucks arriving from shipping points. However, total handling costs in the markets, including unloading at the dealers facilities, handling within the facilities, loading-out costs, etc., amounted to 35.5 percent ($2.5 million). Rentals accounted for 17.3 percent ($1.2 million). Public warehouse charges, demurrage, and waste and deterioration amounted to 3.9 percent ($269,000) and intermarket transfers to food chain warehouses and to independent wholesalers accounted for 4.9 percent ($339,000).

Total transporting costs from dealers' facilities to retail and for loading trucks of out-of-town buyers amounted to another 37.3 percent ($2.6 million).

Poultry

An estimated total of $1.7 million was spent for handling poultry through the wholesale markets in Detroit. There was no cartage charge to the dealers' facilities, because there were no receipts of poultry at team track yards. As stated earlier, the greater part of the poultry receipts arrived by truck. The avoidable delay incurred by these trucks amounted to 1.2 percent ($21,000).

TABLE 18.--Estimated costs of moving 4.74 billion pounds of seven food commodities from first point of arrival through the wholesale markets, by commodity group

Cost item	Fruits and vegetables	Meat and meat products	Poultry	Dairy products and eggs	Frozen foods	Fish and other seafood	Groceries	Total
	1,000 dollars	1,000 dollars	1,000 dollars	1,000 dollars	1,000 dollars	1,000 dollars	1,000 dollars	1,000 dollars
Cartage and delay:								
Cartage to dealers' facilities from:								
Team tracks	190.1	27.2	0	2.3	10.9	7.7	31.2	269.4
Boat docks	0	0	0	0	0	0	0.1	0.1
Rail docks (piggyback)	0	0	0	0	0	0	122.8	122.8
Detroit processors	0	0	0	4.4	0.6	0	53.0	58.0
Total cartage	190.1	27.2	0	6.7	11.5	7.7	207.1	450.3
Avoidable delay to inbound trucks	0	52.5	20.8	12.1	21.1	7.7	9.8	124.0
Total cartage and delay	190.1	79.7	20.8	18.8	32.6	15.4	216.9	574.3
In the market areas:								
Handling:								
Labor:								
Unloading at the facilities	861.0	192.2	162.3	109.6	24.2	41.7	1,256.9	2,647.9
Handling within stores	782.3	1,494.8	161.8	416.1	62.5	315.8	3,250.7	6,484.0
Loading out to buyers' trucks	1,027.7	686.8	74.4	164.5	68.6	71.5	2,298.3	4,391.8
Sales from team tracks (unloading rail cars)	139.7	0	0	0	0	0	0	139.7
Intramarket transfers	59.4	99.9	9.2	3.2	18.9	9.7	100.5	300.8
Use of handling equipment	14.7	0	0	1.9	22.8	0	118.0	157.4
Total handling	2,884.8	2,473.7	407.7	695.3	197.0	438.7	7,024.4	14,121.6
Other:								
Rentals:								
Wholesale facilities	386.4	1,206.6	118.1	202.0	56.9	98.7	716.7	2,785.4
Detroit Union Produce Terminal charges to dealers	104.3	0	0	0	0	0	0	104.3
Produce terminal rental charges paid by railroads	195.0	0	0	0	0	0	0	195.0
Total rent and rental equivalent	685.7	1,206.6	118.1	202.0	56.9	98.7	716.7	3,084.7
Public warehouse service charges to wholesale dealers	0	247.6	308.7	84.1	1,057.6	99.9	2,080.1	3,878.0
Demurrage	50.2	0.3	0	0	0	0	7.0	57.5
Waste and deterioration	1,829.7	21.4	10.1	10.9	1.5	2.1	99.1	1,974.8
Intermarket transfers to:								
Food-chain warehouses	417.0	105.1	20.8	0	12.4	0	126.2	681.5
Other Detroit wholesalers	385.6	233.5	4.7	48.0	0	11.8	181.6	865.2
Total, other	3,368.2	1,814.5	462.4	345.0	1,128.4	212.5	3,210.7	10,541.7
Total, in the market areas	6,253.0	4,288.2	870.1	1,040.3	1,325.4	651.2	10,235.1	24,663.3
Moving products away from the markets:								
Transporting to retail in Detroit	5,324.8	2,422.9	757.9	1,018.3	837.6	444.1	4,087.1	14,892.7
Loading trucks hauling to points outside Detroit	393.7	173.3	15.4	12.7	15.4	12.7	164.8	788.0
Avoidable delay to buyers' trucks	(79.0)	(102.9)	(17.7)	(7.0)	(0)	(26.1)	(14.1)	(246.8)
Total, moving products away from the markets	5,718.5	2,596.2	773.3	1,031.0	853.0	456.8	4,251.9	15,680.7
Grand total	12,161.6	6,964.1	1,664.2	2,090.1	2,211.0	1,123.4	14,703.9	40,918.3

The handling costs in the markets amounted to 24.5 percent ($408,000) of the $1.7 million total costs. Other costs in the markets amounted to 27.8 percent ($462,000) and consisted of: Rents 7.1 percent ($118,000), warehouse charges 18.5 percent ($309,000), waste and deterioration 0.6 percent, and intermarket transfers 1.5 percent. It should be noted that public warehouse charges amounted to 18.5 percent of the total costs. More than 80 percent of the rail receipts were unloaded in these warehouses and delivered directly to the retail areas. A large part of these warehouse receipts were frozen poultry that was stored for the holiday seasons.

The costs for moving poultry from the wholesale facilities to Detroit retail points and loading the out-of-town buyers' trucks amounted to 46.5 percent ($773,000).

Dairy Products and Eggs

Approximately $2.1 million was spent in cartage, and handling costs, rentals, waste and deterioration, and other charges, in handling dairy products and eggs from first point of arrival in Detroit to the retail outlets or to trucks of out-of-town buyers. Only 0.9 percent ($19,000) of this total was accounted for by cartage from team tracks to dealers' stores, and related charges, including avoidable delay to inbound trucks. Handling costs at dealers' stores amounted to 33.3 percent ($695,000) of the total. Rental charges, warehouse charges, waste and spoilage, and intermarket transfers amounted to 16.5 percent ($345,000). The largest proportion of the total charges was spent for cartage and other costs from dealers' facilities to retail outlets, and loading out-of-town buyers' trucks. This amounted to 49.3 percent ($1,031,000). Of the $1,031,000, an estimated $1,018,000 was spent for hauling the products from dealers' stores to retail points within the city of Detroit, the balance being spent for loading trucks of out-of-town buyers.

Frozen Foods

An estimated $2.2 million was spent by Detroit wholesalers for handling and other marketing costs for frozen foods. Of this amount, only $12,000 was for cartage from team tracks and from local processors to the wholesale dealer's facility. Advoidable delay charges to incoming trucks amounted to $21,000. These two items accounted for 1.5 percent of the total.

Handling costs at the wholesalers' facilities amounted to 8.9 percent ($197,000). Rental costs, public cold storage warehouse charges, spoilage, and transfers to chain warehouses amounted to over half (51.0 percent or $1.1 million). Cold-storage charges were the largest item of handling cost for frozen food wholesalers, amounting to 47.8 percent ($1,058,000) of total costs. About 38.6 percent ($853,000) was spent for transporting from dealers' facilities or public cold-storage warehouses to retail outlets and loading trucks that moved the goods out of the city.

Fish and Seafood

Detroit dealers spent about $1.1 million in handling and other costs to move the fish and seafood products through the wholesale markets. About $15,000 (1.4 percent) was spent in getting the commodities to the wholesale facilities of which $8,000 was cartage from team tracks, and $8,000 avoidable delay to inbound trucks.

Handling costs at the wholesale facilities amounted to 39 percent ($439,000) and included: Unloading, $42,000; handling within the facilities, $316,000; loading out, $72,000; and intramarket transfers, $10,000.

Other costs in the market included: Rents, $99,000; warehouse charges $100,000 waste and spoilage, $2,000; and intermarket transfers, $12,000; these costs amounted to 18.9 percent ($212,000) of all costs.

Moving the products to Detroit retail points ($444,000), and loading out-of-town buyers' trucks (13,000), accounted for 40.7 percent ($457,000) of the total.

Groceries

According to the survey, handling and other costs from first point of arrival to retail outlets for groceries, amounted to $14.7 million. Of the total costs, only 1.4 percent ($207,000) was spent for cartage to wholesalers' facilities and avoidable truck delay amounted to $10,000 (0.1 percent). However, about 47.8 percent ($7.0 million) was spent for handling costs at wholesalers' facilities. About 21.8 percent ($3.2 million) was spent for other costs in the wholesale market areas including rents 4.9 percent ($717,000), storage charges at public warehouses 14.1 percent ($2,080,000), demurrage $7,000 and intermarket transfers 2.1 percent ($308,000).

Costs for transporting from wholesalers' facilities to retail outlets, and for loading out-of-town trucks amounted to 28.9 percent of the $14.7 million ($4.2 million). The largest part ($4.1 million) was for hauling charges from dealers' facilities to retail outlets in Detroit.

SUMMARY OF INADEQUACIES FOUND BY THE STUDY

The preceding chapters of this report describe the wholesale facilities, market areas, and the flow and major costs of moving the seven food commodities through the wholesale marketing system in Detroit. The whole purpose of this is to make it possible to ascertain what is wrong with the present facilities and the methods of handling. Many inadequacies exist that make marketing costs excessive and prevent the expeditious and efficient handling of the food items. The inadequacies did not apply to every dealer, but they were prevalent among many, and were common to all the types of foods covered in the study.

Before any decisions are made as to whether new facilities are needed, and the kinds and amounts of facilities required, the main conditions that need correction should be set forth.

Inadequate Buildings and Auxiliary Facilities

Generally, and especially in the Eastern and Western Market areas, wholesale store buildings are poorly adapted to the marketing functions that are performed. Buildings are inefficient in that they were not designed for rapid handling of heavy, bulky, and perishable foods. Most of the buildings have no platforms on which to unload incoming supplies, or to assemble and load outgoing products. The greater number of stores have only front entrances through which all products must be moved in and out. Because of the high costs of unloading and moving the packages, much of the floor space in the rear of the stores is inefficiently used.

Many buildings have no toilet facilities and adequate public sanitation facilities are lacking. Streets and sidewalks are often littered with refuse, crates, and broken boxes.

Lack of adequate cooler space causes significant losses to dealers, and results in delivery of poor quality merchandise.

Handling Costs Too High

Much of the high cost of handling food can be attributed to the lack of rail connections, the narrow market streets, traffic congestion, and the lack of loading and unloading

platforms of proper height. Excessive porterage and other handling costs are required to unload the products package by package from inbound vehicles, handle within, and load out from most of the present facilities. Materials handling equipment, such as is used in modern wholesale warehouses, is practically nonexistent in most facilities. The width of market streets in most locations is such that the trucks cannot back up to the front of stores, but must park parallel to the curb to load or unload. Many times the trucks are double parked. This condition increases the costs of unloading because of additional labor time required and decreases materially the number of trucks having access to stores at one time. All of these conditions increase the costs of moving products into, within, and out of the stores.

Products Move Through Too Many Facilities

One-fifth (946.1 million pounds) of the total receipts was handled by two or more wholesale dealers at a handling cost of $1,848,000. The dealers are located in several scattered areas of the city and in many instances considerable distances apart. Most wholesalers try to maintain a list of steady customers and try to keep supplies on hand to meet their demands. In many instances, jobbers, purveyors, and other specialists must purchase supplies from other wholesalers within the market area or from other areas within the city in order to meet customer demand. Because many dealers operate in facilities that do not have direct rail connections, they must buy their supplies from other wholesalers. In other instances, they receive rail shipments at public warehouses, and truck the commodities to their stores as they are needed. Dealers who handle the products through the second or third facility are at a competitive disadvantage. Such extra handling requires additional space rental in addition to the cost of loading, carting, and unloading from facility to facility, plus the breakage, spoilage, and deterioration that is caused by excessive handling.

Unregulated Operating Hours

Operating hours were not well regulated in most of the wholesale market areas of the city. Wholesalers fixed their schedules to suit their buyers' demands, but tried to adhere to a 44- or 50-hour weekly schedule.

However, the lack of coordination in establishing scheduled hours of selling makes it impossible for buyers to arrive on the market at a time when a full selection of products are available. This is especially true in the case of fruits and vegetables. Regulated hours of selling tend to bring buyers into the market at, or near, the same time when supplies are freshly displayed and the market news information is released. For fresh fruits and vegetables, the prices are more competitive when the buyers are all at the market at the same time to select from a complete line rather than from "picked over" items.

Unregulated hours tend to require overtime labor, extra hours for management and the sales force. The cost tables in this report do not reflect all of these conditions.

Poor Working Conditions

All in all, most of the market locations are not pleasant places in which to work. Heavy packages must be handled without the benefit of modern handling equipment. Much of the labor is performed outside the buildings in all kinds of weather. In many businesses, the hours of operation are long. The facilities and surroundings of the market areas usually are not attractive and some clerical and other employees are reluctant to work under these conditions.

Traffic Congestion

In areas where large quantities of foods are handled, the lack of parking and of dock space (for vehicles that move products to and from the stores) has long been recognized as a serious handicap confronting all shippers, dealers, and buyers.

At peak periods of operation, the congestion is great enough to result in traffic tieups. In some instances, large trucks are delayed in reaching wholesale stores to unload their products, and buyers can not find parking space while making their purchases nor dock space for loading. These conditions increase the cost of handling food.

Comparatively, the traffic congestion in and around the four major market areas in Detroit is not as severe nor of long duration as it is in some other cities.

Other Problems

The wholesale food industry is located largely in downtown Detroit areas. This interferes with the redevelopment plans. Trucks bringing products to the market areas, together with the intermarket truck movement, and other vehicles that cart foods out of the markets, create additional traffic problems in the city. Extra policing is required to prevent pilferage, and to provide protection in the markets. The problem of maintaining sanitary conditions in the markets also is increased, because of the inadequate buildings, narrow streets, and crowded conditions in some of the areas.

HOW INADEQUACIES IN THE MARKETING SYSTEM CAN BE CORRECTED

In planning new or improved facilities for the wholesale food industry in Detroit, several factors must be evaluated. Questions should be answered, regarding the kind of wholesale market that is needed: How should it be designed, constructed, equipped, and operated so as to correct the inadequacies of the existing markets, and distribute supplies in the most efficient manner? In order to obtain satisfactory answers to these questions, the following essentials of a wholesale food distribution center should be considered: Completeness, adequate facilities, suitable arrangement of facilities, proper location of the market, reasonable land cost, and sound management.

Completeness

A food-distribution center must be planned to accommodate wholesalers and processors of all types of foods. This provision should be made for independent food wholesalers, food processors, manufacturers' branch houses, food-chain organizations, and all other segments of the wholesale food industry that may desire to locate in it at present, or in future years.

In addition to suitable buildings, auxiliary facilities should be available, such as team tracks, rail spurs to the wholesale stores and warehouses, refrigerated warehousing, restaurants, public restrooms, a gasoline station, and a garage. Office or other space is needed for banks, credit firms, management, inspection service, telegraph and leased wire service, brokers, barber shops, and other individuals and organizations interested in the wholesale market.

When dealers in all kinds of food are centered in a complete market, buyers can come in and get a complete line of products. New buyers will come in from surrounding areas, because access roads will eliminate traffic delay, and the necessity of driving all over the city will be removed.

Food wholesalers are tending to handle a greater number of products. Some dealers are handling almost a complete line of food commodities. At times, it is difficult for this type of food handler to receive the desired quantity of every specific item when needed, and he must buy from another receiver. Also, certain carlot receivers specialize in one or two specific products, and serve as suppliers for jobbers and other wholesalers. In a complete market center, operations can be carried out with a minimum of handling cost by car-pooling and intramarket transfers made with much less cartage cost.

With sufficient acreage and facilities planned to accommodate all the food wholesalers and processors, a center is created that would cause most dealers to want to locate there, rather than remain scattered over the city. Any operator not needing, nor desiring, close association with other firms would still want to be located where rail connections are available, and near access roads that will allow him to reach his retail outlets. The same factors that determine the choice of a wholesale center site are likely to apply to his choice of location.

Adequate Facilities

The kinds of facilities that will be needed in a distribution center should be such that the defects which have been pointed out will be eliminated. The buildings must be carefully designed to fill the needs of each different kind of food distribution. Different types of buildings will be required for large-volume and for small-volume handlers of the same food products. The wholesale buildings should provide ample space for unloading, display, storage, and sale of supplies. They should have both front and rear entrances, and be arranged so that all stores have access to a market street.

One-story buildings with front and rear covered platforms are essential in the efficient wholesale handling of foods. The covered platforms should be at the height of rail-car floors at the rear of the buildings, where tracks are provided, and at truck-bed height at the front. This permits low-cost unloading, inside handling, and loading out with lift or clamp trucks. Mezzanine offices overlooking the sales floor should be planned for certain buildings, in order to allow full use of the floor area for handling operations.

The food processing and wholesaling industry is undergoing varied and rapid changes. Each type of wholesale store should be designed so that it can be modified or expanded to meet the demands of the future, either for its initial intended use, or for other uses. The buildings should be plain and relatively inexpensive. Nothing is gained if the savings achieved through efficient facilities are offset by buildings so expensive that the carrying charges amount to as much as the savings effected.

Suitable Market Design

When designing a wholesale market, special consideration should be given to the arranging of facilities on a given site. Each type of product should be located in a separate area of the site, and wholesale facilities should be planned for those dealers who would move into the market if it were built. Sufficient land must be set aside for these dealers, plus new dealers, who may wish to build in the market later. A market design should provide an expansion area for each building and for each segment of the food industry. An expansion area should be set aside for allied industries that may desire to locate in the distribution center, such as bakeries; ice cream and other food processors; fluid milk distributors; cooperage, cartage, and trucking concerns; general warehousing concerns; and equipment wholesalers.

All streets within the market where rows of stores face each other should be at least 200 ft. wide, so that trucks can back up on both sides of the street to the front platforms and leave ample room for market traffic in the center of the street. This would make possible the loading and unloading of a maximum number of trucks at any one time. Sufficient parking areas should be provided to accommodate trucks that are not loading or unloading, and for the cars of employees and other market personnel.

Proper Location

Several factors must be taken into consideration in selecting a location for a wholesale food-distribution center. First, the site should be accessible to all railroads that bring food products to the city. Second, it should be easy to reach from all highways that are important in bringing in supplies. Arterial streets should provide access for buyers from all directions.

In addition to being convenient to all forms of transportation, the distribution center should be near the retail center of distribution. This permits supplies to move as near as possible before leaving the incoming mode of transportation. It would also tend to eliminate the establishment of intermediary markets, which would increase marketing costs.

Reasonable Land Cost

Because a large amount of land is needed for wide streets, ample parking areas, expansion areas, and the one-story buildings recommended, it is advisable to acquire land at a reasonable price. Otherwise, the high rentals required to amortize the complete investment would tend to offset any savings that might be made. Hence, if new facilities are to be built, they should be located outside the high-priced downtown area.

Special consideration should be given when appraising the cost of land for a market site to items such as acquisition cost, removal of buildings that may be on the site, and placing the land in condition for construction.

Sound Management

No matter how well a food-distribution center has been designed, how complete it is, or how perfect its location, it cannot function efficiently unless it is well managed. It should be managed so that it will operate at low cost, and without discrimination against any type of dealer or buyer, against any form of transportation, or against delivery of products from any location. Charges levied on the industry for the use of facilities should provide only for cost of operating and maintaining the center. Dealers who operate within the market should be allowed the maximum practicable degree of individual initiative in conducting their respective businesses. However, the market management should be strong enough to assist the industry in enforcing desirable regulations.

In order that the proposed wholesale market may operate properly, its board of directors or other managing agency should have an interest in the financial success of the center as a whole, as well as an interest in the welfare of shippers, dealers, buyers, consumers, transportation agencies, and the appropriate agencies of government.

KINDS AND AMOUNT OF FACILITIES NEEDED

The facilities recommended in this report are based upon the volume of foods handled by the wholesale dealers who would benefit by moving to new facilities, or who, because of city redevelopment plans, may be required to move. New facilities for the five large food-chain organizations were excluded from the plans, because these organizations have recently constructed, or have announced plans for constructing, efficient new warehouses. These facilities are or will be of modern design for the greatest efficiency in serving their retail outlets. The chains are not likely to abandon their plans in order to locate in the proposed center.

The number of wholesalers and the volume of business that would actually go into the food-distribution center should be determined by the number of responsible wholesalers who would lease or construct buildings in it. Therefore, the actual number of facilities would be based upon space needed for the volume handled by responsible tenants who will

actually sign firm leases for it. This precaution is necessary to prevent overbuilding at the outset, and to insure the occupancy of all facilities.

Several independent wholesale grocery dealers have new or modern warehouses, and would not benefit from moving. Also excluded are other wholesale grocery dealers who operate partially as retailers and would lose their retail business if they moved from their present locations.

The plans do not include facilities for slaughtering of livestock. Many of the livestock slaughterers have shown no interest in changing their locations, unless the plans for the market center would include provisions for stockyards at or near their new facilities. Also, the Detroit Master Plan does not include stockyards in the plans for a wholesale food-distribution center, even though a modern stockyard could be constructed so that its operation would be entirely unobtrusive. The stigma attached to this kind of facility could lower the value of surrounding properties and businesses, and would seem to obviate its inclusion in the plan.

A total of 368 wholesale food handlers, who received 2.23 billion pounds of the seven food commodities in the year studied, are included in the plans for the center (table 19).

TABLE 19.--Number of dealers to occupy buildings in new food-distribution center, and annual volume of business

Type of facility	Dealers	Buildings	Units	Volume of business
	Number	Number	Number	Million pounds
Fruit and vegetable:				
Multiple-occupancy	77	2	65	466.9
Special-purpose[1]	7	2	7	346.4
Farmer's Market	--	--	[2] (700)	245.5
Meat and meat products:				
Multiple-occupancy	110	4	98	34.2
Single-occupancy	19	19	--	175.1
Meat dock	15	1	--	85.8
Poultry:				
Multiple-occupancy	20	1	20	129.4
Dairy products and eggs:				
Multiple-occupancy	31	2	30	128.3
Single-occupancy	4	4	--	45.6
Frozen foods:				
Multiple-occupancy	17	1	18	145.4
Fish and seafood:				
Multiple-occupancy	20	2	33	66.1
Groceries:				
Multiple-occupancy	40	3	42	130.6
Single-occupancy	8	8	--	227.8
Total	368	49	313	2,227.0

[1] Including auction company.
[2] Includes 500 covered, and 200 open, stalls.

Individual needs of each wholesaler have been determined from interviews, and from studying his operations in the market areas. From these interviews and studies, it was determined that a new wholesale center, to replace the present market areas, should provide for 313 store units in 17 multiple-occupancy buildings for the smaller volume dealers, a meat dock, and 31 single-occupancy buildings to accommodate the larger volume handlers, processors, and purveyors (table 19). In addition, a new wholesale market in Detroit should include in its initial construction the following facilities:

1. House tracks for 380 rail cars.
2. Team tracks for 245 rail cars.
3. 500 covered stalls and 200 open stalls in a Farmers' Market area.
4. Four restaurants in multiple-occupancy buildings, with public restrooms in the basement.
5. 141 offices and supplementary facilities for market management, brokers, allied organizations, and the like.
6. Paved streets, not less than 200 feet wide, where multiple-occupancy buildings face each other.
7. Parking areas for 5,400 cars and trucks.
8. A service area, with a gas station, garage, restaurant, an icing dock, and a public scale.
9. An expansion area to permit construction of additional buildings as needed.

The kind and amount of facilities needed for each food commodity group are discussed in the following paragraphs.

Fruit and Vegetable Facilities

It was determined that all of the fruit and vegetable dealers would benefit by moving to a new wholesale food center. The suggested facilities are: 2 multiple-occupancy buildings with 65 standard store units for 77 dealers (with one additional unit used as a restaurant); 2 multiple-occupancy buildings (with offices on second floor of one building) for the fruit auction, 4 banana dealers, a tomato repacker, and a large-volume service wholesaler; and a farmers' market with 500 covered stalls and 200 open stalls. A total of 813.3 million pounds of fruits and vegetables could be handled efficiently in the four multiple-occupancy buildings, and 245.4 million pounds could be handled at the farmers' market (table 19).

Multiple-Occupancy Buildings

In the proposed plan, the 65 wholesale store units would be located in 2 buildings. Each building would contain 33 units, with 1 unit used as a restaurant. Each unit would be 25 ft. wide, 60 ft. deep, and not less than 18 ft. high. A 24-ft. covered platform at the front and a 14-ft. covered platform at the rear, with 2 ft. of front and rear walls, make the overall depth 100 ft. (fig. 23). The total length of the buildings will be determined by the number of units required, the space available in the market area, and the arrangement of the facilities on the site. In some instances, interference from street and sewer easements may determine the location and the total length of the building.

The roof over the front platform should extend beyond the edge of the platform to provide protection from the weather when loading and unloading. The roof-supporting posts should be set back from the edge of the platform so they will not interfere with loading operations. A slight deviation in the width and depth of these stores would not be objectionable, if preferred by the tenants.

The plan provides continuous platforms and floors on the same level. The front platforms are at truck-bed height, or about 45 in. high, while the rear platforms are at refrigerated-car-floor level, or about 55 in. high. A wooden bumper, 6 by 8 in., should be bolted to the top of the front and rear platforms to protect them from damage by

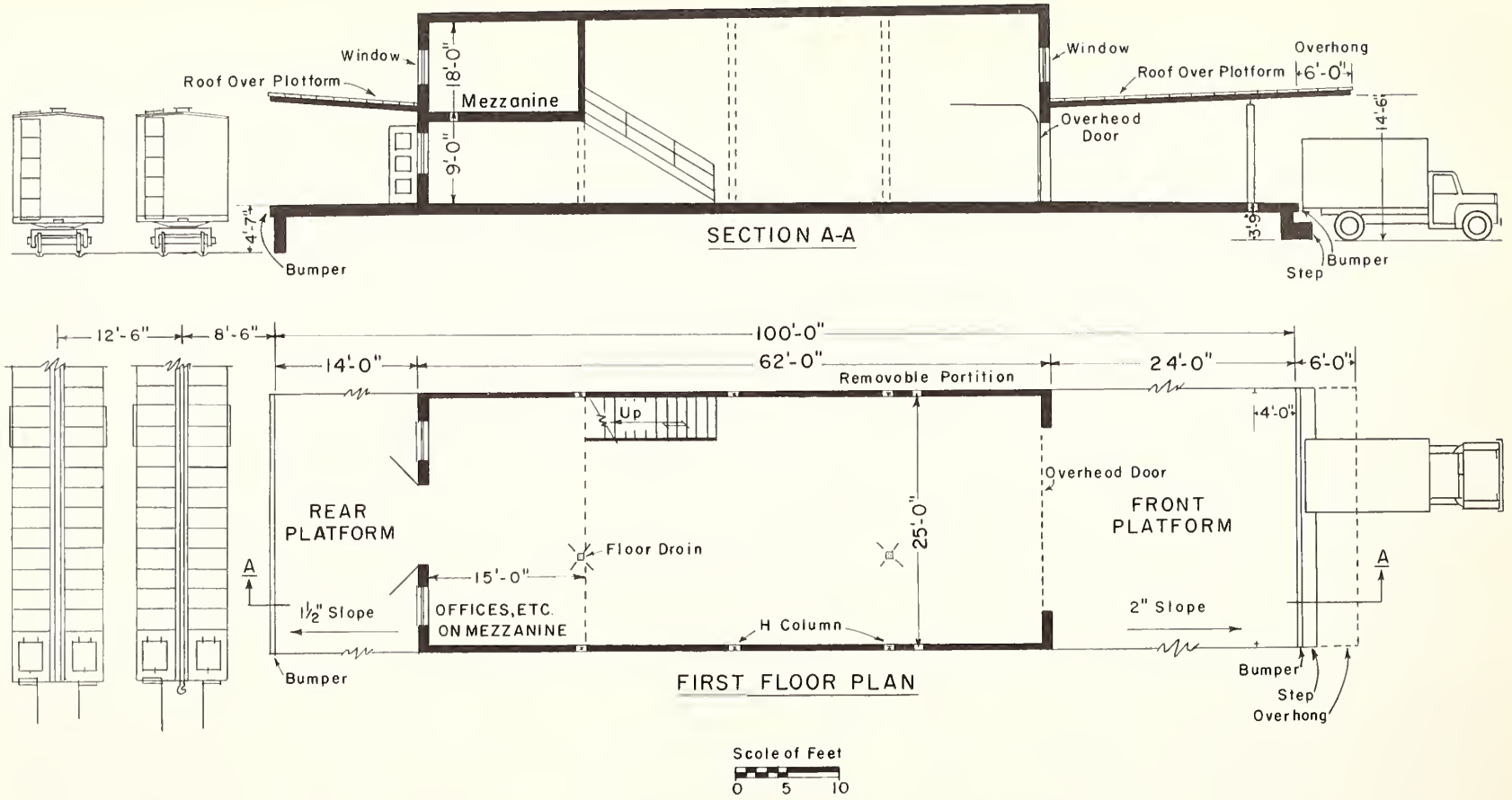


Figure 23. --Plan for proposed wholesale fruit and vegetable store.

trucks. A continuous step along the front platform, about half the height of the platform, and at least 24 in. wide, would accommodate small trucks and pedestrians. Front doors are 18 to 20 ft. wide, and rear doors, 8 ft. A smaller door should be built into the front door, to allow access without opening the entire entrance (fig. 24).

Individual wholesalers may wish to lease more than one store unit for their operations, so removable partitions should be used. Such partitions, however, should be constructed so that they are waterproof, to prevent seepage between units. All units contain mezzanine offices, 15 ft. deep by 25 ft. wide. These mezzanines are at the rear of the store and can be used as offices or for light storage. To allow adequate space underneath the mezzanine for walk-in coolers or ripening rooms, and sufficient height for pallet stacking, the ceilings would have to be at least 18 ft. high. All floors and platforms on the first floor should have a nonskid concrete surface and should be sloped to the drains. Heat would be provided by gas or electric space units. Because of variations in requirements of individual wholesalers, each should equip his store with the required amount of refrigeration. Stairs to the mezzanine should occupy a minimum of floor space. Toilet facilities for each store should be provided on the mezzanine.

Adequate air vents are necessary to facilitate the circulation of air within the store, to prevent hot or stagnant air from collecting in the ceiling area, and to prevent condensation and excessive moisture from collecting during the cool seasons. Interiors of the stores should be well lighted. To provide flexibility in lighting the store, the system should be controlled by more than one switch, so that only the part of the store being used need be lighted.

The double rail tracks at the rear of each building should be set into the pavement to allow trucks to move over them. These double tracks could furnish extra capacity for spotting rail cars during peak seasons, and also serve as team tracks for direct delivery from car to buyer's vehicle. Floors in the stores should be designed for a live load of at least 350 pounds per sq. ft., and mezzanine floors for a live load of 75 pounds per sq. ft.

Each unit would contain 1,500 sq. ft. of enclosed first-floor space, 950 sq. ft. of platform space, and 50 sq. ft. of front and rear wall space, or 2,500 sq. ft. There are an additional 375 sq. ft. in each mezzanine office. Thus, each unit would contain 2,875 sq. ft. of total space, or a total of about 187,000 sq. ft. for the 65 store units.

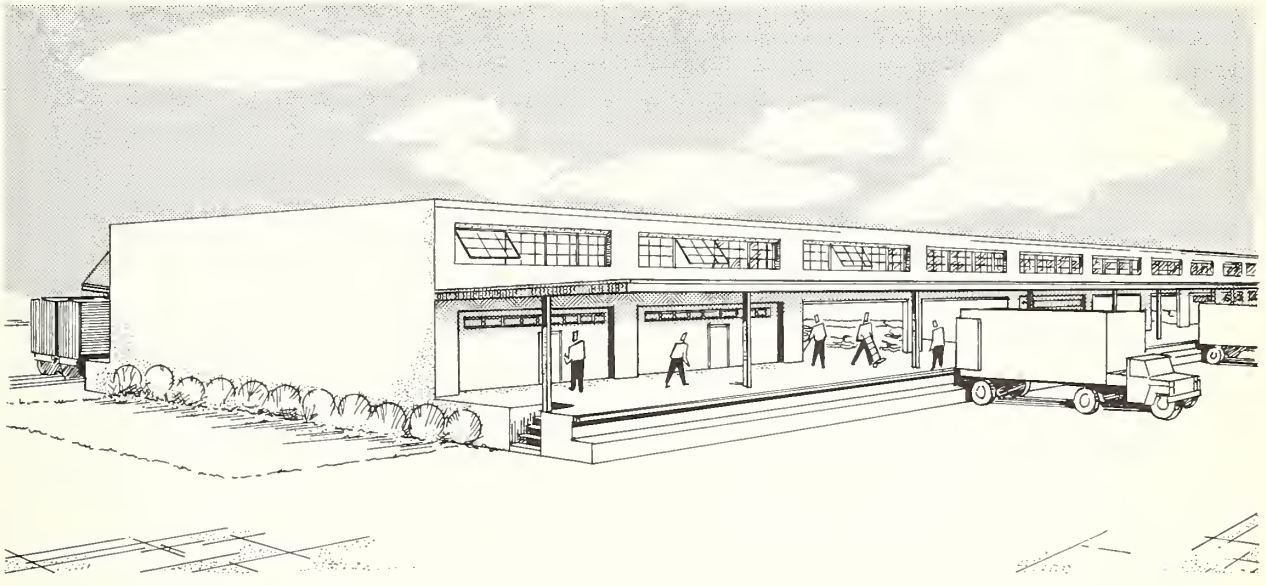


Figure 24.--A drawing of the proposed fruit and vegetable wholesale store building.

Other Buildings

Two other special-purpose buildings (with offices on the second floor of one building), 1,044 ft. in length and 100 ft. in width, including a 14-ft. covered front platform at truck-bed level (45 in. high) and a covered rear platform 14 ft. wide at rail-car-floor height (55 in.), are suggested for several other fruit and vegetable operators. These two buildings could be occupied by the Detroit Fruit Auction Company, four banana dealers, a tomato repacker, a large-volume service wholesaler, and a restaurant.

Double house tracks (set in the pavement to permit truck passage) should be laid parallel to the rear platform of each building. Each building would contain about 104,000 sq. ft. of first-floor space, which includes 75,000 sq. ft. of enclosed first-floor space and 29,000 sq. ft. of platform space. Thus, there would be about 209,000 sq. ft. of first-floor and platform space in the two buildings. Also there would be 63,000 sq. ft. (1,044 ft. x 60 ft.) of second-floor space in one building for offices for market management, brokers, and allied organizations, halls, toilets, and storage rooms. About 42,000 sq. ft. would be used for 141 offices (12 ft. x 25 ft.), 2,000 sq. ft. for four toilets and one storage room, and 12,000 sq. ft. for corridors and stairways. About 7,000 sq. ft. would be used for an auction auditorium and auction offices (fig. 25). The design and layouts of these buildings should meet all construction requirements of the city building codes and conform to the master plan for the distribution center.

The 65 standard store units and the 2 other buildings would contain about 396,000 sq. ft. of first-floor and mezzanine space. These facilities should handle efficiently the 813.3 million pounds of fresh fruit and vegetables, which were received by the 84 independent fruit and vegetable wholesale dealers, including the auction. The comparable total space used in handling fruits and vegetables in the present Detroit markets amounts to 524,000 sq. ft. but much of this space is inefficiently used because of the design and characteristics of the present facilities.

The Farmers' Market

Both farmers' sheds and open curb stalls will be needed to handle the present volume of receipts in the Eastern and Western Municipal Farmers' Markets. The kinds of facilities needed in a farmers' market depend upon the function that the market performs.

A wholesale farmers' market would not need the same type of facilities as those recommended for a retail farmers' market. In Detroit, the farmers' markets operate primarily as wholesale markets, but during certain hours are open for retail sales. To serve both these operations, 12 multipurpose sales sheds are recommended.

Each of these sheds is 420 ft. long, with a roof about 13 ft. above the ground at each edge, covering a concrete platform which is 36 in. above street level and 8 ft. wide. There is a roof overhang of 6 ft. beyond the platform to protect the produce from the weather. A continuous step, 24 in. wide and 18 in. high, should be constructed on each side of the platform to permit ready access for buyers and sellers. The column supports for the roof are placed at 10-ft. intervals in the center of the platform (fig. 26).

Spaces 10 ft. wide will be marked off on the covered platforms, providing 504 covered stalls. Four stall spaces would be enclosed for office space and toilet facilities, with 500 stalls for farmers' trucks. These 12 covered platforms would be laid out in 6 double rows, with a driveway 30 ft. wide between each double row, for buyers' vehicles. A 50-ft. wide street is recommended for the other sides of the double rows of sheds, to provide room for the farmers' trucks to back up to the sales stalls and unload across the platforms to the buyers' vehicles.

Retail sales can be made by displaying the produce on the tail gate of the farmers' trucks while the customers use the platforms as a walk way, moving from truck to truck to make his purchases.

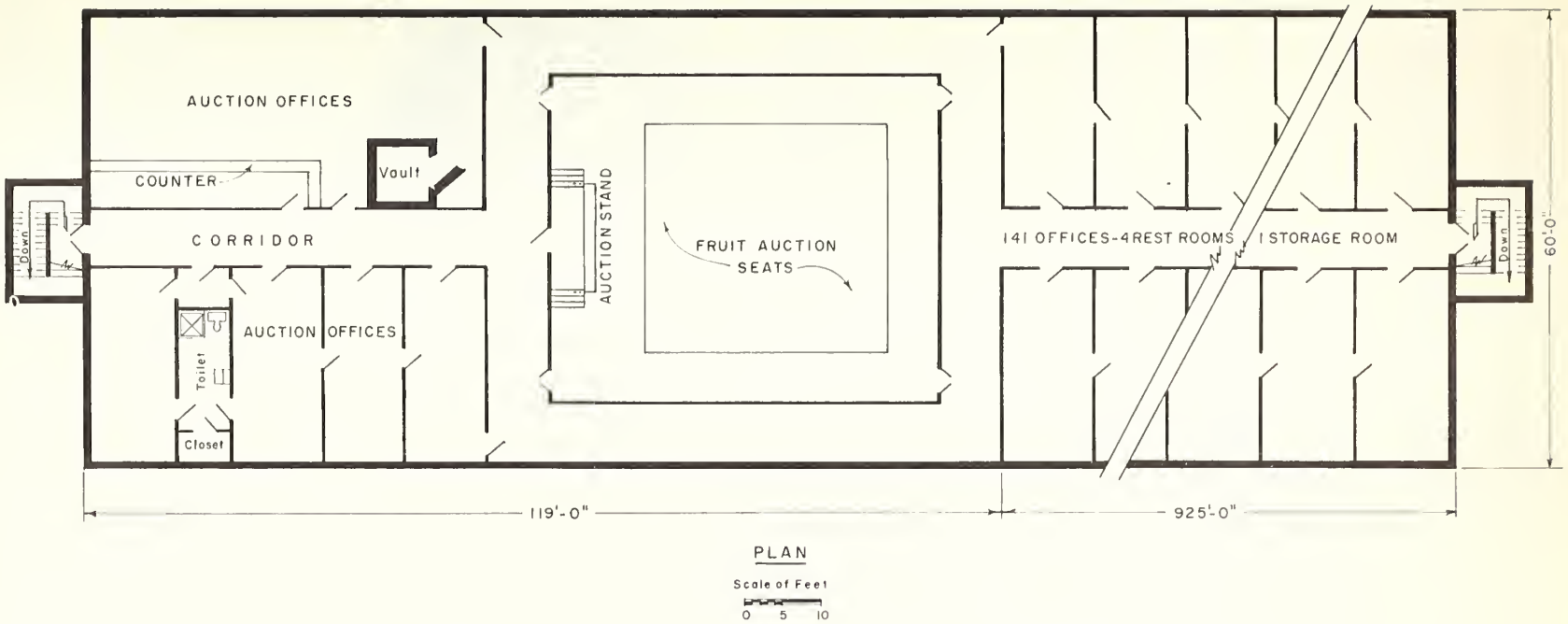


Figure 25.--Plan of Auction and offices on the second floor of a fruit and vegetable building.

Wholesale purchases could be made in a similar manner. The customer would make his selection from the various products displayed. When he has completed his buying, he would get his car, or truck, from a nearby parking area, drive between the double rows of sheds, park parallel to the platform, pick up his products from the farmers' stalls and move on. If a farmer sells a large quantity of a product (half a truck load, for example), the transfer can be made in a nearby parking area, from the tailgate of his truck to the buyers' truck. The farmer then could return to his stall. If a complete load, or the remainder of a load, is sold to a wholesaler, the farmer could deliver the product to the buyer's store. These 12 covered platforms would contain about 40,000 sq. ft.

In addition to the covered platforms, a paved area, 560 ft. by 340 ft., marked off for 200 open stalls (10 ft. wide and 8 ft. deep), should be provided in the farmers' market area. These open stalls would be laid out in three double rows, each 340 ft. in length, making an arrangement similar to the covered sheds. This area will provide for seasonal peak loads on the farmers' market, or for farmers and truckers who desire this type of space. The stalls could be rented on a daily fee basis from early spring throughout the summer and fall local fruit and vegetable season. They could be used for additional auto and truck parking when not in use as sales stalls. The open stalls would provide 16,000 sq. ft. of sales space.

In addition to the space needed for the covered sheds and open stalls, parking should be provided in the farmers' market area for about 600 autos and trucks. The total land needed for the farmers' market, including cross-streets and driveways between the open stalls, covered stalls, a manager's office, parking area, and scale would be about 20 acres. Thus, the farmers' sales space, including the covered and open stalls, would contain 56,000 sq. ft. of space. The present Eastern and Western Municipal Farmers' Market facilities contain 361,000 sq. ft. of covered sales space. Because of the improved design of the proposed facilities they should handle efficiently an annual volume of 245.5 million pounds.

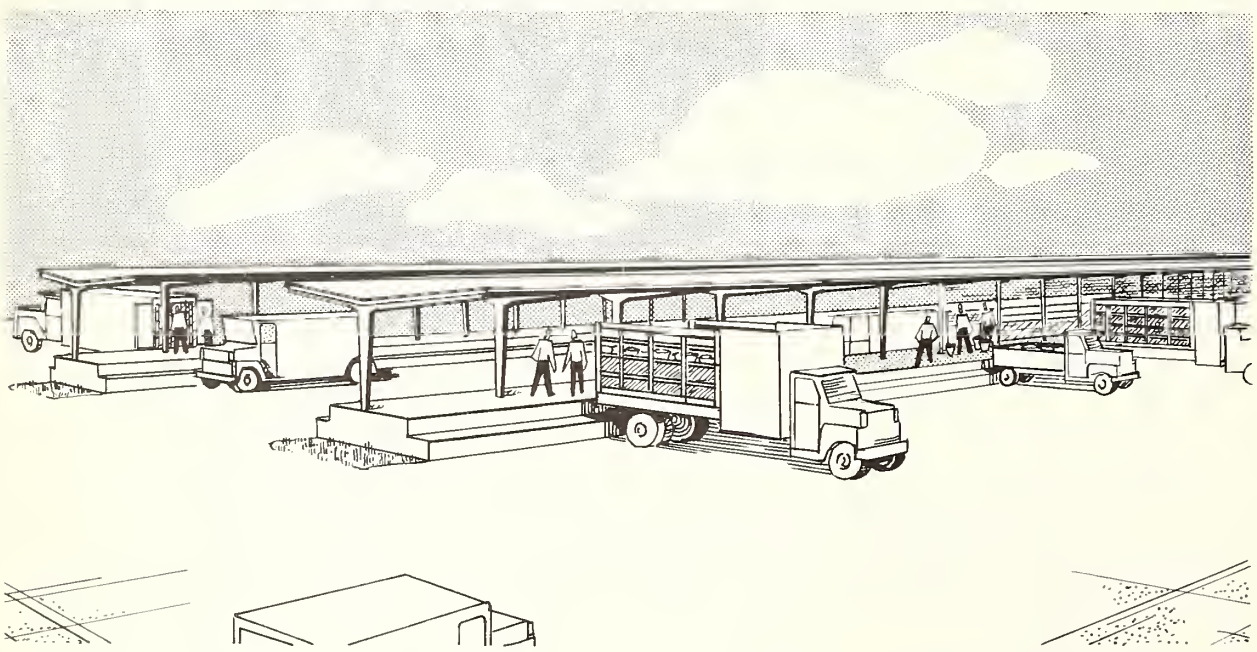


Figure 26.--Plan for a drawing of a farmers' and truckers' shed.

Facilities for 144 meat and meat-product dealers are included in the plans. These facilities include 4 multiple-occupancy buildings, containing 98 store units for small-volume general meat wholesalers, boning establishments, and hotel supply houses; 19 buildings for individual occupancy by large-volume boners, purveyors (hotel supply houses), processing wholesalers, jobbers, and national packers; and a meat dock for carlot receivers.

Multiple-Occupancy Buildings

In the proposed plan, 98 standard store units for the smaller volume boners, purveyors, general wholesalers, and jobbers are provided in 4 buildings. Two buildings contain 20 units each; 1 building contains 29 units, and 1 building contains 30 units, one of which will be used as a restaurant.

These buildings will contain two floors, (fig. 27). The main floor of each unit is 25 ft. wide and 100 ft. deep, including a 14-ft. covered platform, 55 in. above the rail tracks at the rear, and a 14-ft. covered platform, 45 in. above the street, at the front. A 6-ft. overhang on the front platform is provided to protect the meat and workers from inclement weather. The interior height of the stores should be at least 20 ft.: 12 ft. for the first floor, and 8 ft. for the second floor.

Rail access is provided by one house track, immediately adjacent and parallel to the rear platform of the buildings. Only one house track is recommended, because less than 5 percent of the receipts at these facilities arrive by rail. The front platform should have convenient steps to provide access for pedestrians to the stores. A wooden bumper, 6 by 8 in., should be bolted to the top edge of both platforms to protect them from damage. Both platforms should be sloped slightly toward the streets to provide adequate drainage.

Two continuous parallel overhead meat rails, a minimum of 7.5 ft. from the floor to the top of the rail, should be installed on the front and rear platforms. These rails should run the full length of the platforms and have switches to the interior of each store so that meat can be unloaded at any point on the platforms and rolled into any of the stores. These rails also can be used for transporting intramarket sales between wholesalers. The platforms should have a nonskid surface. The units are designed so they are easily adapted to the various types and sizes of operations of the present market. The final design of the building should incorporate a removable partition between units, so that two or more units could be combined to make a larger unit, if needed. The partitions should be of materials that can easily be removed or replaced, and that would provide insulation for refrigerated coolers.

The second floors of the multiple-occupancy buildings are designed for maximum flexibility and use. Figure 27 shows a typical layout of the second floor in a multiple-occupancy building. The second floor is divided by a corridor running the entire length of each building, and served by stairs at the ends of the corridor. The corridor divides the office and welfare areas of each unit from the storage areas. All offices and storage areas can be reached by way of the corridor, or by access stairs for every other standard unit. Alternate space for a second stairway between every other 25-ft. unit could house a conveyor to move items from the front platform into the second-floor storage areas. The tenant of the first floor would also lease the second-floor area, and could sublease the office or storage space if he did not need them himself.

Corridors on the second floor would provide access to the refrigeration equipment rooms for maintenance and servicing. Buildings should be constructed so that the second floor could be removed if it ever became desirable to have a 20-ft. high ceiling.

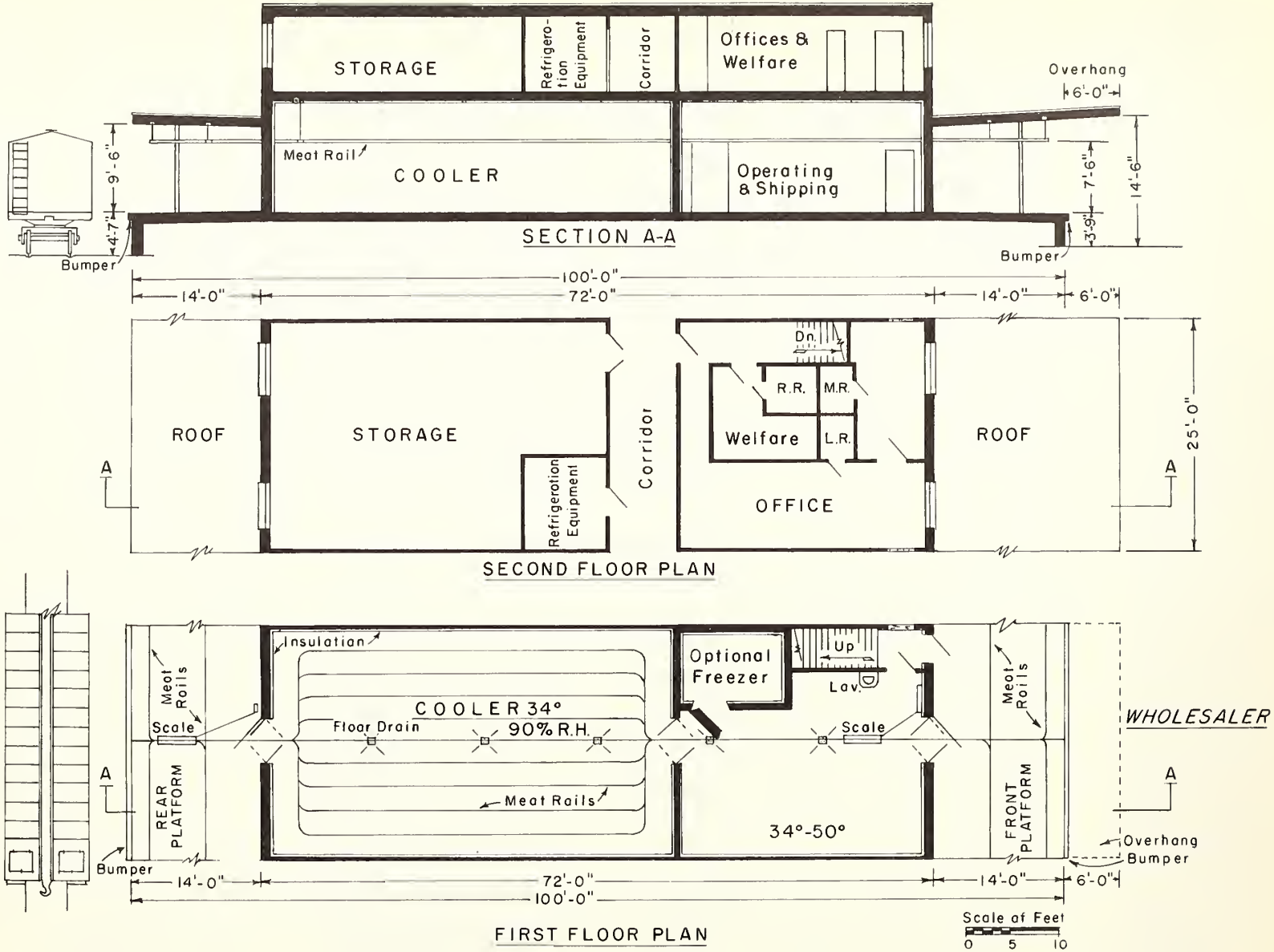


Figure 27.--A plan for a meat wholesaler's single unit. A cross section and a layout of second floor.

Before construction, consideration should be given to the feasibility of placing one public elevator in each multiple-occupancy building, for both freight and pedestrian uses. If an elevator were installed, it should adjoin the front platform midway in the building; a short hall would connect with the main corridor on the second floor. Meat-rail systems might be supported from the wall, or suspended from the ceilings of the coolers. Refrigeration systems should be suspended from the cooler ceilings, to keep floor areas as free as possible.

Refrigeration equipment should be supplied for all the multiple-occupancy units for meat. Each multiple-occupancy unit for meat should have sufficient equipment to supply refrigeration for 0° F. freezers, for 32-34° F. coolers, and for 34-50° F. work areas. Office areas should have electrical outlets to permit individual tenants to install office air-conditioning. Arrangements should be made for each tenant to supply heat for his office areas.

Store interiors should be well lighted, and provision should be made to supply electrical outlets to all areas in the units that might need them. Space should be allocated in the equipment room on the second floor for compressed air equipment, which, if necessary, should be furnished by the individual tenant. Care should be exercised to locate properly the controls for lights, heating, refrigeration, and compressed air.

Floors should be constructed either of vitrified brick of good quality, bonded with acid-resistant, waterproof mortar, and laid on a waterproof concrete base, or of dense, acid-resistant, waterproof concrete. Floors should be well drained, with at least one drainage inlet for each 400 sq. ft. of enclosed space. Floors should slope 1/8 in. per ft. in coolers to as much as 1/4 in. per ft. in areas where relatively large amounts of water are likely to accumulate. When drains are in areas where the water seal in the trap is likely to evaporate, drains with screw-type plugs should be used. All floors on the first level should be designed for a live load of at least 350 pounds per sq. ft., and preferably 400 pounds. Second floors should carry at least 200 pounds and preferably 250 pounds per sq. ft.

All foundations should be engineered to meet the basic needs and anticipated loads, and be constructed according to acceptable standards and methods for the area concerned.

House meat-rail systems should be included in the plans. These should be installed initially at a height of 7.5 ft. as a minimum, and 9 ft. as a maximum from floor to the top of the meat rail. Initial installation should be made according to the needs of individual tenants. Provision should be made so that rail heights can be adjusted between 7.5 ft. and 9 ft., if the occupant desires to change his handling operations.

Adequate hot water (at least 180° F.), should be supplied. Units requiring steam would supply their own needs.

Each unit contains 1,750 sq. ft. of enclosed first-floor space, 1,750 sq. ft. of second-floor space, 700 sq. ft. of platform space and 100 sq. ft. for the front and rear walls, or a total of 4,300 sq. ft. The 98 units proposed for these meat processors and wholesalers would contain about 176,000 sq. ft. of enclosed first-floor space, 176,000 sq. ft. of enclosed second-floor space, 69,000 sq. ft. of platform space, or a total of 421,000 sq. ft. The wholesale stores presently occupied by this group of meat dealers contain 526,000 sq. ft. of space, much of which is inefficiently utilized.

Layouts for a purveyor and a meat processing operation, each occupying two standard units, are shown in figure 28.

These types of layouts permit a direct flow of meat and meat products through the store with a minimum of handling. The sketches are intended to show how different types of meat dealers can make use of the proposed standard units by varying the internal arrangement to suit their own particular needs.

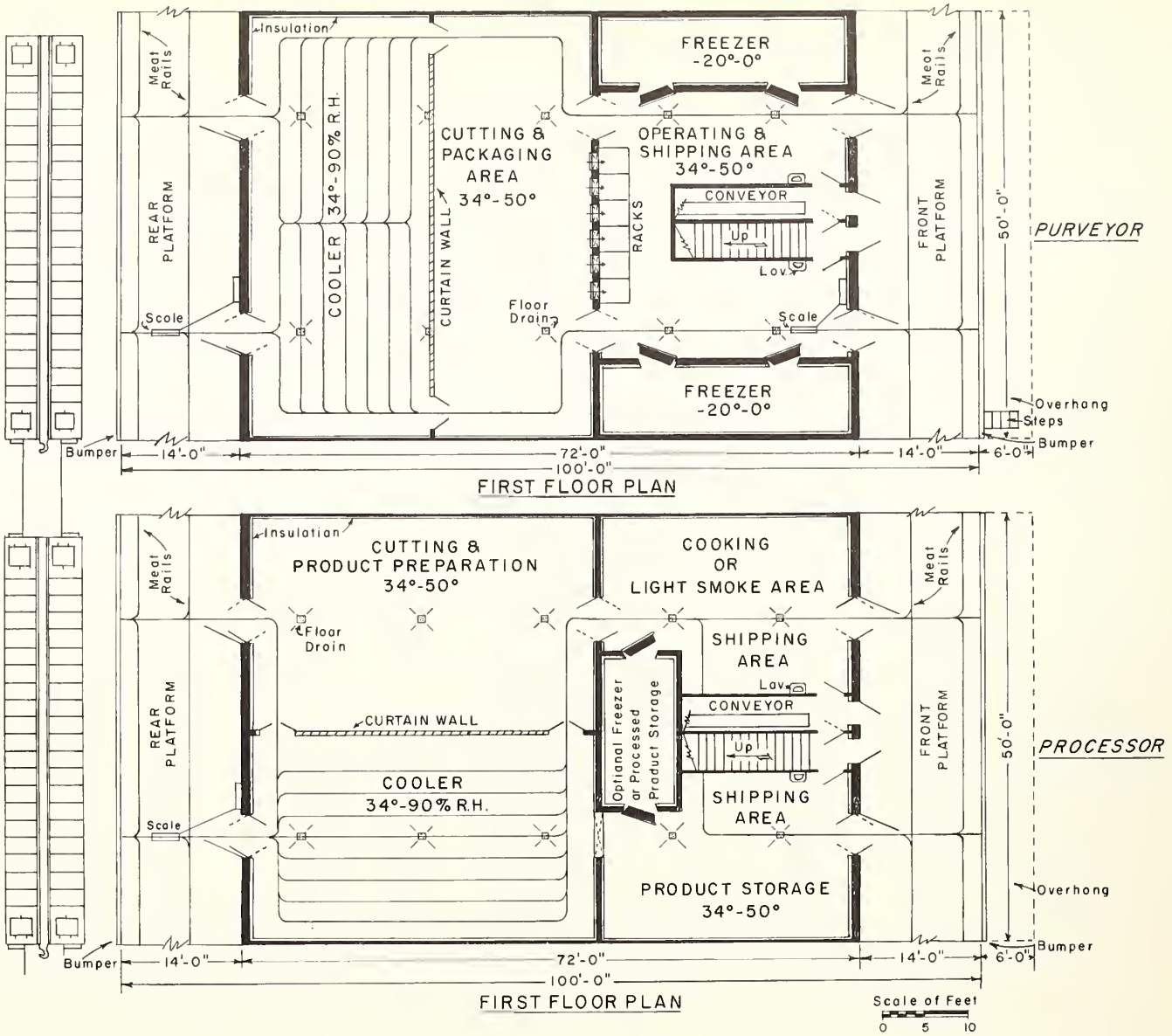


Figure 28.--Floor plans for a purveyor and a meat processor, each occupying two units.

Single-Occupancy Buildings

Nineteen single-occupancy buildings are provided in the plan for 19 large-volume processing wholesalers (including sausage and luncheon-meat manufacturers), boners, purveyors, (hotel suppliers) national meat packers, jobbers and wholesale dealers. In this group of facilities there are:

4 buildings of 10,000 sq. ft. (100 ft. x 100 ft.) - 40,000 sq. ft.
3 buildings of 12,000 sq. ft. (100 ft. x 120 ft.) - 36,000 sq. ft.
5 buildings of 15,000 sq. ft. (100 ft. x 150 ft.) - 75,000 sq. ft.
3 buildings of 25,000 sq. ft. (200 ft. x 125 ft.) - 75,000 sq. ft.
1 building of 35,000 sq. ft. (200 ft. x 175 ft.) - 35,000 sq. ft.
1 building of 45,000 sq. ft. (200 ft. x 225 ft.) - 45,000 sq. ft.
1 building of 75,000 sq. ft. (200 ft. x 375 ft.) - 75,000 sq. ft.
1 building of 100,000 sq. ft. (200 ft. x 500 ft.) - 100,000 sq. ft.

These 19 buildings would contain a total of 481,000 sq. ft. The outmoded, inefficient facilities used by this group of meat and meat-product dealers contain 655,000 sq. ft. Because needs of individual wholesalers vary, each should equip his building with the amount of refrigeration he needs. At least one house track should be provided for each building. Adequate parking space also is provided.

The design and layout of each building would be the responsibility of the individual firm which would build or lease the facility, but the buildings should meet all requirements of the U.S. Meat Inspection Division, State and city sanitation departments, and city building codes, as well as to conform to the plan for the center.[5]

Meat Dock

An enclosed meat dock is suggested for handling the 85.8 million pounds of meat and meat products that were received by 15 meat dealers.

The building should be 1,020 ft. long and 30 ft. wide, without front and rear platforms. Eight-ft. wide doors should be provided at the rear, spaced about 50 ft. apart, to facilitate unloading of refrigerated rail cars. Two house tracks are suggested along this side of the dock. Door openings, 8 ft. wide in each 10 ft. of space, should be provided along the front of the building. Office space should be provided at one end of the building, and a refrigerated room at the other end (fig. 29).

There are 30,600 sq. ft. of space provided in the meat dock, compared with the 40,600 sq. ft., used at the time of the study.

The total amount of space recommended for the wholesale meat dealers is 933,000 sq. ft. compared with 1,221,000 sq. ft., a reduction of 288,000 sq. ft.

Poultry

A multiple-occupancy building, containing 20 units, is provided for the 20 poultry wholesale dealers.

Each unit is 25 ft. wide by 70 ft. deep, with 14-ft. covered platforms in the front and rear, giving an overall depth (including 2 ft. for the front and rear walls) of 100 ft. The stores would be built to the specifications described for fruits and vegetables except for the depth, the front platform width, and the house tracks at the rear of the stores. The front and rear platforms are 45 in. high, because no direct rail access is provided (figure 30). Because of the wide variation in requirements of individual wholesalers for cooler

[5] U.S. Agr. Res. Serv. Meat Insp. Div. U. S. Inspected Meat Processing Plants. 30 pp., illus. U.S. Dept. Agr., 1961.

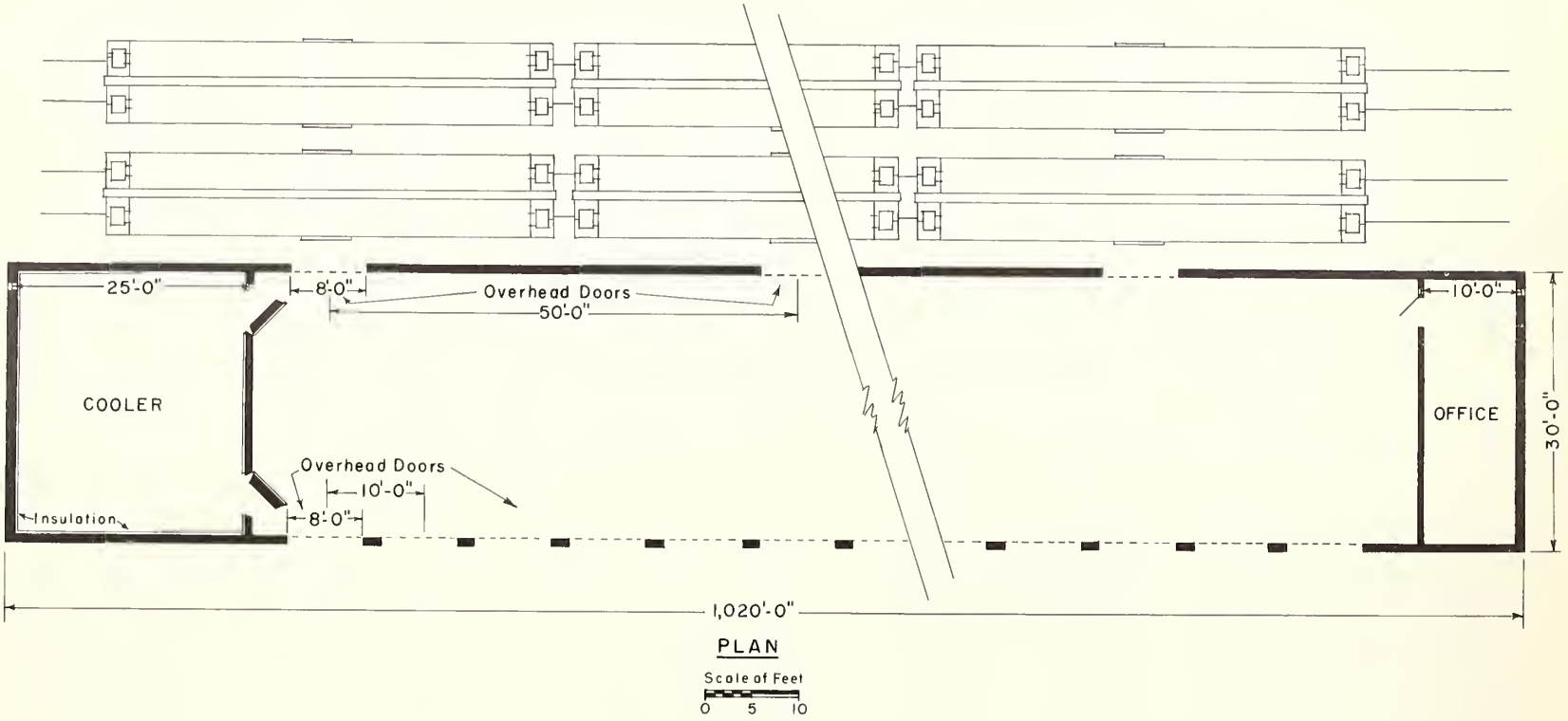


Figure 29.--Plan of a meat dock.

and freezer space, it is recommended that cooler units be provided by the dealers themselves. For purposes of illustration only, figure 30 shows a cooler, 20 by 25 ft., at the rear of the store.

Concrete floors and platforms should have a nonskid surface, and ample slope to insure drainage. Special mention is made of this point, because water from iced poultry can accumulate on the floors and platforms, creating undesirable and unsanitary working conditions.

As shown in table 2, the rail receipts of dressed poultry amounted to only 2.6 percent, of total poultry receipts, a decline from about 50 percent of poultry receipts by rail in 1947. The methods of handling and shipping poultry do not indicate that rail receipts will increase in the future. Provision can be made to receive any rail shipments in the team track yards.

Space for the firm's offices, dry storage, and toilets is on the 15-by-25-ft. mezzanine. Each unit would contain 1,750 sq. ft. of enclosed first floor space, 375 sq. ft. of mezzanine space, 700 sq. ft. of platform space, and 50 sq. ft. for the front and rear walls, or a total of 2,875 sq. ft. The building would contain 35,000 sq. ft. of first-floor space, 7,500 sq. ft. of mezzanine office space, and 14,000 sq. ft. of platform space, and 1,000 sq. ft. occupied by two walls, or a total of about 58,000 sq. ft. These facilities should handle efficiently the 129.4 million pounds of poultry that were received in the year studied. The 20 dealers used 114,000 sq. ft. of space to handle those receipts, but because of the characteristics of the present buildings, much of the space was used inefficiently.

Dairy Products and Eggs

Thirty standard store units in 2 multiple-occupancy buildings are suggested to accommodate 31 smaller volume wholesale dealers, handling 128.3 million pounds of dairy products and eggs. Four buildings for individual occupancy are suggested for 4 large-volume handlers which would provide space to handle 45.6 million pounds of products. The total annual volume to be moved through these facilities would be 173.9 million pounds.

Multiple-Occupancy Buildings

Each standard store unit is 25 ft. wide by 70 ft. deep, with 14-ft. covered platforms at the front and rear. Allowing 2 ft. for the front and rear walls, each unit is 100 ft. by 25 ft.

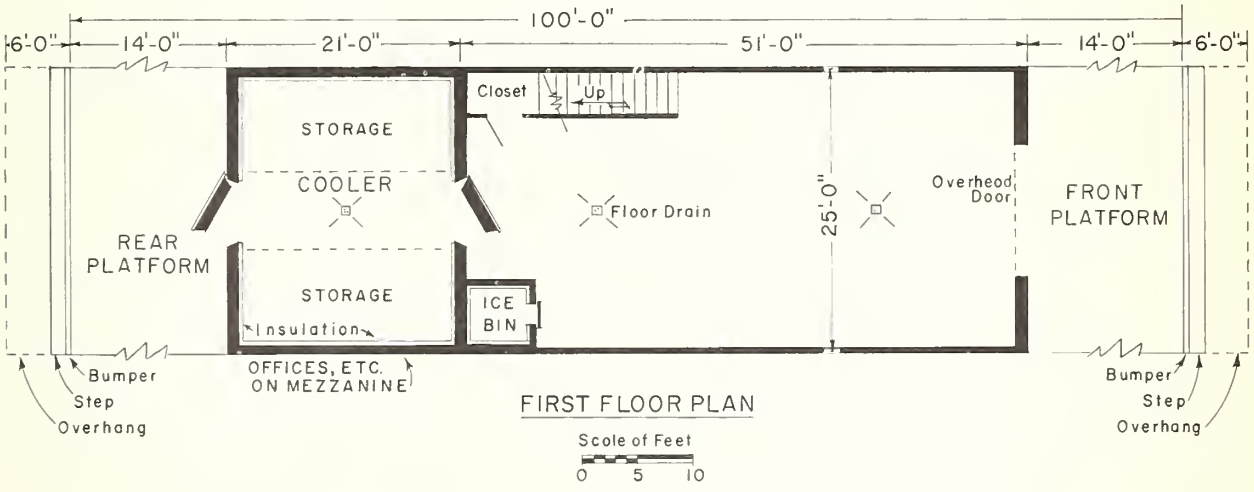


Figure 30.--Plan of an ice-packed poultry facility in a single unit.

Space for offices, dry storage, and toilets is provided on the mezzanine. Each unit would contain 1,750 sq. ft. of enclosed first-floor space, 375 sq. ft. of mezzanine space, 700 sq. ft. of platform space, and 50 sq. ft. for the front and rear walls, or a total of 2,875 sq. ft. The two buildings would have 52,000 sq. ft. of enclosed first-floor space, 11,000 sq. ft. of mezzanine, 21,000 sq. ft. of platforms and 1,500 sq. ft. occupied by the front and rear walls, or a total of about 86,000 sq. ft.

The stores would be built to the specifications described under Fruits and Vegetables, except for the depth, the platforms width, and house tracks. The rear platform is 45 in. high, because no rail access is provided.

For illustrative purposes, two sketches are shown of possible layouts for egg processors and packers. Figure 31(a) shows a plan for an egg processor, who packs about

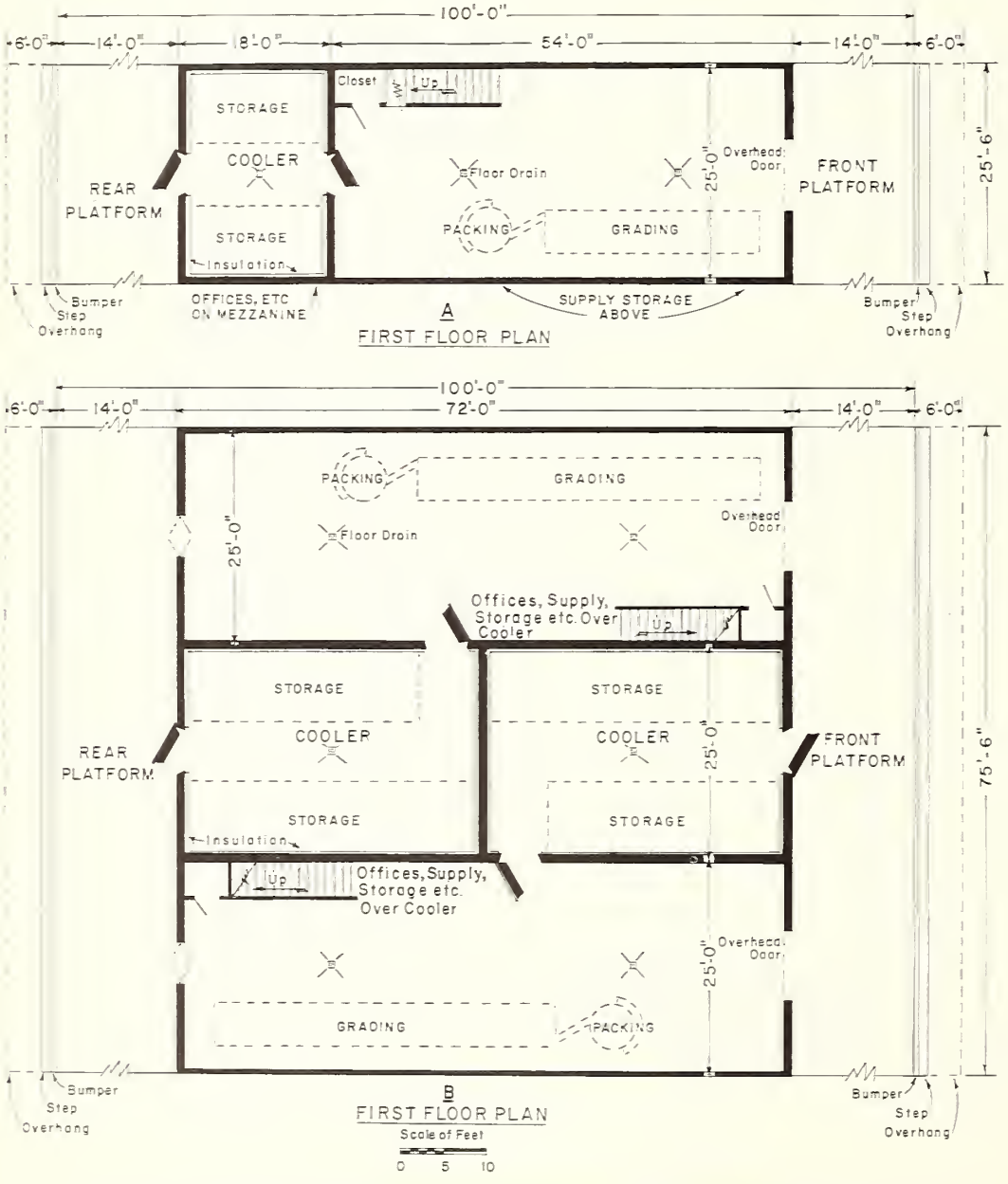


Figure 31.--Two plans for egg grading and packing operations: A. Single unit; and B. 1½ units.

500 cases per week, and operates in 1 store unit. A cooler, 17 ft. deep, running the width of the store, is shown at the rear of the enclosed space. It will store approximately 240 cases of ungraded, plus 240 cases of graded, eggs. The remainder of the enclosed portion of the unit is used for grading operations. Offices are located on a mezzanine over the coolers. Space for storage of egg cases, separators, and other dry storage is provided above the grading room.

Figure 31(b) shows a plan for 2 egg processors, each packing 1,500 cases per week, using 3 store units. Two units are used for packing and grading eggs, and the center unit is divided between the dealers by two cooler boxes. The offices of the firms, egg breaking rooms, restrooms, and the like, are located on the mezzanine floor, on top of the coolers. Access to each cooler is from the individual dealer's store.

Single-Occupancy Buildings

Four buildings are suggested for four independent dairy product dealers, who handled an annual volume large enough to warrant this type of facility. The buildings are: one building, 50 by 100 ft., two buildings 100 by 125 ft., and one building 100 by 275 ft., or a total of 58,000 sq. ft. of space. The design and layouts of these buildings would be the responsibility of the individual firm, but the buildings should be built to meet all requirements of the U.S. Public Health Service, State and city health and sanitation departments, city buildings codes, and to conform to the master plan of the food center.

For purposes of illustration, a layout of a building for a butter and cheese distributor, whose annual volume would warrant a building 50 by 100 ft., is shown in figure 32. A concern handling a large proportion of its receipts in butter and cheese should have most of its space refrigerated.

The suggested layout for such a wholesale butter and cheese store has the following features: (1) A cooler room with a capacity of 177 pallet loads, (2) a dry storage and shipping room, (3) an unloading room at the rear of the building, (4) a freezer room, and (5) a mezzanine office above the shipping room. There are truckbed-high front and rear platforms 14 ft. wide, along the width of the building. This layout provides a straight flow of dairy products through the store, with a minimum of handling and backtracking. No house tracks are recommended, because rail receipts amount to less than 5 percent of the unloads.

Each building should be planned in accordance with the desires of the individual occupant, with a layout that would require minimum of handling.

The total space recommended in the plans for the 30 standard store units and the 4 single-occupancy buildings amounts to 144,000 sq. ft. This compares with 215,000 sq. ft., presently being used, a reduction of 71,000 sq. ft.

Frozen-Food Stores and Refrigerated Storage

It is suggested that one building be provided to contain the 18 store facilities needed by 17 frozen-food wholesalers who received 145.4 million pounds, as well as general cold-storage space to hold reserve stocks of these and other firms. Overall dimensions of this building are 660 by 340 ft., and a 20-ft. clear stacking height. Front and rear covered platforms along the length of the building are 20 feet deep. The front platform is at truck-bed level--45 in. high--and the rear platform is at refrigerator car floor level--55 in. high. A wooden bumper 6 by 8 in. should be bolted to the top edge of the front and rear platforms to protect them from damage. At each end of the front platform and at the center of the building, there should be steps for pedestrians. All floors and platforms on the first-floor level should be constructed of durable floor material, with a nonskid surface. The platforms should be pitched toward the street to provide adequate drainage.

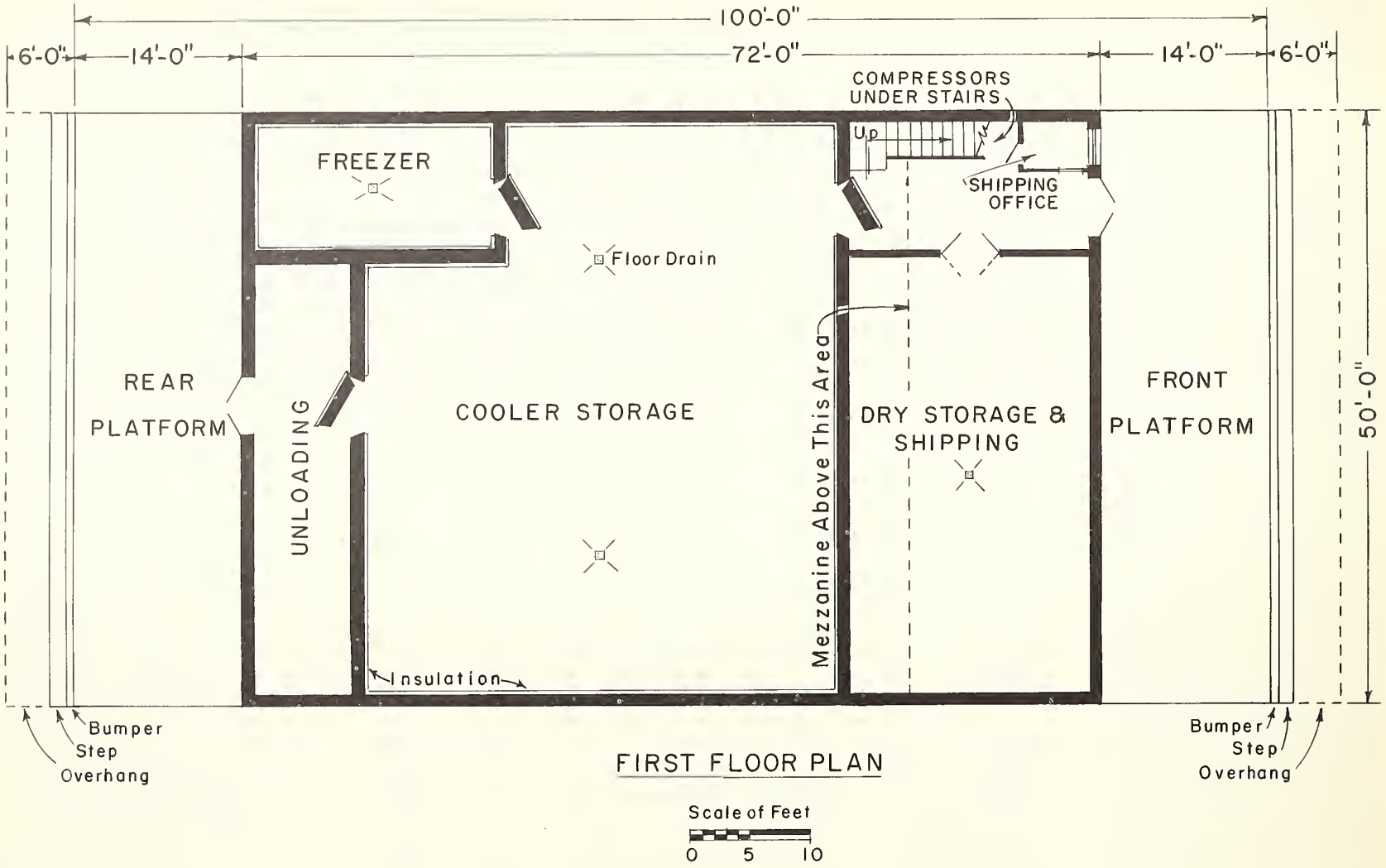


Figure 32.--Plan for a butter and cheese wholesale store.

A covered unrefrigerated passageway, 48 ft. wide, connects the front and rear platforms at the center of the building, thus dividing the building into two parts (fig. 33). This passageway is to be used for receiving from rail cars and trucks, and load-out operations from the general storage areas. Dispatching offices at front and rear entrances of the passageway will permit checking receipts and shipments of frozen foods from general storage space. The wide passageway provides ample room for pallet storage along the walls, and unhampered movement of handling equipment during receiving and shipping.

A vestibule on each side of the passageway gives access to a general storage freezer in each of the two sections of the building. Thus, each section is divided longitudinally into two parts. The part to the rear is designated for the general storage of frozen foods; the refrigeration machinery occupys a small rear corner room. The 2 front sections are divided into 18 store units for wholesalers.

Each general storage area is 306 ft. long, 150 ft. deep, and 20 ft. high, or a total for the two areas of about 92,000 sq. ft. or 1,836,000 cu. ft., including the machinery room.

It is contemplated that frozen-food reserve stocks will be held in the general storage area and moved to the individual stores when needed. They can be moved with handling equipment belonging to the cold-storage operator, so the wholesale dealers save the cost of mechanized equipment. Unused cold-storage space can be utilized for storage of other commodities--fish, poultry, meat, and the like.

Front door openings to the 18 store units are 12 ft. wide, and rear door openings 5 ft. wide. Each unit is 34 ft. wide and 150 ft. deep. The front 50 ft. of each unit is unrefrigerated space, and the remaining 100 ft. is refrigerated space (-10° F.). The original construction would provide refrigeration equipment for the entire building, but the individuals operating in the building would be expected to provide all other equipment to meet their special needs.

Each store contains 5,100 sq. ft. of first-floor space--1,700 sq. ft. unrefrigerated and 3,400 sq. ft. refrigerated. A second-floor office is located above the unrefrigerated space, providing a space 34 ft. wide by 50 ft. deep, or 1,700 sq. ft. In addition, front platform space for each unit totals 680 sq. ft. Thus, the 18 store units provide 92,000 sq. ft. of first-floor space, (31,000 sq. ft. unrefrigerated, and 61,000 sq. ft. refrigerated). There are 31,000 sq. ft. of second-floor office space, and 12,000 sq. ft. of front platform space--a total of 135,000 sq. ft. If the refrigerated space is converted to cu. ft., there is a total of 1,224,000 cu. ft. of refrigerated space in the 18 store units.

In addition to the second-floor space shown for the 18 wholesalers, 2,400 sq. ft. (48 by 50 ft.) is available over the covered passageway for use by the building management and employees for office space, restrooms, and storage.

The total floor area provided in the frozen-food building is 257,000 sq. ft., divided between general storage and wholesale store areas, as follows:

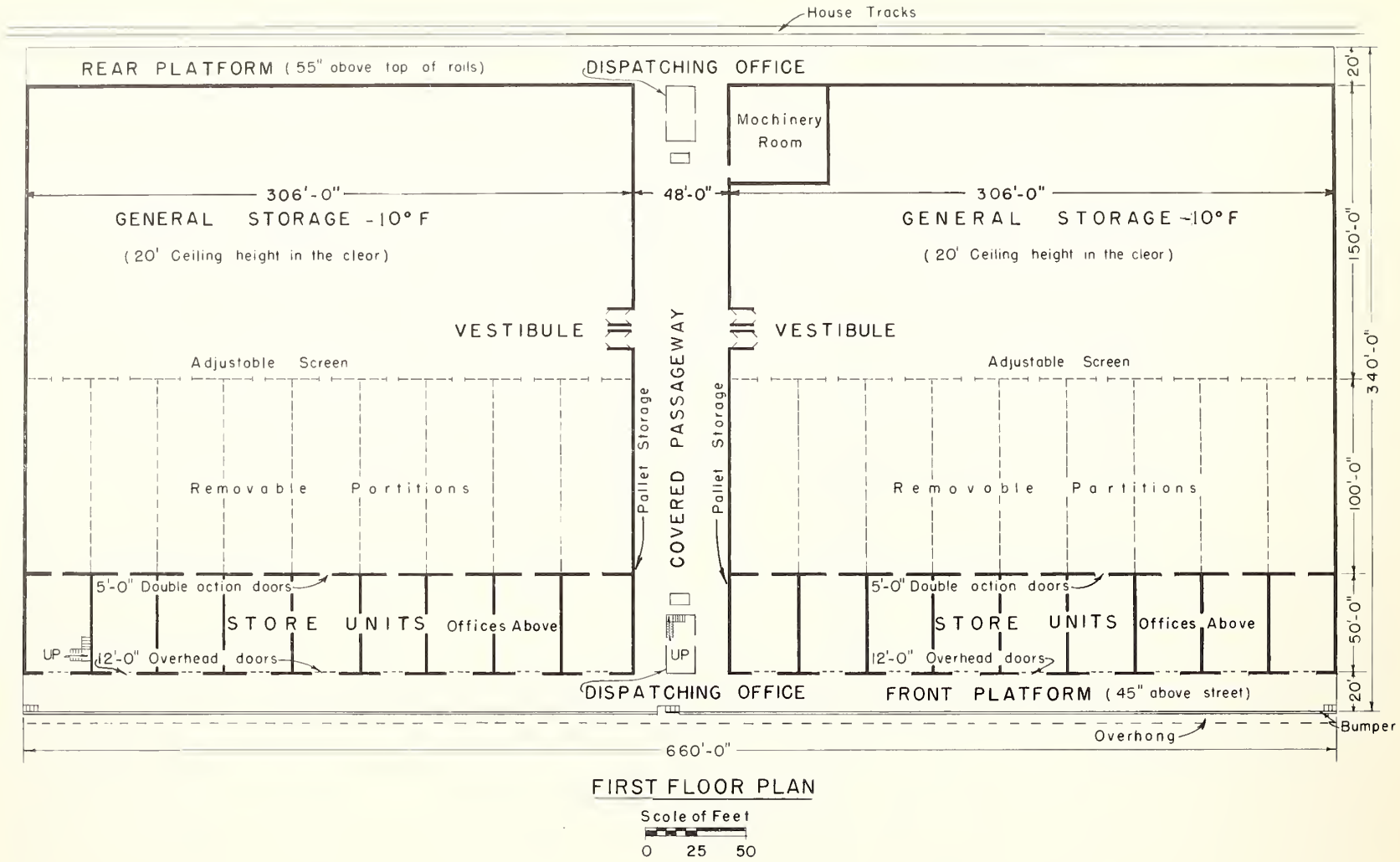
	General storage area Sq. Ft.	Wholesale store area Sq. Ft.	Total Sq. Ft.
Refrigerated	[1] 91,800	[3] 61,200	153,000
Unrefrigerated	[2] 28,560	75,840	104,400
Total	120,360	137,040	257,400

[1] Includes the refrigeration machinery room.

[2] Contains: 13,200 sq. ft., rear platform; 15,360 sq. ft. in covered passageway and part of front platform.

[3] Contains 30,600 sq. ft. in 18 store units, 33,000 sq. ft. in second-floor office space, and 12,240 sq. ft. in front platform.

As stated earlier, many of the frozen-food dealers handle their products through public refrigerated warehouses. Hence, the space recommended in the 18 store units is greater than the observed operating space.



FIRST FLOOR PLAN

Scale of Feet

0 25 50

Figure 33.--Plan for frozen-food stores and refrigerated storage.

Fish and Seafood

Thirty-three store units in 2 buildings (1 building with 16 units and one building with 17 units) are suggested for the 20 seafood wholesalers, who handled an annual volume of 66.1 million pounds in 1956. The units planned are 100 by 25 ft.; 14-ft. covered front and rear platforms have 6-ft. overhangs. The ceilings should be at least 18 ft. high. Space for office, dry storage, and toilets is provided on a 15- by 25-ft. mezzanine at the front of the unit. The front and rear platforms should be 45 in. above street level. No rail connections to these stores are recommended, because less than 5 percent of seafood receipts arrived in Detroit by rail.

Other than the size and height of platform and rail connections, the two buildings would be built according to the specifications described for fruits and vegetables.

The continuous platforms and floors should be constructed of concrete, with a nonskid surface. Because wet floors from melting ice and dripping packing boxes are usual in the handling of fish and seafood, emphasis should be placed on planning floors and platforms with sufficient slope to insure proper drainage.

Each unit will contain 1,750 sq. ft. of enclosed first-floor space, 375 sq. ft. of mezzanine space, 700 sq. ft. of front and rear platform space, and 50 sq. ft. occupied by two 1-foot walls, or a total of 2,875 sq. ft. Thus, the 33 units will contain about 58,000 sq. ft. of enclosed first-floor space, 12,000 sq. ft. of mezzanine space, 23,000 sq. ft. of platform space, and 2,000 sq. ft. of walls, or a total of 95,000 sq. ft. The amount of space used by these dealers is 108,000 sq. ft., much of which is inefficiently utilized; 13,000 sq. ft. would be saved.

Figure 34 shows, for illustrative purposes, a floor plan for a wholesale seafood facility (using two standard store units). The facility is designed to handle an annual volume of about 30,000 pounds of seafood including space for processing about 15,000 pounds. Because of the variations in requirements of individual wholesalers, each dealer should furnish any special equipment and refrigeration to fit his particular needs.

Groceries

An analysis of individual needs showed that 48 of the 76 wholesale grocery dealers would benefit by moving into modern facilities. Forty-two standard store units in 3 buildings are suggested for 40 smaller volume grocery wholesalers, who received about 130.6 million pounds annually; 8 single-occupancy buildings of various sizes are planned for 8 large-volume wholesalers, who received about 227.8 million pounds. The standard store units are primarily for dealers whose space requirements are less than 10,000 sq. ft.; single-occupancy buildings are for wholesalers who require more than that.

Multiple-Occupancy Buildings

In the proposed plan, 42 store units in three buildings are provided for 40 dealers. Two buildings contain 16 units, and one building contains 11 units. One unit of a 16-unit building would be used as a restaurant. Each unit is 50 ft. wide and 114 ft. deep, with a 14-ft. covered rear platform. A truck loading and unloading dock 45 in. high is provided at the front with a 6-ft. overhanging roof to protect the merchandise from inclement weather.

The design of the buildings provides for a continuous rear platform, 45 in. high, sloped away from the building to insure adequate drainage. One house track should be laid adjacent to the platform. Both front and rear doors are 8 ft. high and 8 ft. wide. Figure 35 shows a floor plan for a wholesale grocery store unit.

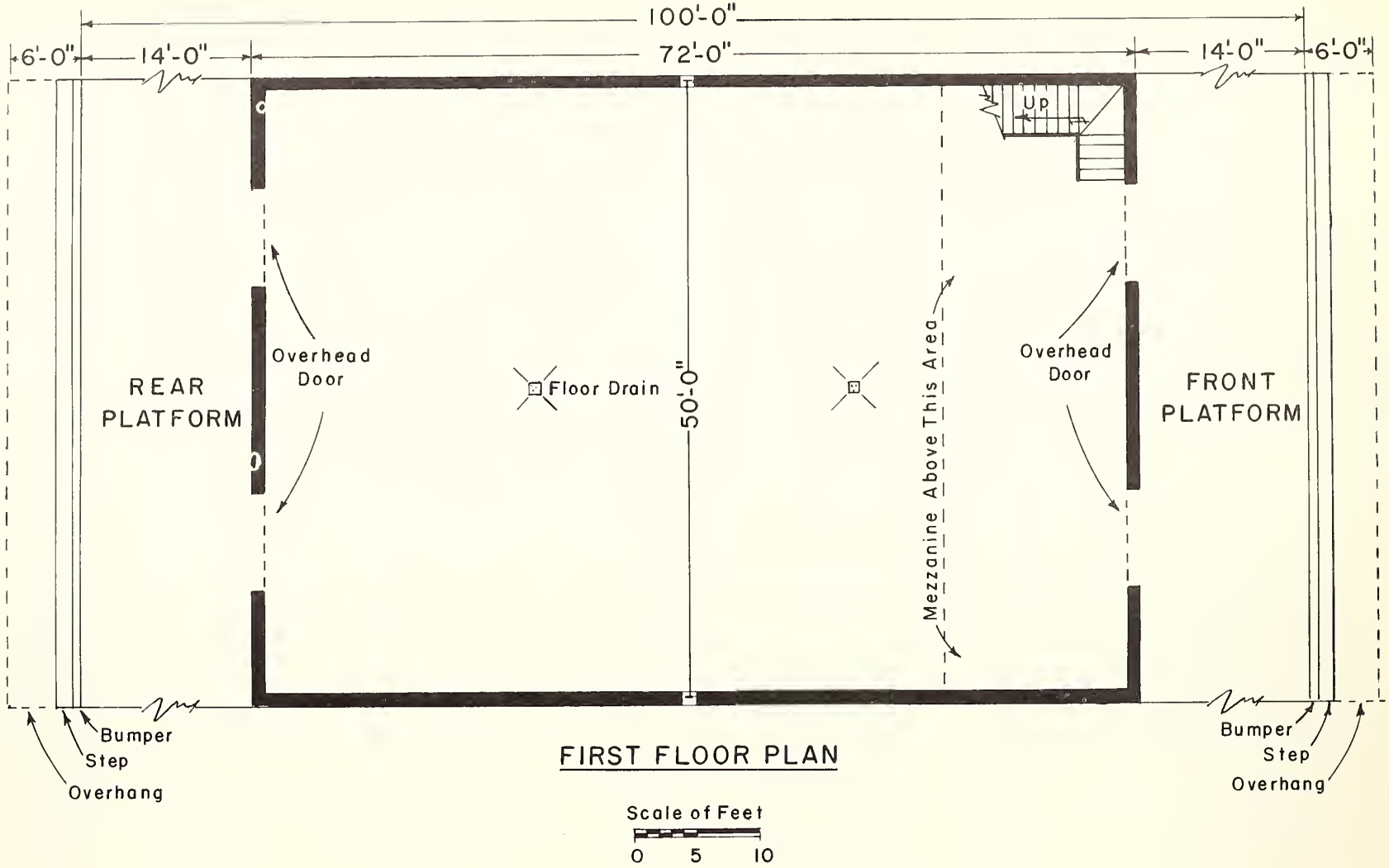


Figure 34.--Plan for a wholesale seafood facility.

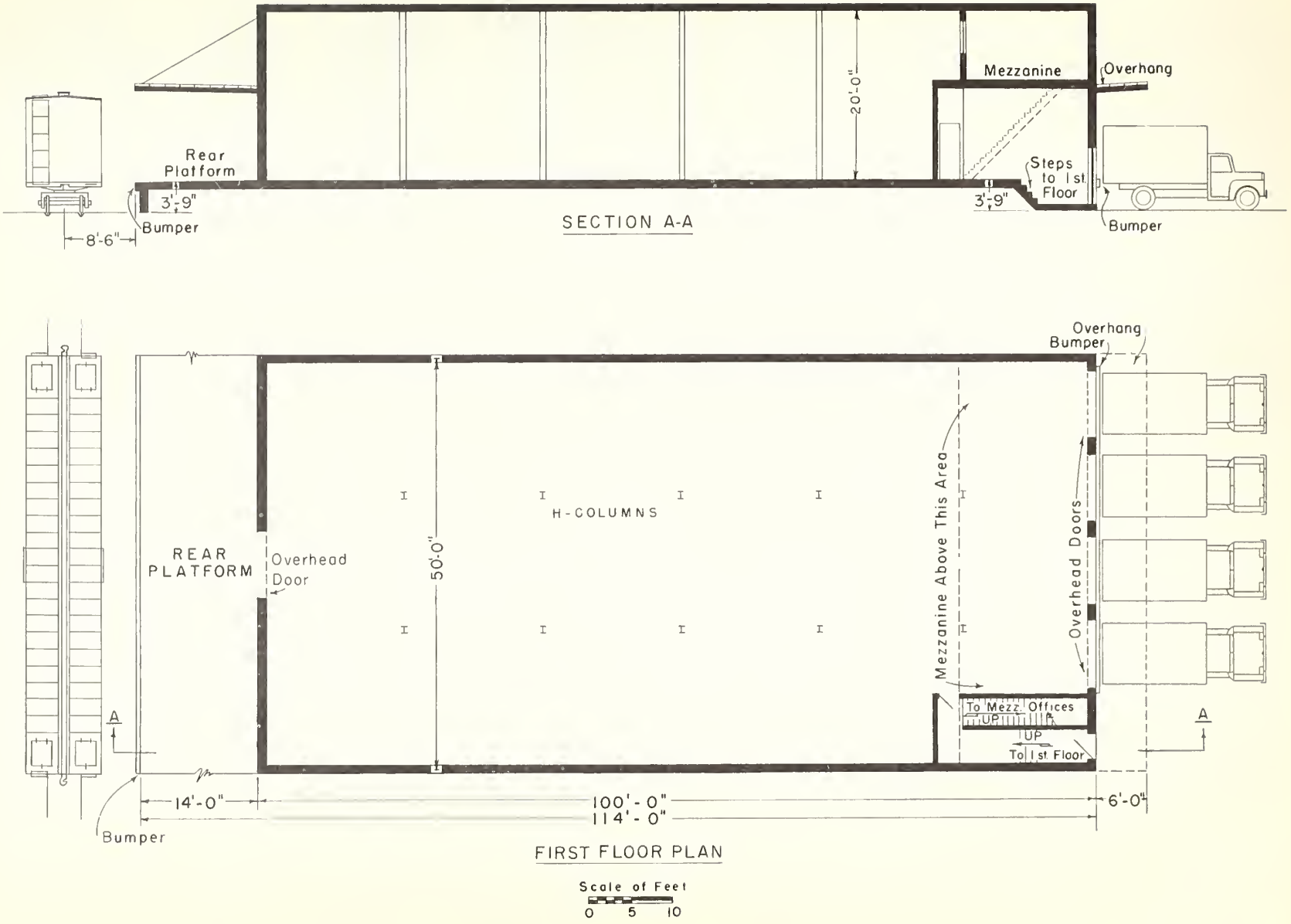


Figure 35.--Plan for a standard-unit grocery store.

To permit variations in space rented by individual wholesalers, temporary or removable partitions should be used. All units in the plan contain mezzanine offices 15 ft. deep by 50 ft. wide, at the front of the store near the order filling operation, thus freeing the rear of the unit for other operations and storage. Twenty feet clear stacking height is provided to allow adequate space for storage and use of mechanical handling equipment. All floors and platforms on the first floor should be concrete, with a nonskid surface.

Each unit contains 5,000 sq. ft. of first-floor enclosed space, 750 sq. ft. of mezzanine space, and 700 sq. ft. of platform space, or a total of 6,450 sq. ft. The 42 units provide 210,000 sq. ft. of enclosed first-floor space, 32,000 sq. ft. of mezzanine space, 29,000 sq. ft. of platform space, or a total area of about 271,000 sq. ft.

Single-Occupancy Buildings

Eight single-occupancy buildings are suggested for eight wholesale grocery dealers, each of whose needs would exceed 10,000 sq. ft. of floor space. The occupants should design the plan of the structures they would use, conforming to the established codes and standards.

The following single-occupancy buildings are suggested: one building containing 18,000 sq. ft. (200 by 90 ft.); two buildings (200 by 150 ft.) containing 30,000 sq. ft. each; two buildings containing 40,000 sq. ft. each (200 by 200 ft.); one building with 48,000 sq. ft. (200 by 240 ft.); one building with 70,000 sq. ft. (200 by 350 ft.); and one building with 127,000 sq. ft. (200 by 635 ft.), or a total of 403,000 sq. ft.

For illustrative purposes, a plan is shown in figure 36 for a single-occupancy warehouse, with an annual grocery business volume of $6 to $8 million, containing approximately 48,000 square feet.

The basic dimensions of the warehouse, designed to handle a $6 to $8 million annual volume, are 200 by 240 ft., or 48,000 sq. ft. The design provides 12 doors at the front of the warehouse for shipping and receiving merchandise by truck. Five rail cars can be spotted at five doors at the rear for simultaneous unloading. The warehouse floor would be 45 inches above the top of the rail, and level with the motortruck-beds at the front (45 inches high). Throughout the warehouse, the aisles are 10 ft. wide. The holding and receiving area at the rear is 15 ft. wide. The surge area for truck shipping and receiving is 50 ft. deep.

The general office area is on a 25-ft.-deep mezzanine at the front, over the truck shipping and receiving area, repack room, and bench areas. The area is reached by a stairway located near the front center of the building. With this location for the office area, it should be possible to reduce construction costs because a ceiling height of not more than 10 feet is needed in the surge area, in the repack room and bench areas, and the remaining 10 ft. of ceiling height can be used for the floor and office above.[6]

The total space used by the grocery establishments which were studied for inclusion in the food center plans is 1,232,000 sq. ft. The total space recommended for these 48 dealers, who will use the multiple-occupancy and the single-occupancy buildings, is 674,000 sq. ft.

Total Amount of Floor Space Suggested, Compared with Present Amount of Space

The proposed center plan for Detroit suggests 18 multiple-occupancy buildings, containing 1,548,000 sq. ft. of space, and 31 single-occupancy buildings containing 942,000

[6] For more information on grocery warehouse layout and equipment, see Bouma, John C., and Lundquist, Arnold L. Grocery Warehouse Layout and Equipment for Maximum Productivity. U.S. Dept. Agr. Mktg. Res. Rpt. No. 348, 58 pp., illus. July 1959.

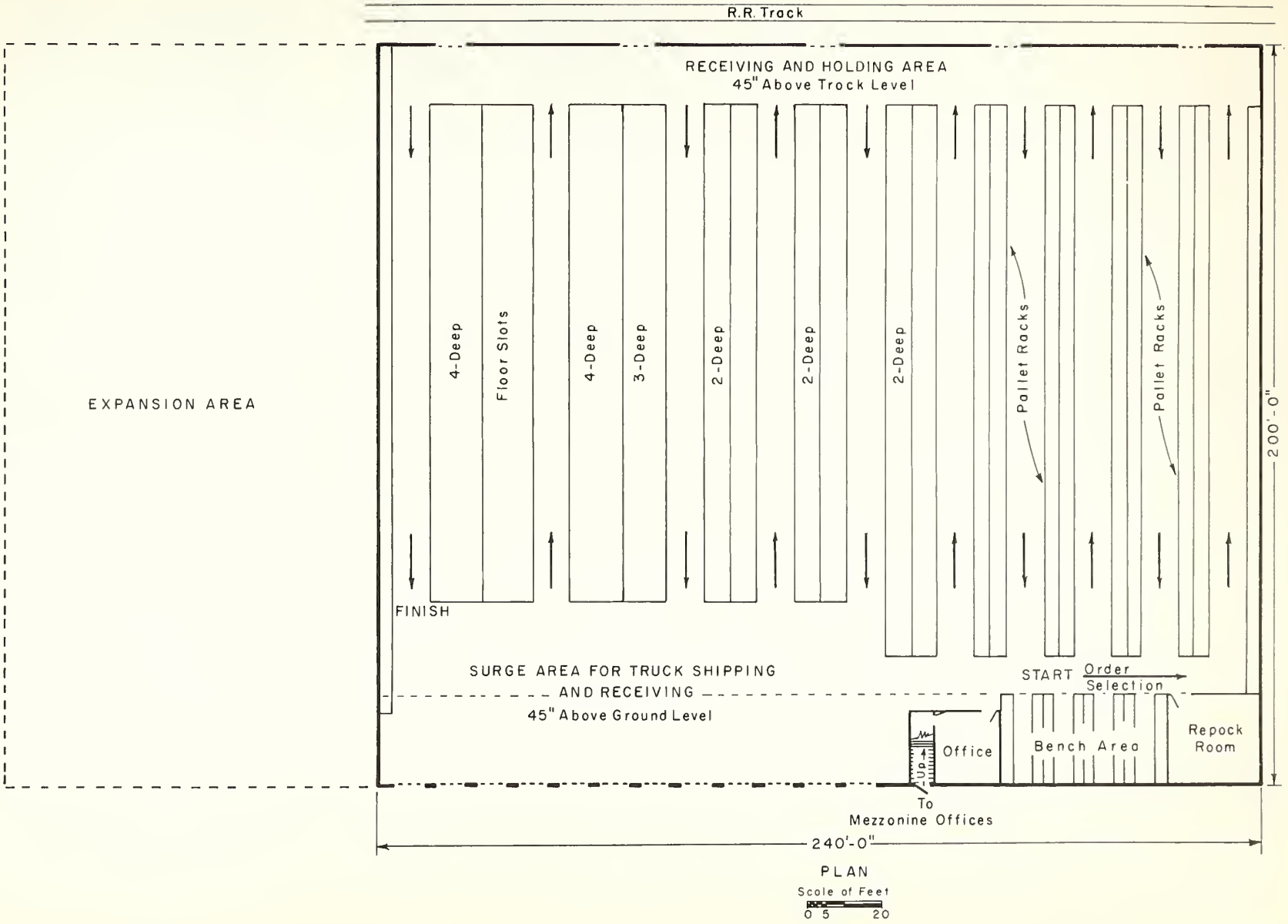


Figure 36.--A plan for a wholesale warehouse handling a $6 to $8 million annual volume in groceries.

sq. ft., or a total of 2,490,000 sq. ft. This space is designed to handle 2.23 billion pounds of food annually, by 368 wholesale dealers. The facility space suggested is approximately 64 percent of that used to handle the same amount of foods at the time of the study.

The proposed buildings as described in this section are designed for maximum efficiency in handling the food commodities, with a minimum amount of floor space.

The amount of space required to handle a given volume of a food commodity will vary by type of product, and by the treatment given the product, for three main reasons:

Density of product.--Meat, because of its relatively high density, requires less space for a given tonnage than many other products. Fruits and vegetables, being more bulky, require more space for the same tonnage.

Stock turnover or holding period.--Meat stocks, except for that being aged, and fruits and vegetables turn over very rapidly, often daily, cheese, butter, and groceries are examples of slower moving items. For a given annual volume, the faster moving commodities require less space than do those whose turnover is slower.

The amount of processing.--The greater the amount of processing, the more space is required to handle a product. A carlot receiver of fruits and vegetables who sells directly to jobbers and retailers needs less space per carlot handled than a tomato repacker, a banana ripener, or a hotel and restaurant supplier who repacks and sells only the highest quality products.

Most of the facilities that were studied were not designed for the purpose for which they were used. Many wholesalers, desiring a specific amount of floor space in a good location, found that they had to take more space than needed, or accept less than needed. In many instances, dealers operated from more than one facility, which resulted in much wasted space at a higher rental cost than necessary. Other dealers designed and built their facilities, and then found that they had not properly planned the structures for their operations. They were not efficiently utilizing the floor space. In table 20, a comparison is made, by commodity groups, of the amount of space in buildings now being used by the various dealers and the amount needed for their operations in new facilities.

Space in the proposed distribution center for general refrigerated storage, the garage, restaurants, service station, and the second-floor offices over one of the fruit and vegetable buildings is not shown in table 20, because comparable space was not included for the facilities studied.

Direct Rail Connections to Facilities

Direct rail access should be provided to each building occupied by dealers who will receive significant supplies of food products by rail. At least one house track should be provided at the rear platform of the meat facilities and the grocery facilities, but space should be set aside for the second track if it is desired. Double house tracks are provided at the rear platform of all fruit and vegetable dealers and processors, the meat dock, and the frozen food facilities. No rail access is planned for dairy-product and egg dealers, poultry dealers, seafood dealers, and the farmers' market, since all or most of their receipts are by truck.

Areas between the rails at the rear of the stores should be paved, so that rear platforms can be used by trucks when the tracks are not occupied by rail cars, and to make it easier to keep these areas clean. Team-track yards with space for handling 245 rail cars are provided in the plan.

TABLE 20.--Floor space used by wholesale food dealers and handlers compared with space suggested in the proposed center, by commodity groups[1]

Commodity group	Wholesalers included in proposed plan	Floor area in facilities studied	Proposed--					Percent proposed space is of space studied
			Multiple-occupancy buildings		Single-occupancy buildings		Total area	
			Number	Area	Number	Area		
	Number	Sq. ft.		Sq. ft.		Sq. ft.	Sq. ft.	Percent
Fresh fruits and vegetables:								
Wholesale dealers..	84	524,180	4	395,675	0	0	395,675	75.5
Farmers' market....	(1,148)	361,200	(2)	56,320	0	0	56,320	15.6
	84	885,380	4	451,995	0	0	451,995	51.1
Meat and meat products:								
Wholesale dealers...	129	1,180,644	4	421,400	19	481,000	902,400	76.4
Meat dock.....	15	40,600	1	30,600	0	0	30,600	75.4
	144	1,221,244	5	452,000	19	481,000	933,000	76.4
Poultry.....	20	113,970	1	57,500	0	0	57,500	50.5
Dairy products and eggs.....	35	215,190	2	86,250	4	57,500	143,750	66.8
Frozen foods.....	17	107,990	1	134,640	0	(3)	134,640	124.7
Fish and seafood.....	20	108,080	2	94,875	0	0	94,875	87.8
Groceries.....	48	1,231,859	3	270,900	8	403,000	673,900	54.7
	140	1,777,089	9	644,165	12	460,500	1,104,665	62.2
Total.....	368	3,883,713	18	1,548,160	31	941,500	2,489,660	64.1

[1] Does not include office space for market management, brokers and allied organizations, nor floor space in the garage and service station, icing dock, restaurants, but does include mezzanine floors of multiple-occupancy buildings.
[2] 500 covered stall units and 200 open stall units are provided.
[3] Does not include space in general storage area (122,760 square feet).

Streets and Parking Areas

Major streets should be paved to carry heavy traffic and facilitate drainage away from the buildings. All parking should be at right angles to the loading platforms. Where two rows of buildings face the same street, and center parking is planned, the streets should be at least 200 ft. wide to permit the parking of trucks at right angles on each side of the street, to allow center parking, and to leave sufficient space for the flow of traffic. Other streets may vary from 60 to 100 ft. in width, depending on their use and the traffic load.

Convenient parking spaces should be provided near the stores for cars of market visitors and for vehicles that are not in the process of being loaded or unloaded. Employees' cars should be parked away from the stores. Parking areas should be as near the buildings as possible, but should not block market streets or loading areas. It is estimated that parking space should be provided for about 5,000 vehicles in addition to the space at store platforms.

Other Facilities and Services

Many firms that occupy office space near the wholesale market districts probably would want offices in the new food-distribution center. This would include brokers, national food processors and canners, telegraph companies, transportation lines, and Government market news and inspection agencies. In addition, space would be needed for the market management, banks, a barber shop, and restaurants. Much of this space could be provided on the second floor over one of the multiple-occupancy buildings or in a centrally located administration building. The income from rentals in an administration building should be sufficient to amortize the investment in it and pay all operating expenses. Because no study has been made to determine how large a building would be needed, estimates of construction costs for such a building are not included in this report. However, 141 offices are recommended for the second floor of one of the fruit and vegetable buildings to accommodate these needs.

Space for several restaurants should be provided. In the proposed plan there is a restaurant in each of two fruit and vegetable wholesale buildings. One restaurant is provided in the meat wholesaling section, one in a grocery multiple-occupany building area, and one in the service area.

Public restrooms should be provided at various points throughout the food center. In these plans, they are located in basements under the restaurants in the grocery, meat, and fruit and vegetable wholesale sections.

A service area should be set aside (with direct access to nonmarket traffic) for such facilities as an icing dock, a gasoline station, a garage, and a restaurant. An 8-ft., chain-link wire fence is provided around the fruit and vegetable wholesale section and the farmers' market area. Also, a public address system is provided in the farmers' market area. Floodlights should be provided where necessary for each commodity section of the food center.

Space for Expansion and Allied Industries

An area for expansion should be provided by the food center organization at the outset, so that more stores may be added as needed. Also, space should be provided for allied industries, such as service wholesale warehouses, food-chain warehouses, bakeries, ice cream and other food processing plants, fluid milk and beverage distributors, cooperage, cartage, and trucking firms, general warehousing, and other food wholesalers. In other cities that have built wholesale markets, many types of wholesale food handlers have gravitated to the market area over a period of time. Therefore, sufficient land must be set aside for expansion, if Detroit is to have a central, unified wholesale food-distribution center that is adequate for future needs.

ARRANGEMENT OF FACILITIES IN THE FOOD-DISTRIBUTION CENTER

The arrangement of facilities depends upon the shape and other physical features of the site selected for the food-distribution center. The relative location of access streets and rail tracks also has a strong influence on the possible location of buildings. If the market center is to operate efficiently, the facilities must be arranged for maximum coordination of functions. Facilities must be arranged so that, in future expansion, they will form an integral and coordinated part of the center.

For illustrative purposes, a layout of the facilities described and recommended for a food-distribution center on the Eastern Market site is shown in figure 37. This layout is used upon request of the Mayor's Wholesale Distribution Center Development Committee, representatives of the Bureau of Markets, the City Plan Commission, and others. Its use is not intended to influence the selection of the site. Arrangements of the facilities on the Produce Terminal and Central Avenue sites are shown in figures 39 and 40 in the appendix.

Although the layout may be modified to meet certain specific easement and other requirements of the site, the principles set forth in this section should be adhered to as closely as possible when developing any site that may be chosen.

Separate sections of the market area have been set aside for each major type of commodity. The number and type of buildings shown in figure 37 are as described previously. Ample parking space is provided in each commodity area. Expansion areas are shown in each commodity section. An area is also provided for allied industries that may wish to locate on the site. By grouping commodity buildings in this manner, the operations of both buyers and sellers will be facilitated.

Obviously, not all the facilities can be developed at the same time. The creation of a large distribution center is an operation that requires considerable time. Wholesalers of certain commodities, such as fruits and vegetables, will need to be relocated all at one time, because these products are sold largely to buyers who visit the market area. Service wholesalers, who take orders and deliver most of their sales, can locate in the market area as the individual firms may need new facilities. In view of a gradual development of the project, it is very important that a master plan be adopted at the outset, so that the first buildings constructed will not interfere with the orderly development of the remaining area.

Insofar as possible, businesses making a large proportion of their sales to buyers visiting the market have been placed near one another, while those whose business consists almost entirely of taking orders and delivering have been placed in other areas of the site.

The layout in figure 37 has been drawn up in such a way that the facilities initially constructed will form a compact unit; the expansion of any segment can be accomplished without destroying the compactness of other segments. Buildings have been located so they can be served by rail, even though they may not initially have such tracks. The tracks have been arranged with a minimum of switches and footage, and the streets have been designed to minimize traffic problems. It is important that the center be arranged in a manner that will eliminate or minimize nonmarket traffic.

Space is provided in this layout for the wholesaling of all kinds of food products that are normally sold in a retail grocery store. Hence, wholesalers can obtain fill-in items from each other and there should be no need for the retail food dealers to visit any market area outside the food center in order to purchase a complete line. All services necessary for the conduct of the wholesale food business in the city are incorporated into the plan.

Wholesale Fruit and Vegetable Section

In figure 37, the four buildings containing the fruit and vegetable wholesale operations and two restaurants, are arranged in two parallel rows. These rows of buildings

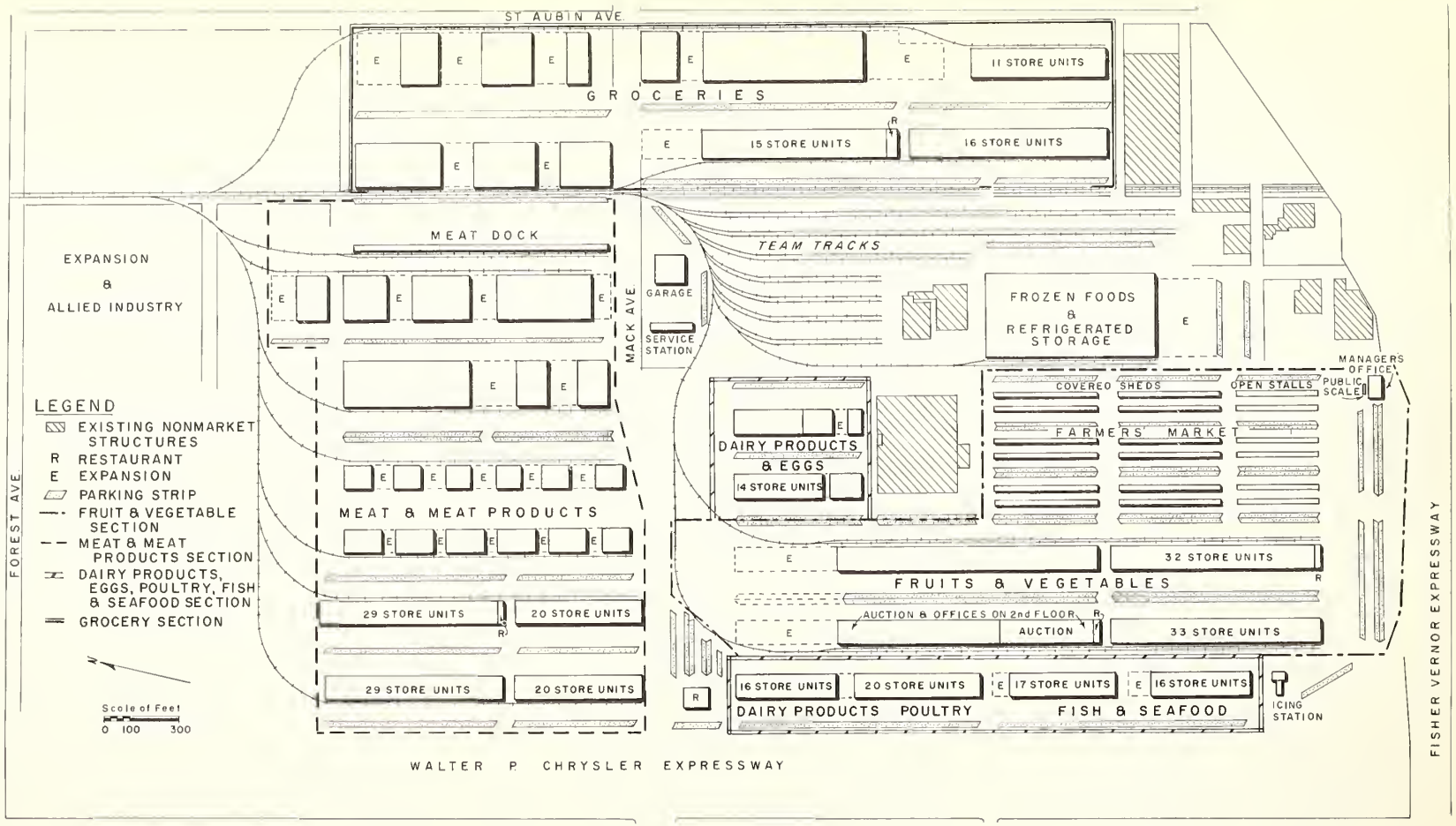


Figure 37.--Master plan of a wholesale food-distribution center on the Eastern Market site.

line a street 200 ft. wide. In this plan, dock space is provided at the front platform of the buildings for loading out produce. Parking space is provided in the center of the street between the two rows of buildings.

Space for the fruit auction is provided in one of the wholesale buildings and provision is made on the second floor for 141 offices and supplementary facilities for market management, brokers, government inspectors and others. Two restaurants are placed at convenient locations. It is suggested that public restrooms be placed in the basement underneath the restaurants.

To provide protection from pilferage and to aid in regulating operating hours for these facilities, and 8-ft., chain-link wire fence, with gates where needed, is placed around the wholesale fruit and vegetable area.

Because a large part of fruit and vegetable sales is made to buyers who visit the market, this section is placed at the edge of the site, near the main access roads. This arrangement confines a large part of the market traffic to one area, and minimizes traffic congestion in other food commodity sections.

Farmers' Market Section

A farmers' market, containing six double rows of sales sheds, each 420 ft. long, and three double rows of open stalls, each 340 ft. in length, with adequate parking areas, is at the edge of the site, near the fruit and vegetable section and the access roads. The farmers often sell loads or parts of loads to the wholesale dealers, and traffic flow between these two areas is simplified by having them adjacent. This area is also enclosed by an 8-ft. chain-link fence, with gates for easy access and egress. A public scale and farmers' market manager's office building is placed near an entrance to this section of the market. The public scale can be used by nonmarket as well as market business, and should provide an additional source of market revenue.

Poultry, Dairy Products, Eggs, Fish and Seafood Sections

The poultry, dairy-product and egg, fish, and seafood facilities, with parking areas, are located near the fruits and vegetable section. This location allows buyers to obtain their supply of produce, and then visit the poultry, dairy-product and egg, fish and seafood facilities without retracing their steps and creating traffic congestion. In most instances, retailers have their supplies of meats, groceries, and frozen foods delivered by the wholesalers, but wish to come to the market and shop for their supplies of produce, dairy products, eggs, poultry, and seafood. No rail access is provided to this section, because only a very small proportion of these items arrive by rail, but tracks could be added later if conditions change. Parking areas are provided in the center of the 200-foot streets between each row of buildings.

Meat and Meat Products Section

A section for meat and meat products is placed adjacent to the fruit and vegetable dealers' and the farmers' market area, but located so as to avoid the heavier market traffic. The smaller volume meat wholesalers and one restaurant, located in the multiple occupancy buildings, are placed near one of the main accesses to the market. The meat dock and stores for the larger volume meat wholesalers, meat processors, and national packers are more centrally located in the market area. Buyers are more apt to visit the smaller volume dealers, while the other meat wholesalers will make deliveries. This arrangement of facilities will tend to reduce traffic in the area. Rail access is provided to each building in the meat section. Parking space is provided in the center of each of the 200-foot streets that separate facing rows of buildings.

Frozen Food and Refrigerated Storage Section

A building containing stores for frozen-food dealers and refrigerated storage is located adjacent to the farmers' market area, and away from the heavy traffic. Rail ac-

cess is provided by two house tracks at the rear of the building. Because frozen foods are delivered in refrigerated trucks to retail stores, there is little or no buyers' truck traffic associated with this facility.

Grocery Section

Grocery wholesalers' facilities are located along one side of the distribution center. They are near the major market cross street, which allows ready access to the stores. These dealers, for the most part, deliver to their customers, on the basis of advance orders obtained by salesmen or by telephone. Thus, in this location, their delivery trucks will not interfere with other market traffic. Rail access is also provided to each building, and parking spaces and a restaurant are available for employees and other visitors.

Team Tracks

A team-track yard is centrally located in the market because of the peculiarities of the site. Normally, such tracks would be closer to fruit and vegetable wholesalers. Seven rows of double tracks with a 60-ft. paved street between each set of double tracks is provided. This team track area will accommodate 245 rail cars at one time.

Allied Industries and Other Facilities

An expansion area for allied industries, such as handlers of coffee and beverages, manufacturers' branch houses, food processing plants, cooperage and cartage concerns, general warehousing, and restaurant commissaries, is provided at one end of the layout.

Other facilities such as a restaurant, garage, service station, and an icing dock are recommended. They are located near the major access roads, to accommodate market and nonmarket business.

Total Acreage Needed and Land Use by Commodity Group

The total land area needed for facilities of the new wholesale food-distribution center, including the acreage for expansion and for allied industries, is 320 acres.

It should be noted that the arrangement of the facilities in figure 37 do not meet ideal requirements, because a main-line railroad runs through the length of the site and a major street crosses it. Because of these circumstances, the land area and the track footage needed to put rail spurs to the facilities is greater than it otherwise need be. Also, there are two city-owned structures located near the center of the area, and seven other private industry facilities are grouped in another area of the site. These buildings were considered too valuable to demolish; they will probably remain on the site. The acreage used by these structures and the major cross street amounts to about 30 acres. These 30 acres, plus the 320 acres required for the distribution center, amounts to a total of 350 acres in the site.

Table 21 shows the amounts of land area required for each of the seven commodity groups, the service facilities, and the acreage set aside for future use of allied industries.

SELECTING A SITE FOR THE FOOD-DISTRIBUTION CENTER

The four groups most directly concerned with the location of a food-distribution center in Detroit are buyers who will visit the center for supplies, sellers who would bring or send food supplies to it, wholesalers and farmers who would operate in it, and transportation agencies carrying products to and from it. Groups that are indirectly concerned with the location of a new center are the retailers in the area, to whom a proper facility and site would mean more economical distribution and better quality products, and the city government, because of the effects of plans on redevelopment, zoning, traffic control, street and highway planning, and other services rendered by the city.

TABLE 21.--Estimated amount of land required for each commodity group, service facilities, and the allied industry area in the proposed center

Item	Land area required for--		Total
	Multiple-occupancy buildings	Single-occupancy buildings	
	Acres	Acres	Acres
Fruits and vegetables:			
Wholesale stores	31.8		31.8
Farmers' market (including manager's office and scale)			20.0
Meat and meat products	21.5	41.3	62.8
Poultry	3.3		3.3
Dairy products and eggs	5.9	4.7	10.6
Frozen foods and refrigerated storage	10.0		10.0
Fish and seafood	6.8		6.8
Groceries	17.8	20.0	38.0
Service facilities:			
Team tracks			18.0
Gasoline station			2.0
Garage			2.0
Restaurant			2.0
Icing dock			2.5
Total	97.1	66.2	209.8
Allied industry area			110.0
Grand total			319.8

In choosing a site for the food-distribution center, the principal factors to be considered are: (1) Convenience to retail outlets; (2) direction of population growth; (3) convenience to truck transportation; (4) availabllity of railway transportation; (5) convenience to local growers; (6) adequate land area at reasonable cost; (7) accessibility to public utilities; (8) avoidance of nonmarket traffic; and (9) land use, topography, shape of tract, and zoning.

Convenience to Retail Outlets

It is essential that a wholesale food-distribution center be located as closely as possible to a point where a minimum of time is required to deliver to retailers or for retail buyers to reach the facilities, obtain their supplies, and return to their stores. Thus, the ideal location would be as near as possible to the center of retail distribution.

Approximately 74 percent of the 4.74 billion pounds of food received in the year studied by wholesale dealers in Detroit was distributed within the Detroit area. Because independent and chain retail grocery stores and local restaurants are major food-distribution points in the city, their locations were studied in establishing a central distribution point of retail outlets. The locations of 283 food-chain retail stores, 4,079 independent retail grocery and meat stores, and 1,322 restaurants and eating places in

Detroit were spotted on a map of the city, and from these locations a center of distribution was determined. This center represents the nearest point to all stores and restaurants. As many facilities were east of this point as were west of it, and as many north as south. No consideration was given to size of the store or restaurant, or its volume of business. The center of retail distribution in Detroit, when this method of determination is used, was at West Grand Boulevard and 14th Street, about 5 miles from the main downtown business and financial area.

Direction of Population Growth

According to the 1960 census, the population of the metropolitan area of Detroit is 3,761,000, an increase of 12.5 percent since the 1950 census. During the same period, the population of the city of Detroit decreased by nearly 10 percent. However, in the 9-year period from 1950 to 1959, 31 municipalities in the Detroit metropolitan area more than doubled their population. Most of these communities lie north and west of the downtown Detroit area. Of the 3 counties (Macomb, Oakland, and Wayne) in the Detroit metroploitan area, Macomb leads in the rate of growth with an increase of nearly 120 percent in population. There are now 6 communities in Macomb County with a population of more than 20,000. Oakland County population increased 73 percent since 1950, and has 12 communities with a population of 20,000 or more. Most of Wayne County's population increase in this period was outside the Detroit corporate boundaries, and the increase was 67 percent. If direction of population growth were the only factor to be considered, a new wholesale food center should be located outside the city limits, in a northwesterly direction from the downtown business area.

Convenience to Truck Transportation

About 43.3 percent (2.05 billion pounds) of receipts of the seven commodity food groups included in this study was brought to the city by motortruck (table 2).

Few cities in the United States have such a well-developed system of limited-access expressways as Detroit. Another 200 miles of expressways are planned; when completed they will connect all parts of the city with high-speed, limited-access roads (fig. 38). Such a system of expressways will offset to some extent the effect of site locations as related to their proximity to the center of retail distribution.

Availability of Railway Transportation

Approximately 48.4 percent (2.30 billion punds) of the food receipts in Detroit arrived by rail (table 2). There are common interchange tracks between most lines. Several beltline railroads operate within the city and reciprocal switching privileges are available (fig. 38).

Convenience to Local Growers

Much of the truck crops and fruits sold at the two municipal farmers' markets is grown on the muckland farms along the Detroit River. A large part of the produce arriving by truck or rail originates in the southern and western commercial growing areas of the United States. A site in the western part of the metropolitan area with good access to major transportation facilities would be the most convenient and accessible location for both truckers and growers.[3]

[3] Motts, G. N. and Smith, Fay C. Survey of the Detroit Wholesale Farmers' Markets. Mich. State Univ. Coop. Ext. Serv. Agr. Econ. 666, 30 pp, illus. 1956.

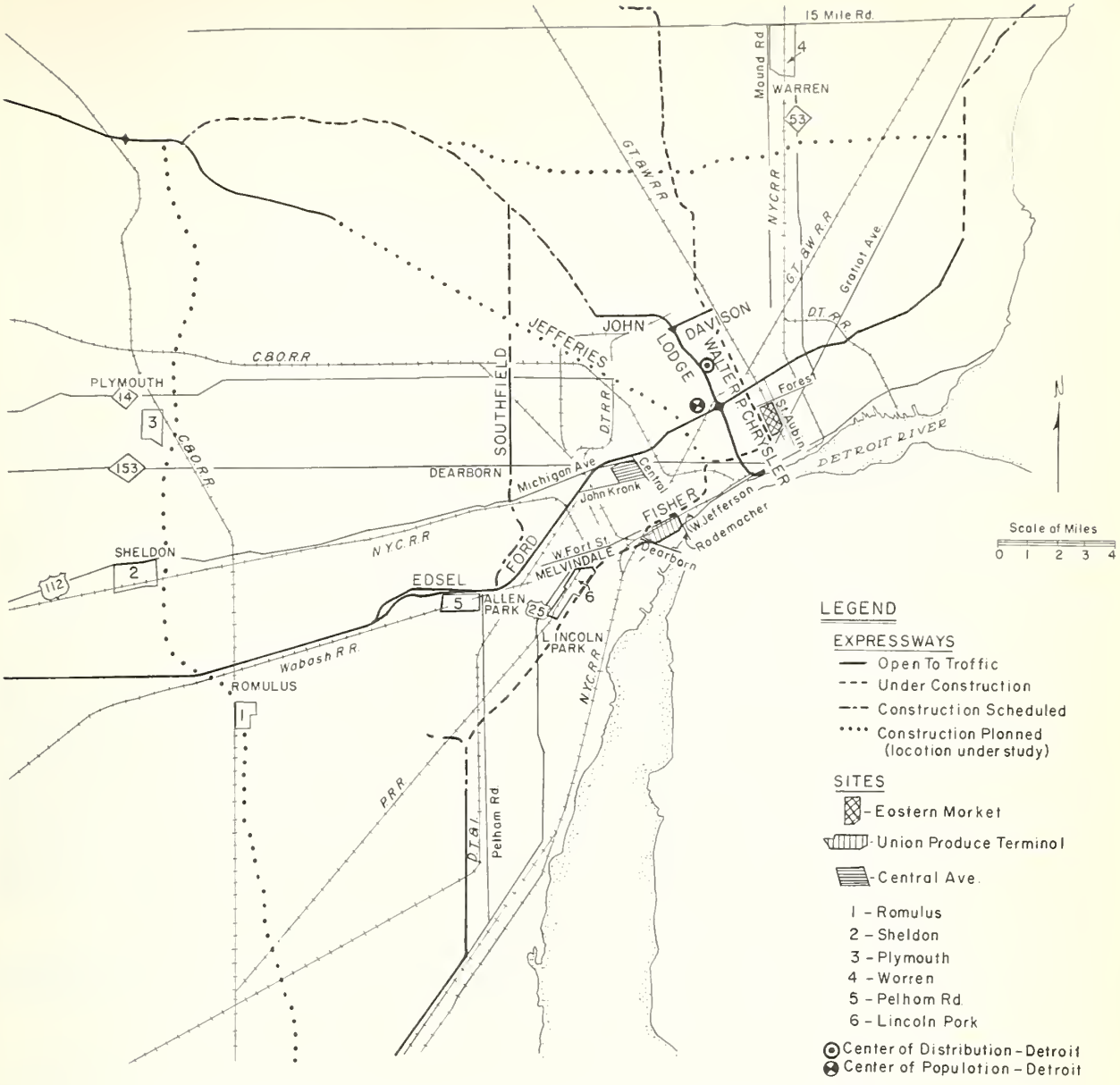


Figure 38.--Rail lines and present and proposed traffic arteries in relation to proposed sites.

Adequate Land Area at Reasonable Cost

The cost of land on which a wholesale center is developed (including the cost of buying and removing buildings that may be on the site and placing the land in condition for construction) is very important. It affects the total cost of the project and the amount of rental income necessary to amortize the investment.

Failure to purchase sufficient land for present needs and future expansion can result in higher operating costs for the center and an expensive expansion program later. If the market center is to be economically sound and financially self-liquidating, it is essential to obtain adequate acreage in the site at a reasonable cost. A sacrifice in convenience of location may be advisable if the price of land would cause rental charges to be so high as to more than offset any savings in operating costs on some less favorable site.

In Detroit, a minimum of 320 acres would be required to build a wholesale food-distribution center, which would allow for future expansion of present business and also meet demands from allied industries that may wish to be located in the market. Naturally, the investment needed to obtain this large area will be of major importance to the market sponsors, and each site should be studied carefully with costs as a main consideration.

Accessibility to Public Utilities

Accessibility to public utilities, such as water, gas, and electric power, and sewage disposal must be evaluated in considering locations of various sites. Lack of one utility might make an otherwise desirable site impractical.

Avoidance of Nonmarket Traffic

The handling of food items through wholesale facilities necessarily involves a large amount of trucking heavy and bulky merchandise. The routing of normal and necessary traffic, even in a well-planned food distribution center, can be a serious problem. If other vehicles, not related to the food business, also move through a market area, a traffic problem will result. Most food items coming to the city by truck have already been transported a considerable distance, so traveling a few extra miles on routes free of congestion will consume less time than travel by a somewhat shorter route in a highly congested area. The proposed market area should, therefore, be located where it is reasonably free from nonmarket traffic and where part of this area may be fenced to exclude such traffic.

Land Use, Topography, Shape of Tract, and Zoning

Current land use is very important in selecting a site for a new wholesale center. A vacant area, large enough to accommodate the center, is hard to find in the city, because most of the land has been developed for other purposes. One of two alternatives can be used to find a suitable site: Locate the new center outside the city limits, where vacant areas are available, at some distance from present wholesale and retail facilities; or redevelop a suitable area within the city by demolishing present structures on the site, perhaps using Federal or city redevelopment funds as a subsidy. In either case, the decision of the market sponsors will be based to a large extent on the overall cost of acquisition and operation (including debt service charges, taxes, and the like).

The topography of the land could entail costs of filling or leveling that would make some locations undesirable. The possibility of adapting facilities to the topography of a site under consideration should be investigated fully.

The site selected should be of such shape as to permit the highest degree of utilization for the arrangement of facilities. Irregularly shaped sites may not only require more acreage than sites properly shaped but may also prevent an orderly layout of facilities. This will increase the market cost, require higher rentals and charges, and inconvenience users of the market.

A food-distribution center should be properly zoned so that it neither detracts from surrounding property values nor does surrounding property detract from its value.

Sites Evaluated

During the study, several sites in the city were suggested by various persons and organizations, including officials of the city of Detroit, transportation agencies, wholesale food dealers, and others interested in improving the local food marketing situation. Some sites were too small, others had other serious drawbacks, but all were considered.

However, only three sites within the city were analyzed in detail. They are: The Eastern Market site; the Union Produce Terminal site; and the Central Avenue site. The locations of the sites are shown in figure 38. None satisfied all the requirements, but each was considered in relation to them. At the request of city officials, the detailed study was restricted to sites within the city limits, but for purposes of comparison, six outlying sites are briefly described.

Any site considered would have to be examined with the requirements outlined above in mind.

Table 22 shows for each of the three suggested city sites the location, boundaries, acreage available, estimated cost per acre, present land use, rail and truck accessibility, convenience to other food wholesalers, and the distance to the population and distribution centers.

The estimated cost per acre for land, including acquisition and developing costs, for each of the three sites is discussed more fully in a following section.

How well each site meets the requirements is also set forth, to aid the market sponsors in evaluating the site. Major access highways and railroad connections are shown for each site in figure 38.

Eastern Market Site

As stated earlier in this report, the Eastern Market area has been an important wholesale food market area for a number of years. In the year studied, 162 wholesale food dealers were operating here. This area is also the location of the municipal Eastern Farmers' Market, from which approximately 1,000 nearby fruit and vegetable growers sell their products. Many present facilities of wholesale dealers in the area are outmoded and inefficient, and could not be used in a new wholesale food-distribution center. Also, there are many substandard residence in the area. This area and a large nearby area have been classified by the Detroit City Plan Commission as a first-intensity blighted area,[4] and is eligible to be included under city redevelopment plans. The Eastern Market site lies between the so-called Milwaukee-Junction Industrial Redevelopment area being developed by the city of Detroit on the north and the Gratiot redevelopment project to the south.

The distribution center in this area, should include at least 320 acres. The suggested site is bounded by the proposed Walter P. Chrysler Expressway on the west, Forest Avenue on the north, St. Aubin Avenue on the east, and Gratiot Avenue and Fisher Vernor Highway on the south.

Rail access is limited, the site being served only by the Grand Trunk Western Railroad. However, this railroad has direct service to Chicago, where it makes connections with other rail lines delivering food shipments from the west and south. The Grand Trunk Western Railroad also has an interchange with the New York Central System and the Wabash Railroad about 1 mile north of the site at Milwaukee Junction.

The site will be well located in regard to truck transportation. The proposed Fisher Vernor Expressway along part of the southern boundary would provide a direct limited-access road with connections to the western and southern producing areas and major population centers. Gratiot Avenue, a 120-foot-wide main thoroughfare to the east, carries heavy intercity motortruck traffic. The Walter P. Chrysler Expressway, being constructed along the western boundary of the site, will be a major thoroughfare to the northern and western parts of the Detroit metropolitan area.

[4] First-intensity blighted areas include these block frontages in which over two-thirds of the residential structures contained one or more of the following conditions to a severe degree: (a) Structure out of plumb, (b) rotting of building members, (c) deteriorated roof, (d) poor foundation, (e) lack of central heating and plumbing.

TABLE 22.--Summary comparison of three sites for a proposed wholesale food-distribution center

Item	Eastern Market site	Union Produce Terminal site	Central Avenue site
Location and boundaries	Bounded by: Forest Ave., St. Aubin Ave., Gratiot Ave. Fisher Vernor Exp., Walter P. Chrysler Exp.	Bounded by: W. Fort Street, Rademacher St., W. Jefferson Ave., Dearborn Ave., West End Ave.	Bounded by: W. Michigan Ave., Central Ave., NYC RR. main line, John Kronk Ave., Dearborn city boundary line.
Land area:			
Available acres	376 acres	376 acres	482 acres
Estimated land cost per acre	$133,215	$105,356	$55,338
Land use	92 acres of wholesale food industry and light industry. Very few facilities usable for new center. Housing definitely substandard. Has priority "A" for redevelopment.	About 40 acres of Union Produce Terminal facilities. Many of these buildings are usable. Remainder by light industry and substandard housing. Classified for redevelopment. Near large auto plant not in site.	Mostly large truck terminals and light industry. Adjacent to proposed unified merchandise (less carload) terminal.
Access to rail transportation	GTW RR. along De Quindre Rd. on east. NYC RR. and GTW RR. interchange 1 mi. north of site.	Main line of C&O RR., PRR., & Wabash RR. Co. bisects site. Freight interchange 1/2 mi. west of site, connects these 3 RR's with main lines of NYC System, Detroit & Toledo Shore Line RR., and GTW RR. The Ferdinand and Delray team track yards of Wabash RR. Co. on site.	Main line of NYC System on south border of site. Central Ave. team track yards, classification yards, and repair shops adjacent to site. Major interchange point between NYC RR. and GTW RR., C&O RR., Wabash Co., Detroit, Toledo, & Ironton RR., Detroit and Toledo South Shore RR., PRR. and Union Belt Line 1 1/2 miles southwest of site.
Convenience to highways	Walter P. Chrysler Exp. is along western boundary, Forest Ave. on the north, St. Aubin Ave. on the east, & Gratiot Ave., Fisher Vernor on the south. The proposed Fisher Vernor Exp. would give direct access to the west, and would adjoin the site.	Western leg of proposed Fisher Vernor Exp. is north of Fort St. (U.S. 25 (s)) along northern boundary of site.	Michigan Ave. (U.S. 112) is northern boundary of site, a heavily traveled truck route to west. Livernois Ave., about 1/2 mi. east of site, connects with Dix Ave., a major east-west connecting truck route. The Ford Exp. is about 1/10 mi. north of site. Several truck terminals are now on the site.
Use by food wholesalers	Facilities of 162 food wholesalers and the municipal Eastern Farmers' Market are located here.	Union Produce Terminal, serving 31 fruit and vegetable wholesalers and 2 branches of national food-chain organizations, is located here.	Detroit Union Stockyard and several large slaughterers and meat packing establishments are located 1 mi. south, near NYC RR.'s classification yards.
Distance to center of population	About 2 mi.	About 4 1/3 mi.	About 4 mi.
Distance to center of distribution	About 1 2/3 mi.	About 3 2/3 mi.	About 3 mi.
Topography, shape of site, and zoning	Generally flat site. Adequate zoning for a wholesale food-distribution center.	Flat, filled land. Adequate zoning available.	Flat, filled land. Adequate zoning available.
Conformity to city's master plan	Site is in Central Detroit and is compatible with master plan. Allocation of this area to nonindustrial purposes is currently under study as part of master plan reappraisal program of the city.	Site is in Central Detroit, and is compatible with master plan. Existing Union Produce Ter. could form a nucleus of new development. There is a question of gases from nearby industrial facilities.	About 1/2 of area is allocated to heavy industrial use and is compatible with master plan, the other half to residential and recreational uses. Site includes Wilson play field (25 acres) the only large recreational public area for this part of the city.

One of the important drawbacks to this site would be the very high valuation of present buildings and land. Costs of acquisition, development, and conditioning 320 acres here would amount to $42.6 million total, or $133,000 per acre. Charges for amortizing the investment would not be economically feasible, unless the market is subsidized substantially.

The site is generally level and all public utilities are available. City engineers have indicated that buildings would not need to be supported by piling. It is zoned for light industrial and commercial uses.

Union Produce Terminal Site

Another important wholesale food market area in the city is the Union Produce Terminal at West Fort Street and Green Avenue. The present market contains approximately 74 acres, of which 40 acres are occupied by facilities of the terminal. The Terminal is a railroad-owned facility, serving 31 fruit and vegetable wholesalers, including the auction, plus 2 divisions of national food-chain organizations. The Terminal also contains two large buildings with house tracks. Team tracks also are available.

Adjacent to the Terminal are many substandard residences and other buildings, which have been classified by the Detroit City Plan Commission as first and second intensity of blight. Thus, much of this adjacent area may be eligible for Federal and city urban redevelopment. If these blighted areas are included in the site in addition to the Union Produce Terminal area, it would then contain approximately 376 acres.

The Union Produce Terminal site probably has the best rail access. Most railroads serving Detroit enter the city near the Terminal, and have yards in its vicinity.

The Wabash Railway Company, the Chesapeake and Ohio Railroad, and the Pennsylvania Railroad have access to the present produce terminal buildings through the Union Belt Line, a wholly owned subsidiary of these concerns. Their tracks cross the site. About one-half mile west of the Terminal there is a freight interchange which connects these three trunkline railroads with the main lines of the New York Central System to Chicago and New York City, the Detroit and Toledo Shore Line Railroad to Toledo, and the Grand Trunk Western Railroad to Chicago and Eastern Canada. The New York Central System and the Detroit, Toledo, and Ironton Railroad have team-track yards in the southern part of the site. The Ferdinand and the Delray team-track yards of the Wabash Railway Company are located within the site.

Convenience to truck routes is good. West Fort Street, the northern boundary of the site, is a major truck highway to the south and west (U.S. 25). The western leg of the proposed Fisher Expressway will be located within a few blocks north of Fort Street. With its direct connections to other expressways, this expressway will provide a limited-access route to all parts of the city and the surrounding area. The site is about 3 2/3 miles from the city's retail center of distribution. If a wholesale food distribution center is located here, sellers and buyers could reach the market by fast, limited-access expressways.

The site has the advantage of having several buildings that could be used in a new wholesale food-distribution center. The two sales and office buildings and a warehouse building probably can be refurbished and used by the fruit auction, and by the large-volume banana handlers, tomato repackers, and vegetable processors that would operate in the new center.

Probable costs of land and present buildings would be second highest in relation to the other sites. Costs of acquisition and development were estimated to be $105,000 per acre, or a total of $33.7 million for 320 acres. Thus the debt service charges for a food-distribution center at this location also would be quite high unless it was subsidized in some manner.

Topography of the site is generally flat. While a large part of the land has been filled, city engineers feel that buildings would not need to be supported by piling. All public utilities are available on the site and there is proper zoning classification for the construction of a wholesale center.

Central Avenue Site

The Central Avenue site is the most westerly of the three sites. It is bounded by Michigan Avenue on the north, Central Avenue on the east, the New York Central Railroad main line (to Chicago) and John Kronk Avenue on the south, and the boundary line of the city of Dearborn on the west. It is about 3 miles from the retail center of distribution.

The site is served directly only by the main line of the New York Central System. The Central Avenue team track and classification yards, the Detroit Stockyard, and the New York Central Railroad's major repair shops are located along the southern boundary of the site. Plans are being made to convert the New York Central Railroad yards and servicing facilities into a modern "electronic" classification and terminal yard. There is a major interchange with the Grand Trunk Western Railroad, the Chesapeak and Ohio Railroad, the Wabash Railroad Company, the Detroit, Toledo and Ironton Railroad, the Detroit and Toledo South Shore Railroad, the Pennsylvania Railroad, and the Union Belt Line, about 1 1/2 miles southwest of the site. Thus, there would be adequate rail access to the site by most rail lines entering Detroit.

Convenience to truck routes is good. Michigan Avenue, the northern boundary of the site, is a heavily traveled motortruck route to the west (U.S. 112). Livernois Street, located about 1/2 mile east of the site, is part of a heavily traveled circumferential truck route around the main business district of the city. Livernois Street connects with Dix Avenue to the south, an east-west connecting truck route. The Ford Industrial Expressway is less than 1 mile north of the site. This expressway provides a direct route to Adrian and other nearby cities.

The Detroit Union Stockyard facilities and several large livestock slaughterers and meat packing establishments are located 1 mile south of the site near the New York Central Railroad's classification yards. This might be of advantage to the meat dealers and processors, if they were relocated in the area.

They are now located in outmoded facilities, which are long distances from the major receiving points for livestock.

However, immediately adjacent to the site is a fairly large residential community that is not classified as blighted.

The site is fairly level, and public utilities are available. The present zoning classification for most of the site would be satisfactory for the establishment of a wholesale food-distribution center.

Present land assessment costs for the 482 acres would approximate $10.9 million. Acquisition and development costs are estimated at $55,000 per acre or a total of $17.7 million for 320 acres.

Possible Sites in Outlying Metropolitan Detroit

During the survey, officials of the Detroit Regional Planning Commission and other local organizations pointed out that much of the population increase in the Detroit metropolitan area was taking place outside the city in a westerly and northerly direction from the major downtown business section.

There are a number of sites outside the city limits of Detroit in Wayne and Oakland counties. Many of them are efficiently served by rail and truck transportation. Land costs and taxes are far lower in these areas.

Most rail and truck shipments of food coming to the Detroit wholesalers originate in commercial producing areas south and west of the city. Rail receipts either terminate in the rail yards close to the heart of the city, and are shifted to various receiving points from there, or could be delivered directly to many of the possible sites outside the city. Shipments arriving by over-the-road trucks also could come directly to these sites without meeting the congested traffic in the heart of the city.

Many limited-access expressways in the city would make delivery fairly easy to retail points from a site in outlying areas of metropolitan Detroit, compared with the present locations of wholesale facilities.

Obviously, land costs in outlying areas are much lower than for sites in the more densely populated areas. In many instances land costs would be only one-twentieth to one-tenth of land costs in the heart of the city. However, wholesale food distribution is one of Detroit's major industries; the products handled have a value of nearly $1 billion each year. Present market properties are assessed at many hundred thousands of dollars, and the firms employ thousands of people.

On figure 38 six sites in outlying areas are shown for illustrative purposes which could be used if it is decided to locate the proposed wholesale food distribution center outside Detroit. Table 23 shows for each of the six sites, the location, approximate size, approximate distance from the city limits, and the center of distribution, the accessibility for rail and truck shipments, and approximate present cost of land.

ESTIMATED INVESTMENT COSTS OF LAND AND FACILITIES

The total funds required for acquiring the site, putting it into condition to build, and constructing the facilities described in a previous section, will vary according to the site that is chosen. This section deals with the costs of the land and facilities for the three sites described in the preceeding chapter. It is first assumed that private funds may be used for the acquisition and development of the land in each of the three sites; and later in the chapter the cost of acquiring land under the Urban Renewal Program is discussed. The estimated cost of facilities includes those shown in the layout in figure 37.

These estimates do not include costs for any additional facilities that may be built later in the expansion areas, or the costs of streets, water mains and sewers, which are usually borne by the city. Thus, the cost estimates shown in the chapter are only those involved in placing the total site in condition to build, and constructing on it the wholesale food facilities which have been assumed to be needed initially.

The costs shown are April 1962 estimates, and are intended to be used as a guide in computing final estimates when the market site has been selected, and the arrangement of the facilities to fit the land area has been developed.

Land Cost

The estimated cost of land on each of three sites in the city is given in table 24. Land costs are based upon: Assessed valuation of the land and present structures on the land; an estimated cost of acquiring and developing the site; and an estimated cost of grading and fill.

Estimated per acre land costs for the three sites are: Eastern Market, $133,000; Detroit Produce Terminal, $105,000; and Central Avenue, $55,000.

TABLE 23.--An appraisal of six suggested sites outside the city for a proposed wholesale food-distribution center

Site	Location	Approximate size	Approximate distance to--		Accessibility		Approximate value of site	Topography
			Detroit city limits	Detroit center of distribution	Railroad	Truck		
		Acres	Miles	Miles	(Would be served by)		Dollars	
Romulus.....	1 mile south of village of Romulus	389	14	19	C&O Wabash	Edsel Ford Expressway	1 million	Level
Sheldon.....	Near village of Sheldon	465	15	20	NY Central	U.S. 112 (Mich. Ave.)	1.5 million	Mostly level
Plymouth	1 mile south of city Plymouth	381	9	18	C&O	Between Mich. Rt. 153 and Mich. Rt. 14	750,000	Rolling
Warren.....	Partly in city of Warren	500	8	16	NYC	15 mile Road Mich. St. Rt. 53, Mound Rd.	2 million	Level
Pelham Road....	Near Allen Park	400	1	8	Wabash	Edsel Ford and Pelham Road	2.4 million	Level
Lincoln Park	Partly in Lincoln Park, and partly in city of Melvindale	600	([1])	7	PRR	U.S. 25	1.5 million	Level

[1] About 1/3 of site within city limits.

TABLE 24.--Available acreage and cost for 320 acres, at three possible sites, for a proposed food-distribution center

Site	Acres available	Present land and improvement assessment[1]	Acquisition and development	Grading and fill[2]	Total	Average cost per acre	Total cost for 320-acre site
	Number	1,000 dollars	1,000 dollars	1,000 dollars	1,000 dollars	Dollars	1,000 dollars
Eastern Market.....	376	20,800	28,725	564	50,089	133,215	42,629
Union Produce Terminal....	376	[3] 16,400	22,650	564	[3] 39,614	105,356	33,714
Central Avenue.....	482	10,900	15,050	723	26,673	55,338	17,708

[1] Assessed valuation estimated to be 42 percent of sales value of land and buildings.
[2] Based on $1,500 per acre.
[3] Includes present land and buildings of Union Produce Terminal.

The assessed valuation of this land was estimated to be 42 percent of sales value, according to a study by the U.S. Census Bureau,[5] and estimates of local real estate developers. Thus, to get the value, the assessed valuation of each site was adjusted to 100 percent. The balance includes the costs of acquisition and development. Acquisition costs include estimates of engineering costs, and legal and administrative costs for acquiring the land. In addition, $1,500 per acre for grading and fill was estimated for each site, based on information from local construction engineers.

Facility Costs

The estimated costs of buildings and other facilities (exclusive of land) are based on:

1. Indexes of costs for construction in Detroit, in April 1962.
2. Construction cost estimates submitted by local architects and contractors.
3. Costs of constructing similar facilities in comparable areas.

City of Detroit engineers have suggested that no cost allowances be made for supporting each building with piling. They advised that soil conditions in the Detroit area, except along the river front, would not require this additional expense. Other costs included are for plumbing, floor drainage, and wiring. Otherwise, the cost estimates shown are for the construction of the shells of the buildings, except for the frozen-food buildings and meat store units. It was assumed that with the exception of the frozen-food stores, the refrigerated storage area, and the refrigerated rooms of the wholesale meat stores, individual firms would supply their own refrigeration or temperature-controlled rooms and other special equipment. It is also assumed that the city will pave, at no cost to the center, a public street on each of the four sides of the site and the street bisecting the site. The remaining areas, except expansion areas, would be paved at the expense of the project.

Paving costs are based on estimates provided by the Federal Bureau of Public Roads for 1961 costs for a 2-inch asphaltic concrete or 4-inch macadam surface, and a 7-inch gravel foundation.

It must be emphasized that the estimates shown in this chapter should be used only as a guide in arriving at a total estimated cost for the project, and that these costs are NOT intended to replace firm estimates made by local architects and contractors at the time the construction is undertaken. Obviously, local estimates of costs, based on a food-distribution center on a particular site, may differ from the following estimates, which are calculated for the Eastern Market site, as shown in figure 37.

The building cost estimates are based on brick and steel construction. Architect's and engineer's fees, at 6 percent of total construction costs, a construction loan, at 5 percent of construction cost including architect's and engineer's fees, and a 10-percent contingency cost is calculated. These costs are shown in the following tables with the estimated investment costs for individual facilities and commodity sections of the center.

Fruit and Vegetable Section

Multiple-occupancy buildings (land area--14.3 acres):	
Standard store units:	
65 (in two buildings): 100 ft. x 25 ft., with 15 ft. x 25 ft. mezzanines, 162,500 sq. ft. 1st floor and platform space, and 24,375 sq. ft. mezzanine space; $22,300 per unit	$1,449,500
Restaurant (restrooms in basement) $22,300 + $2,500	24,800
Total cost of above buildings	$1,474,300

[5] U.S. Bureau of the Census. Taxable Property Values in the United States. 1957 Census of Governments, v. 5, table 22. 1959.

Other facilities for these buildings:	
Trackage:	
House tracks: 5,640 ft., @ $13	$73,320
Switches: 2 singles, @ $4,300	8,600
Paving (blacktop combination): 46,125 sq. yd. @ $4	184,500
Sewers, 15-in. combination sanitary and storm: 1,080 ft., @ $3.50	3,780
Floodlights: 20, @ $150	3,000
Fence (8 ft.): 2,000 linear ft., @ $3.50	7,000
Total of these construction costs	$1,754,500
Other costs for these buildings:	
Architect and engineering fees: 6% of construction cost	$105,270
Construction loan: 5% of construction cost, including architect's fee	92,988
Contingency: 10% of construction costs, fees, and loans	195,276
Total investment costs of above facilities	$2,148,034

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Other buildings (land area--17.5 acres):	
1st floor sales, processing and auction floor (in two buildings): each building 1,044 ft. x 100 ft., or 208,800 sq. ft. @ $9	$1,879,200
2nd floor (in one building): 1,044 ft. x 60 ft.; 141 office units, 42,300 sq. ft.; 4 restrooms and 1 storage room, 1,500 sq. ft.; auction room and offices, 7,140 sq. ft.; corridor and stairways 11,700 sq. ft.; or 62,640 sq. ft., @ $10	626,400
1 restaurant (restrooms in basement): $2,500 for basement and restroom fixtures	2,500
Total cost of these buildings	$2,508,100
Other facilities for these buildings:	
Trackage:	
House tracks: 5,832 ft., @ $13	$75,820
Switches: 2 singles @ $4,300	8,600
Paving (blacktop combination): 56,375 sq. yd., @ $4	225,500
Sewers, 15-in. combination sanitary and storm: 1,320 ft., @ $3.50	4,620
Floodlights: 15, @ $150	2,250
Fence (8 ft.): 2,450 ft., @ $3.50	8,575
Total construction costs for these buildings	$2,833,465
Other costs for these buildings:	
Architects' and engineering fees: 6%	$170,008
Construction loan: 5%	150,173
Contingency: 10%	315,365
Total investment costs of above facilities	$3,469,011

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Farmers' market (land area--20 acres):	
Covered stalls: 504 (8 ft. x 10 ft.; 4 stalls enclosed for restrooms and office) or 40,320 sq. ft. @ $3	$120,960
Manager's office and scale	13,200
Total cost of these buildings	$134,160

Other facilities for the farmers' market:	
Paving (blacktop combination): 82,640 sq. yd. @ $4	$330,560
Sewers, 15-in. combination sanitary and storm: 4,200 ft., @ $3.50	14,700
Floodlights: 12, @ $150	1,800
Public address system	600
Fence (8 ft.): 2,680 ft., @ $3.50	9,380
Total construction cost for these facilities	$491,200
Other costs:	
Architect and engineering fees: 6%	$29,472
Construction loan: 5%	26,034
Contingency: 10%	54,671
Total investment cost of farmers' market facilities	$601,077

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Meat and Meat Products Section

Multiple-occupancy buildings (land area--17.4 acres):	
Standard store units:	
98 (in 4 buildings): 100 ft. x 25 ft. on first floor, and 25 ft. x 72 ft. on second floor. 245,000 sq. ft. of first floor and platform space, and 176,400 sq. ft. of second floor space. 98 units @ $38,100 per unit	$3,733,800
Insulation and interior finish: 5,475 sq. ft. of 4-in. insulation @ $2.75 per ft. installed, or $15,056 per unit	1,475,488
Meat rails, installed with trackage for platforms, $7,500 per unit	735,000
Refrigeration: 10 tons, @ $1,200 per ton, or $12,000 per unit	1,176,000
Restaurant (restrooms in basement): $38,100 plus $2,500 for basement and fixtures	40,600
Total cost of these buildings	$7,160,888
Other facilities for these buildings:	
Trackage:	
House tracks: 3,840 ft., @ $13.00	$49,920
Switches: one single, @ $4,300	4,300
Paving (blacktop combination): 56,268 sq. yd., @ $4.00	225,072
Sewers, 15-in. combination sanitary and storm: 1,300 ft., @ $3.50	4,550
Floodlights: 10, @ $150	1,500
Total construction costs for these buildings	$7,446,230
Other costs for these buildings:	
Architect and engineering fees: 6%	$446,774
Construction loan: 5%	394,650
Contingency: 10%	828,765
Total investment cost of above facilities	$9,116,419

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Single-occupancy buildings (land area--41.3 acres):	
4 buildings of 10,000 sq. ft. (100 ft. x 100 ft.)	40,000 sq. ft.
3 buildings of 12,000 sq. ft. (100 ft. x 120 ft.)	36,000 sq. ft.
5 buildings of 15,000 sq. ft. (150 ft. x 100 ft.)	75,000 sq. ft.
3 buildings of 25,000 sq. ft. (200 ft. x 125 ft.)	75,000 sq. ft.
1 building of 35,000 sq. ft. (200 ft. x 175 ft.)	35,000 sq. ft.
1 building of 45,000 sq. ft. (200 ft. x 225 ft.)	45,000 sq. ft.
1 building of 75,000 sq. ft. (200 ft. x 375 ft.)	75,000 sq. ft.
1 building of 100,000 sq. ft. (200 ft. x 500 ft.)	100,000 sq. ft.
	481,000 sq. ft.
Total cost of these buildings @ $9 per sq. ft.	$4,329,000
Other facilities for these buildings:	
Trackage:	
House tracks: 6,620 ft., @ $13	$86,060
Switches: 6 single, @ $4,300	25,800
Paving (blacktop combination): 124,600 sq. yd., @ $4	498,400
Sewers, 15-in. combination sanitary and storm: 3,000 ft., @ $3.50	10,500
Floodlights: 40, @ $150	6,000
Total construction costs for these buildings	$4,955,760
Other costs for these facilities:	
Architect and engineering fees: 6%	$297,346
Construction loan: 5%	262,655
Contingency: 10%	551,576
Total investment cost of above facilities	$6,067,337

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Meat dock (land area--4.1 acres):	
1 building, 1,020 ft. x 30 ft., or 30,600 sq. ft., @ $3.50	$107,100
Other facilities for meat dock:	
Trackage:	
House tracks: 2,400 ft., @ $13	31,200
Switches: 1 single, @ $4,300	4,300
Paving (blacktop combination): 13,194 sq. yd., @ $4	52,776
Sewers, 15-in. combination sanitary and storm: 700 ft. @ $3.50	2,450
Floodlights: 30, @ $150	4,500
Total meat-dock construction costs	$202,326
Other costs:	
Architect and engineering fees: 6%	$12,140
Construction loan: 5%	10,723
Contingency: 10%	22,519
Total meat-dock investment costs	$247,708

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Poultry Section

Standard store units (land area--3.3 acres):

20 (in one building) 100 ft. x 25 ft., with 15 ft. x 25 ft. mezzanines, 50,000 sq. ft. first floor and platform space, and 7,500 sq. ft. mezzanine space. $22,300 per unit	$446,000
Other poultry section facilities:	
Paving (blacktop combination): 10,400 sq. yd., @ $4	$41,600
Sewers, 15-in. combination sanitary and storm: 500 ft. @ $3.50	1,750
Floodlights: 20, @ $150	3,000
Trackage--none	-----
Total poultry section construction costs	$492,350
Other poultry section costs:	
Architect and engineering fees: 6%	$29,541
Construction loan: 5%	26,095
Contingency: 10%	54,799
Total poultry section investment costs	$602,785

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Dairy Products and Eggs Section

Multiple-occupancy buildings (land area--5.9 acres):

Standard store units:	
30 (in 2 buildings) 100 ft. x 25 ft., with 15 ft. x 25 ft. mezzanines, 75,000 sq. ft. first floor and platform space, and 11,250 sq. ft. mezzanine space. $22,800 per unit	$669,000
Other facilities:	
Paving (blacktop combination): 19,100 sq. yd., @ $4	76,400
Sewers, 15-in. combination sanitary and storm: 700 ft., @ $3.50	2,450
Floodlights: 10, @ $150	1,500
Trackage--none	-----
Total construction costs for these facilities	$749,350
Other costs:	
Architect and engineering fees: 6%	$44,961
Construction loan: 5%	39,716
Contingency: 10%	83,403
Total investment costs for these facilities	$917,430

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Single-occupancy buildings (land area--4.7 acres):

1 building of 5,000 sq. ft. (50 ft. x 100 ft.)	5,000 sq. ft.
2 buildings of 12,500 sq. ft. (125 ft. x 100 ft.)	25,000 sq. ft.
1 building of 27,500 sq. ft. (275 ft. x 100 ft.)	27,500 sq. ft.
	57,500 sq. ft.
Total cost, @ $9 per sq. ft., of these buildings	$517,500

Other facilities:	
Paving (blacktop combination): 16,292 sq. yd., @ $4	$65,168
Sewers, 15-in. combination sanitary and storm: 300 ft., @ $3.50.	1,050
Floodlights: 10, @ $150	1,500
Trackage--none	-----
Total construction costs of these facilities	$585,218
Other costs:	
Architect and engineering fees: 6%	$35,113
Construction loan: 5%	31,017
Contingency: 10%	65,135
Total investment costs of these facilities	$716,483

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Frozen Food and Refrigerated Storage Section

Note: The total investment costs for each component part of the frozen food and refrigerated storage facility is computed separately, so that the total annual revenue required for the store units and for the general storage area can be determined. This is explained in a later chapter.

Store units: (land area--5 acres):	
18 (170 ft. x 34 ft., or 5,780 sq. ft. on first floor.)	
Refrigerated space (100 ft. x 34 ft., or 3,400 sq. ft. in each unit) 61,200 sq. ft. x 20 ft., or 1,224,000 cu. ft., @ $1.35	$1,650,115
Unrefrigerated space, 2,380 sq. ft. per unit (50 ft. x 34 ft. in shipping room, plus 34 ft. x 20 ft. of loading platform), or 42,840 sq. ft. @ $9	385,560
Second floor, (18 offices, plus passageway) 33,000 sq. ft., @ $9	297,000
Cost of these buildings	$2,332,675
Other facilities:	
Trackage:	
House tracks: 1,175 ft., @ $13	$15,275
Switch: 1 single, @ $4,300	4,300
Paving (blacktop combination): 7,950 sq. yd., @ $4	31,800
Sewers, 15-in. combination sanitary and storm: 400 ft., @ $3.50.	1,400
Floodlights: 3, @ $150	450
Total construction costs of these facilities	$2,385,900
Other costs:	
Architect and engineering fees: @ 6%	$143,154
Construction loan: 5%	126,452
Contingency: 10%	265,551
Total investment costs for these facilities	$2,921,057

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General storage (land area--5 acres):	
Refrigerated space (2 areas, 306 ft. x 150 ft., or 91,800 sq. ft.) 1,836,000 cu. ft. (91,800 sq. ft. x 20 ft.), @ $1.35 per cu. ft.	$2,475,173
Unrefrigerated space (unloading platforms, covered passageway) 28,560 sq. ft., @ $9	257,040
Cost of buildings	$2,732,213

Other facilities:	
Trackage:	
House tracks: 1,325 ft., @ $13	$17,225
Switches: 1 single, @ $4,300	4,300
Paving (blacktop combination): 7,950 sq. yd., @ $4	31,800
Sewers, 15-in. combination sanitary and storm: 400 ft., @ $3.50	1,400
Floodlights: 3, @ $150	450
Total construction costs for these facilities	$2,787,388
Other costs:	
Architect and engineering fees: 6%	$167,243
Construction loan: 5%	147,732
Contingency: 10%	310,326
Total investment costs for these facilities	$3,412,599

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Fish and Seafood Section

Standard store units (land area--6.8 acres):	
33 (in 2 buildings) 100 ft. x 25 ft., with 15 ft. x 25 ft. mezzanines, 82,500 sq. ft. first floor and platform space, and 12,375 sq. ft. of mezzanine space. $22,300 per unit	$735,900
Other facilities:	
Paving (blacktop combination): 21,520 sq. yd., @ $4	$86,080
Sewers, 15-in. combination sanitary and storm: 1,000 ft., @ $3.50	3,500
Floodlights: 10, @ $150	1,500
Trackage--none	-----
Total construction costs for these facilities	$826,980
Other costs:	
Architect and engineering fees: 6%	$49,619
Construction loan: 5%	43,830
Contingency: 10%	92,043
Total investment costs for these facilities	$1,012,472

* * * * *

Grocery Section

Multiple-occupancy buildings (land area--17.8 acres):	
Standard store units:	
42 (in 3 buildings) 114 ft. x 50 ft., with 15 ft. x 50 ft. mezzanines, 239,400 sq. ft. first floor and platform space, and 31,500 sq. ft. mezzanine space, @ $50,844 per unit	$2,135,448
Restaurant (restrooms in basement), $50,844 + $2,500	53,344
Total cost of these buildings	$2,188,792

Other facilities:	
Trackage:	
House tracks: 1,800 ft., @ $13	$23,400
Switches: 1 single, @ $4,300	4,300
Paving (blacktop combination): 39,500 sq. yd., @ $4	158,000
Sewers, 15-in. combination sanitary and storm: 900 ft., @ $3.50	3,150
Floodlights: 20, @ $150	3,000
Total construction costs for these facilities	$2,380,642
Other costs:	
Architect and engineering fees: 6%	$142,839
Construction loan: 5%	126,174
Contingency: 10%	264,966
Total investment costs for these facilities	$2,914,621

* * * * *

Single-occupancy buildings (land area--20.2 acres):	
1 building of 18,000 sq. ft. (200 ft. x 90 ft.)	18,000 sq. ft.
2 buildings of 30,000 sq. ft. (200 ft. x 150 ft.)	60,000 sq. ft.
2 buildings of 40,000 sq. ft. (200 ft. x 200 ft.)	80,000 sq. ft.
1 building of 48,000 sq. ft. (200 ft. x 240 ft.)	48,000 sq. ft.
1 building of 70,000 sq. ft. (200 ft. x 350 ft.)	70,000 sq. ft.
1 building of 127,000 sq. ft. (200 ft. x 635 ft.)	127,000 sq. ft.
	403,000 sq. ft.
Total cost, @ $9 per sq. ft., of buildings	$3,627,000
Other facilities:	
Trackage:	
House tracks: 5,420 ft., @ $13	$70,460
Switches: 2 single, @ $4,300	8,600
Paving (blacktop combination): 59,240 sq. yd., @ $4	236,960
Sewers, 15-in. combination sanitary and storm: 2,100 ft., @ $3.50	7,350
Floodlights: 20, @ $150	3,000
Total construction costs for these facilities	$3,953,370
Other costs:	
Architect and engineering fees: 6%	$237,202
Construction loan: 5%	209,529
Contingency 10%	440,010
Total investment costs for these facilities	$4,840,111

* * * * *

Service Facilities

Team tracks (land area--18 acres):	
Trackage: 15,800 ft., @ $13	$205,400
Switches: 15, @ $4,300	64,500
Paving: 87,120 sq. yd., @ $4.00	348,480
Total construction costs	$618,380

Other costs:	
Architect and engineering fees: 6%	$37,103
Construction loan: 5%	32,774
Contingency: 10%	68,826
Total team-track investment costs	$757,083
Other service facilities (land area--8.5 acres):	
Icing dock area:	
Icing dock: 5,625 sq. ft., @ $2	$11,250
Icing house: 3,750 sq. ft., @ $3.50	13,125
	$24,375
Restaurant: 14,000 sq. ft., @ $10	140,000
Service station and lunchroom	30,000
Garage: 13,500 sq. ft., @ $7	94,500
Total cost of buildings	$288,875
Paving: 37,040 sq. yd., @ $4	$148,160
Sewers, 15-in. combination sanitary and storm: 2,000 ft., @ $3.50	7,000
Floodlights: 30, @ $150	4,500
Total construction cost for these facilities	$448,535
Other costs:	
Architect and engineering fees: 6%	$26,912
Construction loan: 5%	23,772
Contingency: 10%	49,922
Total service-facility investment costs	$549,141

* * * * *

Summary of Investment Costs of Facilities
(Excluding Land)

Fruits and vegetables section:		
Multiple-occupancy buildings	$2,148,034	
Other buildings	3,469,011	
Farmers' market	601,077	
		$6,218,122
Meat and meat-products section:		
Multiple-occupancy buildings	$9,116,419	
Single-occupancy buildings	6,067,337	
Meat dock	247,708	
		$15,431,464
Poultry section:		
Multiple-occupancy buildings		$602,785
Dairy products and eggs section:		
Multiple-occupancy buildings	$917,430	
Single-occupancy buildings	716,483	
		$1,633,913

Frozen food and refrigerated storage section:		
Store units	$2,921,057	
Refrigerated storage	3,412,599	
		$6,333,656
Fish and seafood section:		
Multiple-occupancy buildings		$1,012,472
Grocery section:		
Multiple-occupancy buildings	$2,914,621	
Single-occupancy buildings	4,840,111	
		$7,754,732
Service facilities:		
Team tracks	$757,083	
Other service facilities	549,141	
		$1,306,224
Total		$40,293,368

Use of Facilities Already on the Union Produce Terminal Site

If the wholesale food-distribution facilities are built at the Detroit Union Produce Terminal site, it may be possible to use some of the present facilities.

Sales buildings A and B, described on pages 23 to 25, are well-constructed facilities (with offices located on the second floor) and may be used efficiently as facilities for the larger volume wholesalers, banana distributors, tomato repackers, fresh vegetable processors, and the fruit auction. The land costs shown in table 24 include the estimated value of these buildings.

It was estimated that the cost of acquiring these two buildings would amount to about $1,231,000 and the cost of refurbishing would be about $100,000. Adding a 10-percent contingency would make a total of $1,464,000 for these two fruit and vegetable facilities. The investment cost of constructing similar structures, as discussed earlier in this chapter, would amount to $3,469,000.

If the center is built on the Union Produce Terminal site the investment cost for these two refurbished buildings are estimated to be $2,005,000 less than similar facilities constructed on another site. Thus, the total investment cost of wholesale fruit and vegetable facilities (excluding the farmers' market) would be $3,612,000 on the Union Produce Terminal site, compared with $5,617,000 on any other site.

Reduction in Land Costs Under the Urban Renewal Program

There is a possibility of financing the proposed center by using the Urban Renewal funds for removal of blighted areas, as administered by the Detroit Housing Commission, and authorized by the Federal Housing Acts.

Under the legislation, the Federal Government extends special aids to the local community to assist in the main phases of redevelopment or rehabilitation of blighted areas, rehousing of displaced families, and in community planning. Federal advances in planning funds are also available to finance surveys and plans, which must be prepared before the actual redevelopment of an area takes place.

The power of eminent domain can be exercised in an urban redevelopment project under Title I of the Housing Act of 1949 and Title III of the Housing Act of 1954. These provide for Federal loans and grants to local public agencies for the acquisition of blighted properties, which may be resold at a fair reuse price to a private developer who agrees to comply with an approved plan for development. If the resale is less than cost of acquisition and demolition, up to two-thirds of the loss (or "write down") will be borne by the Federal Government and one-third by the local government. A grant of up to three-fourths of the net loss may be made by the Federal government in cases where the local authority assumes the risk of advance planning without requesting an advance planning loan or grant. Communities are increasingly making use of this provision to avoid delays caused by Federal review at early stages of planning.

In local discussions, the Eastern Market area and perhaps the Detroit Union Produce Terminal site were suggested as areas which could meet the requirements for setting up urban renewal projects. According to the City Plan Commission, most of the area in both sites has been classified as being of first intensity of blight; a majority of the present dwellings are without private bath or running water, and are in a bad state of repair; most of the other buildings in which wholesale food stores are located are old and of antiquated design, of frame or brick veneer construction, and are badly in need of repair. The fire hazard is great and insurance rates are high. It was understood that the Central Avenue site does not qualify under this program.

In accordance with some preliminary estimates of the Detroit Housing Commission and the City Plan Commission, the sales price of similar land, cleared and ready for rebuilding, would amount to about $45,000 per acre. On this basis, the 320 acres of land required for the construction of the wholesale center would cost the developer $14.4 million.

Summary of Investment Costs of Land and Facilities

The total investment cost of land and facilities for a wholesale center, if built on the Eastern Market area, the Union Produce Terminal area, or the Central Avenue area sites is shown in table 25. The figures are based on 320 acres of land, acquired and developed either with private funds or with Urban Renewal funds, and containing the facilities for which estimated costs were shown in the fore part of this section.

OWNERSHIP AND DEVELOPMENT OF A WHOLESALE FOOD-DISTRIBUTION CENTER

Regardless of how well a wholesale food distribution center may have been designed, how complete it may be, or how accessible it may be, its success will depend to a large extent on the type of ownership and character of its management. To operate successfully, such a market must be as well managed as any other business of comparable size. Moreover, it should be operated without discrimination against any type of buyer or seller, against any form of transportation, or against any food item because of its origin.

Many groups and interests are concerned with the type of management placed in control of a wholesale food center. Growers, transportation companies, wholesale dealers, retail grocers, and consumers all have a large stake in the management from the viewpoint of efficient distribution. The investors make up another group that is vitally concerned with the success of the market. Whether the investors put in private funds, or public funds through a State or local appropriation, they have a right to expect the center to be operated in such a manner that their investments will be protected. In order that the interests of the public may be protected, it is desirable that the managerial board be composed of members who will have an interest in the financial success of the entire project, and at the same time represent the interests of those groups concerned with its successful operation.

TABLE 25.--Estimated investment costs of land and facilities on each of three sites for a new wholesale food-distribution center by commodity groups and type of facilities[1]

Commodity, land, and facility	Acres in commodity section	Investment cost, if wholesale food-distribution center is built at--				
		Eastern Market		Produce Terminal		Central Avenue[3]--
		With private funds	With Urban Renewal funds	With private funds	With Urban Renewal funds	private funds
		1,000 dollars	1,000 dollars	1,000 dollars	1,000 dollars	1,000 dollars
Fruits and vegetables:						
Wholesale	31.8					
Land		4,236	1,431	3,350	1,431	1,760
Facilities		5,617	5,617	[2] 3,612	[2] 3,612	5,617
Total		9,853	7,048	6,962	5,043	7,377
Farmers' market:	20.0					
Land		2,664	900	2,107	900	1,107
Facilities		601	601	601	601	601
Total		3,265	1,501	2,708	1,501	1,708
Meat and meat products:	62.8					
Land		8,366	2,826	6,616	2,826	3,475
Facilities		15,431	15,431	15,431	15,431	15,431
Total		23,797	18,257	22,047	18,257	18,906
Poultry:	3.3					
Land		440	148	348	148	183
Facilities		603	603	603	603	603
Total		1,043	751	951	751	786
Dairy products and eggs:	10.6					
Land		1,412	477	1,117	477	587
Facilities		1,634	1,634	1,634	1,634	1,634
Total		3,046	2,111	2,751	2,111	2,221
Frozen foods:	5.0					
Land		666	225	527	225	277
Facilities		2,921	2,921	2,921	2,921	2,921
Total		3,587	3,146	3,448	3,146	3,198
Refrigerated storage:	5.0					
Land		666	225	527	225	227
Facilities		3,413	3,413	3,413	3,413	3,413
Total		4,079	3,638	3,940	3,638	3,690
Fish and seafood:	6.8					
Land		906	306	716	306	376
Facilities		1,012	1,012	1,012	1,012	1,012
Total		1,918	1,318	1,728	1,318	1,388
Groceries:	38.0					
Land		5,062	1,710	4,004	1,710	2,103
Facilities		7,755	7,755	7,755	7,755	7,755
Total		12,817	9,465	11,759	9,465	9,858
Service facilities:						
Team tracks	18.0					
Land		2,398	810	1,896	810	996
Facilities		757	757	757	757	757
Total		3,155	1,567	2,653	1,567	1,753
Other service facilities:	8.5					
Land		1,132	382	896	382	470
Facilities		549	549	549	549	549
Total		1,681	931	1,445	931	1,019
Totals:	209.8					
Land		27,948	9,440	22,104	9,440	11,611
Facilities		40,293	40,293	38,288	38,288	40,293
Total		68,241	49,733	60,392	47,728	51,904
Allied industry area:	110.0					
Land		14,654	4,950	11,589	4,950	6,087
Grand total		82,895	54,683	71,981	52,678	57,991

[1] Cost of land, if developed with private funds, for each of the 3 sites is based upon the following per-acre costs: Eastern Market, $133,215; Union Produce Terminal, $105,356; and Central Avenue, $55,338. If the land is developed with Urban Renewal funds, the estimated cost per acre is $45,000.

[2] Includes refurbished buildings now in Union Produce Terminal.

[3] Central Avenue site not eligible for Urban Renewal development.

Types of Ownership [11]

A wholesale food center can be built and managed by: (1) A public benefit corporation sometimes called a market authority; (2) a private corporation for profit, nonprofit, or limited profit; (3) a State or municipal agency; (4) a cooperative, or (5) a combination of these. A short review of each of these types of ownership is given in this chapter. A statement regarding the assistance available from the Small Business Administration is also included.

Public Benefit Corporation

A public benefit corporation is a legal entity or agency of government, and as such is usually granted many of the rights and privileges given to local political subdivisions. A public corporation created for market ownership and operation is sometimes referred to as a market authority. It is usually an agency of a State government.

A public benefit corporation or market authority usually has authority to issue bonds for the purpose of financing land acquisition and the construction of market facilities. Such bonds, as a rule, would be sold on the open market, like the bonds of a county, road district, or school district. The bonds of a market authority are amortized from market revenue. In addition to the issuance of bonds, market authorities may receive gifts or donations of land or money for market purposes.

Where appropriate State enabling legislation has been enacted, the governor, commissioner of agriculture, or State marketing commission usually has authority to issue a "certificate of authority," creating a public benefit corporation or market authority on petition from a group of wholesale food dealers or from a city, or other political subdivision of the State.

Following a petition from another Michigan city (Grand Rapids) to establish a food market authority, enabling legislation was passed by the Michigan legislature in 1956 and approved by the Governor, April 13, 1956. This enabling act applies to all Michigan cities.

The 1956 Michigan Market Authority Act provides for the establishment of a wholesale market to handle all kinds of farm and food products. Farm products under this act are defined as those products of agriculture "which are unprocessed," such as fresh fruits and vegetables, and eggs and live poultry. The Board of the Authority is to be established by ordinance of the City Commission or Common Council. It should consist of five to nine members. The Board would be appointed by the Mayor with the consent of the City Council for "staggered" terms of 3 years for each board member. The appointment of three new members each year is required; this gives continuity to the operations of the Board, because at all times, some members will have had some experience with the operations of the market. The board of directors of the authority is authorized to acquire land inside or outside the city, and to construct the necessary facilities on the portion of the market designated for the handling of farm products. The balance of the land can be sold or leased to those handling processed food, and to others for the development of facilities necessary for the convenience of market users.

The Authority's Board has responsibility, when the facilities are construced, to determine rules and regulations for the operation of the market, such as hours of operation and sanitation. Collection of rents for the use of market facilities would be a major function of this Board. It can employ a market manager, who is subject to the policy direction of the Board. The Market Authority itself cannot sell farm or food products. It functions solely to provide facilities for marketing such products. The market will not operate for profit, and will pay taxes in the same manner as though the land were owned by a private group. The Market Authority is authorized to obtain the necessary finances by the

[11] For more information on types of market ownership and methods of financing wholesale food market facilities, see Wholesale Food Market Facilities--Types of Ownership and Methods of Financing, U. S. Dept. Agr. Mktg. Res. Rpt. No. 160, 96 pp., illus. 1957.

issuance and sale of revenue bonds which will run for a period of not over 40 years, and will be retired in that period from rentals of the market facilities. The bonds would not be an obligation of the city. They would, however, be tax exempt and, for this reason, should sell at a lower interest rate than would otherwise be the case.

The city of Grand Rapids, on June 5, 1956, adopted an ordinance, setting up the Grand Rapids Market Authority. The Mayor, with the approval of the city commissioners, appointed a Board of Directors of nine members, representing most of the groups interested in the food center, including one city commissioner.

There may be several facets of the legislation that may need to be revised to meet the local situation if a similar food-distribution center is established in Detroit. One of the most important items is the restriction placed on the inclusion in the market of "products of agriculture which are not processed." Under the State Law, only those parts of a market center in which unprocessed farm products are handled could be operated by a food authority. Facilities and land acquired for sale of processed farm commodities, such as meat, and meat products, frozen food, and the like, could not be owned or operated by the food authority. Since the bonds of the authority are supported only by revenue from the allowable facilities they would produce only a portion of the funds required to build a market.

Private Corporations

A private corporation, organized to own and operate a wholesale food center, is not an agency of government. It is a legal entity, organized in conformity with existing 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.

Profit corporations.--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. A number of wholesale food 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 is a railroad company or some other firm which was organized primarily for other types of business. Most of the large terminal produce markets built in the 1920's were sponsored by railroad companies (the Detroit Union Produce Terminal is an example).

To form a private corporation, the incorporators usually obtain a charter from the State. This charter defines the power of the corporation and of its officers and directors. It also specifies what the stockholders' rights shall be, and how they shall exercise their control.

Among the characteristics of a private corporation is the power of the board of directors to make necessary decisions quickly and without the delay found in some other types of organizations. Quick decisions on major policy matters may be the difference between success and failure of the organization. On the other hand, there is a tendency for wholesale food markets owned by private corporations to become so-called "closed" markets. Some have prohibited the delivery of food items brought in by truck, especially out-of-State trucks. Often private corporations do not provide space for expansion, either for increased volume, or for new food handlers and allied industries. Private corporation market sponsors have sometimes found it more difficult to obtain funds to take care of preliminary organization and equity fund acquisition than market organizations that have a public subsidy.

Nonprofit corporation.--A nonprofit private corporation is not an agency of government, but it must be organized in conformity with existing State statutes. In a nonprofit

private corporation, participation in corporate rights and activities is usually based either on a system of dues, which limits each member (stockholder) to one vote, or bylaws which restrict ownership of voting stock to one share per member.

As a rule, State statutes place no limitations on participation in the corporation because of the business or occupation. However, membership in such corporations can usually be limited or restricted through bylaws. Thus, it is possible for those who are directly interested in the ownership and operation of a wholesale center to form a nonprofit private corporation to construct and operate the market.

An example of a nonprofit private corporation is the small business investment company, set up under the Small Business Administration. Following is a short description of this type of organization.

Small Business Investment Companies

The Congress in 1958 enacted the Small Business Investment Act, establishing a program to stimulate the flow of private equity capital and long-term loans for the sound financing of the operations, growth, expansion, and modernization of small business concerns. Under this Act the Small Business Administration is authorized to make loans to so-called "State Development Companies" or to local development companies, and to license, regulate and give financial assistance to privately organized, privately financed companies called "Small Business Investment Companies."

A development company is a profit or nonprofit enterprise incorporated under State law, with authority to promote and assist the growth and development of small businesses in specific areas. A State development company is a corporation organized under a special legislative act to operate statewide. A local development company is a corporation, with a broad base of ownership under any applicable State laws, to further the economic development of its communities.

The Small Business Administration is authorized to make loans to State and local Development Companies, in exchange for obligations of the development company. It is also authorized to make loans for plant construction, conversion, or expansion, and the acquisition of land. Such loans may be made either directly or in cooperation with banks or other lending institutions. Certain rules and regulations have been set up defining eligible business categories, needed collateral, and the like.

State Ownership

Another type of ownership that might be considered in connection with the proposed wholesale food center is State ownership and operation. It should be pointed out, however, that State ownership of such a facility goes much further with respect to financing and the consequent risk-bearing than is contemplated in connection with State assistance to a public-benefit corporation.

It would be expected that a State-owned market would be financed in whole, or in the greater part, by State funds or credit. Provision might be made in the appropriation act for the amortization or repayment of the expendable portion of the investment made with State-appropriated funds.

Obviously, before the State could embark on a program of this kind, two types of legislation would be necessary: (1) An authorization, either to a board created for the purpose, or to an existing State board, commission, or official, to construct and operate a wholesale food center; and (2) an appropriation of State funds for the acquisition of land and the construction of facilities, or an authorization to borrow funds for these purposes, or a combination of the two. These two types of legislation might, of course, be contained in one or more acts, depending upon the rules and desires of the State legislature.

Municipal Ownership

As stated earlier in this report, the city of Detroit owns and operates two farmers' markets. City-owned markets have been in existence in Detroit since 1802. These markets are operated now by the City Bureau of Markets, and are financed under appropriations by the Common Council, and from fees charged for rental space and services provided by the markets.

Acquisition of land and construction of new facilities by the city for a food-distribution center may be possible by issuance of municipal bonds, revenue warrants, or by loans from public or private lending corporations. Under the Detroit city charter, the Common Council is authorized to provide funds for welfare, safety, and health of its citizens, but it must hold public hearings before such a move is undertaken.

Some objections to municipal ownership of a market are that the management does not often appreciate the problems of all groups using the market, and that the management is often unduly influenced by political considerations. These objections might be overcome by the municipality purchasing the site, constructing the market facilities, and leasing them to a public benefit corporation or nonprofit corporation.

If the City of Detroit is not interested in owning the entire food-distribution center, it might own and operate the farmers' market section, as it now does.

A Cooperative Association

A cooperative association is a business organization, which operates for the mutual benefit of its members or stockholders. It is usually incorporated, owned, and controlled by its members. The association is operated on a cost basis, after allowing deductions for expansion and a necessary reserve. Cooperatives attempt to emphasize service to their members, and savings in operation.

Combination of Organizations

A combination of organizations working together may be necessary to obtain a site, construct the facilities, and operate the market.

In Philadelphia, the city government used the City Redevelopment Authority to obtain the land upon which the needed facilities were built. The City Redevelopment Authority acquired title to the land, placed it in condition to build, and conveyed land as needed to the nonprofit Food Distribution Center corporation. Food Distribution Center was created by the city to develop, operate, and service the market center. It is governed by a board of directors; has powers to lease and (with city approval) sell land; and pays annually to the city a certain percentage of the gross rentals received from facilities under lease and licensing agreements, in addition to a lump sum paid annually in consideration of the contract. At the expiration of the contract, the corporation may be required to convey to the city title and interest in all land and buildings.

Some combination of organizations might be used to build the facilities in Detroit. An overall organization might prepare a master plan and lease or sell sites to individual wholesale firms, which would arrange for the financing and construction of all buildings. The arrangement has its disadvantages. For instance, many facilities such as railroad tracks, driveways, and parking areas, would be provided for the joint use of a number of tenants. Then too, many firms would be located in one or more units of a multiple-occupancy building, and it would be difficult for each group to finance and construct its own buildings.

Another approach is for the overall organization to construct, according to approved plans of the dealer, facilities leased to him for a long period of time. This plan would

place operating and financial responsibility for the market on the food-distribution center organization.

A variation of the method just mentioned would be for the overall food-distribution center organization to deal with several commodity subcorporations set up by separate groups of market users. For instance, the fruit and vegetable dealers might form a corporation to deal with the overall market organization in developing a fruit and vegetable wholesale market and manage their own day-to-day operations. Several other commodity corporations could be formed. For example: There could be separate corporations organized by dealers in poultry, eggs, and dairy products, grocery wholesalers, and dealers in meat and meat products. The parent organization would probably deal directly with operators of large single-occupancy facilities, and those leasing the garage and service station, and other service facilities.

Groups of wholesalers, who desire to locate in the market and are interested in dealing as a group with the overall organization, could apply for a corporation charter as a private trade corporation. All common stock of such a corporation could be owned by the occupants of the facilities. The number of shares owned by each tenant could be based on the amount of facilities occupied. For example, to operate a Detroit wholesale fruit and vegetable market under this arrangement, the operators of each of the 65 standard store units would lease facilities from the trade corporation. Each operator might be required to purchase 100 shares of stock in the corporation for each store unit he occupied. Thus, an operator requiring 3 units would buy 300 shares of common stock. If leases were obtained for the 65 units, the total amount of stock outstanding would be 6,500 shares. As additional units are built, the amount of stock outstanding would be increased by 100 shares for each unit built. The price per share for this stock would be determined by the amount of equity money which the corporation would have to provide to be able to support the lease or to obtain the remaining funds needed for the construction of this section of the market center.

Under this plan, each trade corporation could deal directly with the overall organization by leasing the land and arranging for the construction, or it could arrange with the market center organization to finance and construct the buildings and lease them in their entirety to the management of the trade corporation. The trade corporation management could work directly with the parent organization while the facilities were being built, and could then handle all problems of management in its section of the food-distribution center; collecting rents from individual tenants, taking care of all services such as street cleaning, street lighting, garbage removal, repairs, traffic management, etc. It would assess from its dealers a monthly rental, in which could be included costs of all management and maintenance services, taxes, the amount of amortization of its obligations for the stores, plus a reserve for taxes, amortization, and operating costs.

Under the latter plan, the food-distribution center organization would be spared many of the details of operation and management, and would be able to confine its activities to developing plans for construction of facilities, working with dealer corporations and with managers of individual facilities, and engaging in promotional activities for obtaining the greatest benefit from the overall development.

ESTIMATED ANNUAL COSTS AND REVENUE REQUIREMENTS

The annual costs of managing the food-distribution center include: (1) debt service on the investment in land and facilities; (2) real estate taxes; (3) costs of management of the facilities, including personnel services and office expenses, maintenance, and insurance costs. Total annual revenue required also is discussed in this section.

For the purpose of this study, it is assumed that a food-distribution center organization will deal with general policy matters in operating and developing the center, that

trade corporations or commodity groups will handle the day-to-day operating problems of each of the principal commodity sections of the market, and that the overall organization will deal directly with the operator of each service facility.

Under this plan, the annual revenue required to cover debt service charges on the total investment, real estate taxes, each trade corporation's share of the operating expense of the parent organization, and a contingency fund for a reasonable reserve would be collected by the parent corporation from each trade corporation. The trade corporations would collect from their dealer-members a monthly rental sufficient to pay their pro rata share of the total annual revenue required by the parent organization.

It is understood that the farmers' market will be operated by the city Division of Markets as it is now. Hence, the debt service charges on land and facilities, real estate taxes, costs of management, and total revenue required for this part of the food center are not computed for this report.

The annual cost estimates are grouped as follows:

Trade corporations:

- Fruit and vegetables
- Meat and meat products
- Poultry, dairy products, eggs, and seafood
- Groceries

Frozen food and refrigerated storage
Service facilities:

- Team tracks
- Gasoline station, garage, restaurant, and icing dock.

The annual cost estimates for the frozen-food and refrigerated storage facility are computed separately. This is necessary in order to determine the annual revenue, required for the two parts of the facility, which in turn is used as a basis of establishing the suggested rentals.

In addition to the above groups, the debt service charges and taxes are computed for the acreage set aside for allied industries.

The market charges and total revenue requirements are computed in this section under two assumptions: The center will be financed by a private corporation without direct subsidy, and with a reduction in cost of land through use of urban redevelopment funds.

Debt Service Payments

The period over which the investment in land and facilities should be amortized is determined by several factors. Observations on markets in other cities indicate that these facilities, if properly designed and operated, should not become fully depreciated or obsolete in less than 20 to 30 years. Most market facilities are used for a much longer period. Usually loan agencies have such loans repaid over a 25- to 30-year period, either in equal installments or with a fairly large sum due at the end of the period. For the purpose of this report, an amortization period of 30 years has been used for a first mortgage loan and 20 years for a second mortgage loan.

It is assumed also that first mortgage loans could be obtained for 65 percent of the total funds needed, and that for these loans the annual interest rate would be 5 percent.

There may be several ways of obtaining the remaining 35 percent of the total funds needed. About 10 percent of these funds probably might be obtained by the corporation

selling stock to its tenants. No interest charge would be paid on this 10 percent, because there would be no reason for tenants paying a higher rent simply to obtain interest payment to themselves. This would leave 25 percent to be raised in some other manner. This sum might be raised by sale of preferred stock, debenture bonds, or by a second mortgage on the property. It is assumed that 6 percent interest will be paid on a loan for the remaining 25 percent of the funds needed, and that these funds will be amortized over 20 years.

These assumptions are for illustrative purposes only. Market sponsors should allow for variations in interest rates when they plan the financing of the project.

Investors will insist that total income of the center organization be considerably larger than the amount needed to pay the debt service charges on the first and second mortgages. Thus, a 10-percent reserve is included in the debt service plan.

The agreement worked out as to the total amount of debt reserve required, and the number of years that this must be collected by the market organization and held in escrow, will depend on the condition of the money market at the time of financing.

Table 26 shows for each of the three sites the annual debt service payments required for amortizing the investment costs of land and facilities and for a 10-percent reserve. The annual amortization charge is based upon an average of 6.4 percent of the cost of land and facilities. This is the equivalent of 65 percent of investment amortized at 5 percent for 30 years, plus 25 percent of investment amortized at 6 percent for 20 years. The remaining 10 percent of investment would be obtained through stock subscription or other noninterest-bearing sources.

The debt service charges and reserve vary by site and by type of financing, and are as follows:

Private financing without the use of Urban Renewal funds:

Eastern Market	$5.6 million
Union Produce Terminal	$4.9 million
Central Avenue	$4.0 million

With use of Urban Renewal funds:

Eastern Market	$3.7 million
Union Produce Terminal	$3.6 million

Real Estate Taxes

It is presumed that the food-distribution center organization will pay taxes on land, buildings, and other taxable facilities at the current rate for city and county taxes, on the assessed valuation of the property. Assessed valuation in 1960 was 42 percent of the estimated market value of the property, and the tax rate was $49.704 per $1,000 assessed valuation. This is the basis upon which taxes were computed. A 10-percent contingency is provided to take care of increases in the tax rate in future years. Estimated annual real estate taxes for each commodity corporation, and for the other facilities that are included under the overall market management, as described in the opening statements of this chapter, are in table 27.

The amount of annual real estate taxes for each of the three sites amounts to the following:

Financing without Urban Renewal funds:

Eastern Market	$1.8 million
Union Produce Terminal	$1.6 million
Central Avenue	$1.3 million

TABLE 26.--Estimated annual income required for debt service payments for a wholesale food-distribution center on each of three sites by trade corporation and type of facility[1]

Type of costs, by type of facility	Annual income required for debt service payments, if center is built with--				
	Private funds at--			Urban Renewal funds at--	
	Eastern Market	Union Produce Terminal	Central Avenue	Eastern Market	Union Produce Terminal
	1,000 Dollars	1,000 Dollars	1,000 Dollars	1,000 Dollars	1,000 Dollars
Trade corporation:					
Fruits and vegetables:					
Land and facilities	9,853	6,962	7,377	7,048	5,043
Amortization charge	631	446	473	452	323
Debt reserve	63	45	47	45	32
Total	694	491	520	497	355
Meat and meat products:					
Land and facilities	23,797	22,047	18,906	18,257	18,257
Amortization charge	1,525	1,413	1,211	1,170	1,170
Debt reserve	152	141	121	117	117
Total	1,677	1,554	1,332	1,287	1,287
Poultry, dairy products, eggs, and seafood:					
Land and facilities	6,007	5,430	4,395	4,180	4,180
Amortization charge	385	348	282	268	268
Debt reserve	38	35	28	27	27
Total	423	383	310	295	295
Groceries:					
Land and facilities	12,817	11,759	9,858	9,465	9,465
Amortization charge	821	753	632	606	606
Debt reserve	82	75	63	61	61
Total	903	828	695	667	667
Frozen food stores:					
Land and facilities	3,587	3,448	3,198	3,146	3,146
Amortization charge	230	221	205	202	202
Debt reserve	23	22	20	20	20
Total	253	243	225	222	222
Refrigerated storage:					
Land and facilities	4,079	3,940	3,690	3,638	3,638
Amortization charge	261	252	236	233	233
Debt reserve	26	25	24	23	23
Total	287	277	260	256	256
Service facilities:					
Team tracks:					
Land and facilities	3,155	2,653	1,753	1,567	1,567
Amortization charge	202	170	112	100	100
Debt reserve	20	17	11	10	10
Total	222	187	123	110	110
Other service facilities:					
Land and facilities	1,681	1,445	1,019	931	931
Amortization charge	108	93	65	60	60
Debt reserve	11	9	6	6	6
Totals	119	102	71	66	66
Totals:					
Land and facilities	64,976	57,684	50,196	48,232	46,227
Amortization charge	4,163	3,696	3,216	3,091	2,962
Debt reserve	415	369	320	309	296
Totals	4,578	4,065	3,536	3,400	3,258
Allied industry area:					
Land	14,654	11,589	6,087	4,950	4,950
Amortization charge	939	743	390	317	317
Debt reserve	94	74	39	32	32
Total	1,033	817	429	349	349
Total debt service and reserve	5,611	4,882	3,965	3,749	3,607

[1] The amortization charge is based upon 65% of investment cost of land and facilities, amortized at 5% for 30 years, with annual debt service payment of $65.05 per $1,000, plus 25% of investment amortized at 6% for 20 years, with annual debt service payments of $87.18 per $1,000. The remaining 10% of investment would be obtained through stock subscription or other noninterest bearing sources.

TABLE 27.--Estimated annual real estate taxes for a wholesale food-distribution center on each of three sites, by trade corporation or type of facilities[1]

Type of cost, by type of facility	Annual real-estate taxes, if food-distribution center is built with--				
	Private funds at--			Urban Renewal funds at--	
	Eastern Market	Union Produce Terminal	Central Avenue	Eastern Market	Central Avenue
	1,000 dollars	1,000 dollars	1,000 dollars	1,000 dollars	1,000 dollars
Trade corporation:					
Fruits and vegetables:					
Land and facilities	9,853	6,962	7,377	7,048	5,043
Amount of tax	206	145	154	147	105
Tax reserve	21	14	15	15	10
Totals	227	159	169	162	115
Meat and meat products:					
Land and facilities	23,797	22,047	18,906	18,257	18,257
Amount of tax	497	460	395	381	381
Tax reserve	50	46	40	38	38
Totals	547	506	435	419	419
Poultry, dairy products and eggs, and seafood:					
Land and facilities	6,007	5,430	4,395	4,180	4,180
Amount of tax	125	113	92	87	87
Tax reserve	12	11	9	9	9
Totals	137	124	101	96	96
Groceries:					
Land and facilities	12,817	11,759	9,858	9,465	9,465
Amount of tax	268	245	206	198	198
Tax reserve	27	24	21	20	20
Totals	295	269	227	218	218
Frozen food stores:					
Land and facilities	3,587	3,448	3,198	3,146	3,146
Amount of tax	75	72	67	66	66
Tax reserve	8	7	7	7	7
Totals	83	79	74	73	73
Refrigerated storage:					
Land and facilities	4,079	3,940	3,690	3,638	3,638
Amount of tax	85	82	77	76	76
Tax reserve	8	8	8	8	8
Totals	93	90	85	84	84
Service facilities:					
Team tracks:					
Land and facilities	3,155	2,653	1,753	1,567	1,567
Amount of tax	66	55	37	33	33
Tax reserve	7	6	4	3	3
Totals	73	61	41	36	36
Other service facilities:					
Land and facilities	1,681	1,445	1,019	931	931
Amount of tax	35	30	21	19	19
Tax reserve	4	3	2	2	2
Totals	39	33	23	21	21
Totals of facilities:					
Land and facilities	64,976	57,684	50,196	48,232	46,227
Amount of tax	1,357	1,202	1,049	1,007	965
Tax reserve	135	120	104	102	97
Totals	1,494	1,321	1,155	1,109	1,062
Allied industry area:					
Land	14,654	11,589	6,087	4,950	4,950
Amount of tax	306	242	127	103	103
Tax reserve	31	24	13	10	10
Totals	337	266	140	113	113
Total taxes and reserve	1,831	1,587	1,295	1,222	1,175

[1] The amount of tax is based upon an assessed valuation of 42% of the cost of land and facilities, and a tax rate of $49,704 per $1,000 assessed valuation.

Financing with Urban Renewal funds:

Eastern Market	$1.2 million
Union Produce Terminal	$1.2 million

Operating Costs

Each trade corporation will obviously have a number of operating costs to carry out its responsibilities; the major operating costs are salaries for the manager and other employees, fees for special services, office rent, promotion and travel, office supplies, maintenance costs, and insurance premiums on equipment and facilities, refuse and snow disposal, and the like. In addition, each trade corporation must pay its prorated share of the operating expenses of the parent corporation. Estimates of the operating costs of the parent corporation are shown in table 28, and of operating costs for each trade corporation and other facilities in table 29. These are presented as guidelines.

The total estimated annual operating costs are the same for each of the three sites.

TABLE 28.--Estimated operating costs of the parent corporation in the proposed food-distribution center

Cost item	Dollars
Personal services:	
Manager	$25,000
Assistant manager	12,000
Bookkeeper-clerk	5,000
Secretary	5,000
Total	$47,000
Salary and wage benefits, 12%	5,640
Total	$52,640
Administrative office expense:	
Rent	$6,000
Travel and per diem of board members	3,500
Advertising and promotion	5,000
Telephone and telegraph	1,000
Office supplies	1,000
Utilities	1,000
Legal and auditing service	5,000
Insurance on office equipment	200
Total	$22,700
Other market operating expense:	
Insurance: fire and comprehensive, liability, and automobile	1,000
Miscellaneous expense	2,500
Total	$3,500
Total	$78,840

TABLE 29.--Estimated operating costs of the trade corporations and special facilities in the proposed food-distribution center

Item	Fruits and vegetables costs	Meat and meat products costs	Poultry, dairy products, eggs, and seafood costs	Groceries costs	Frozen food stores costs	Refrigerated storage costs	Service facilities costs	
							Team tracks	Other service facilities
	Dollars	Dollars	Dollars	Dollars	Dollars	Dollars	Dollars	Dollars
Manager	12,000	12,000	12,000	12,000	(1)	(1)	(1)	(1)
Assistant Manager	8,000	8,000						
Secretary	5,000	5,000	5,000	5,000				
Bookkeeper-clerk	5,000	5,000	5,000	5,000				
Watchman	12,000	12,000	6,000	6,000				
Legal and auditing service	5,000	5,000	5,000	5,000				
Rent	3,600	3,600	2,700	2,700				
Promotion and travel	2,200	2,200	2,200	2,200				
Telephone and telegraph	1,500	1,500	1,500	1,500				
Office supplies	2,000	2,000	2,000	2,000				
Utilities	2,000	2,000	2,000	2,000				
Sanitation, refuse and snow removal	25,000	18,000	10,000	10,000	5,000	5,000	2,000	1,000
Maintenance and repairs[2]	42,128	115,732	24,368	58,162	21,908	25,598	5,678	4,118
Fire and comprehensive insurance[3]	3,664	10,669	2,222	5,651	2,145	2,514		266
Liability[4]	875	875	875	875				
Miscellaneous	2,500	2,500	2,500	2,500	1,000	1,000		
Pro rated share of parent corporation management expense[5]	11,156	30,653	6,449	15,405	5,803	6,780	1,506	1,088
Total	143,623	236,729	89,814	135,993	35,856	40,892	9,184	6,472
Contingency 10%	14,362	23,673	8,981	13,599	3,586	4,089	918	647
Total	157,985	260,402	98,795	149,592	39,422	44,981	10,102	7,119

[1] Personal services and administrative office expenses will be carried by the parent organization.
[2] 3/4 of 1% of investment in facilities.
[3] 80% of construction costs of buildings at $1.15 / $1,000.
[4] $1.75 / $1,000 for $500,000.
[5] Pro rated according to the proportion that the investment in facilities by trade corporations and special facilities is of the total investment in facilities in the food-distribution center. These are computed as follows:

Item	Fruits and vegetables	Meat and meat products	Poultry, dairy products, eggs, and seafood	Groceries	Frozen food stores	Refrigerated storage	Team tracks	Other service facilities	Total
Investment in facilities ($1,000)	5,617	15,431	3,249	7,755	2,921	3,413	757	549	39,692
Proportion (percent)	14.15	38.88	8.18	19.54	7.36	8.60	1.91	1.38	100.00
Pro rated share of parent corporation expense (dollars)	11,156	30,653	6,449	15,405	5,803	6,780	1,506	1,088	78,840

Total Annual Revenue Required

Table 30 shows, for a food-distribution center on each of three sites, the estimated amount of annual revenue required to meet debt service charges, taxes, and facility management costs for each of the trade corporations and for the other facilities included in the plan. The annual revenue required for taxes and debt service for the 110 acres suggested for an allied industry area are included in table 30, but this land need not be acquired until later, when the facilities for this area are planned. As stated earlier in this section, the revenue required for land and facilities for the farmers' market are not included. The total annual revenue required is shown by site under two categories: if the land is acquired and developed without direct subsidy, or with a reduction in land cost through use of Urban Renewal funds. The total revenue required is:

Financing without Urban Renewal funds:

Eastern Market	$8.2 million
Union Produce Terminal	$7.2 million
Central Avenue	$6.0 million

Financing with Urban Renewal funds:

Eastern Market	$5.7 million
Union Produce Terminal	$5.5 million

Estimated Rentals Required

The revenue needed to support any food-distribution center must be obtained from charges and rentals for the use of its facilities. Monthly rentals for facilities, fees for parking trucks and cars, charges for use of rail tracks, and service charges for use of garage, gas station, icing dock, scales, and the like, are but a few of the many possible ways of assessing such charges among the users of the food-distribution center. The management of the center must decide the best ways of apportioning the revenue needs among its users.

For Detroit, it has been assumed that all of the income required will be derived from rentals of facilities. Obviously, such rentals would be reduced if some of the needed revenues were derived in other ways. Table 31 shows the suggested rental schedules, based on annual revenue required if the market center were built on the three suggested sites, with and without Urban Renewal funds.

The 20 acres of land and the facilities for the farmers' market are not included in the rental schedules as was discussed earlier, nor is the 110 acres of land for allied industry, since it is assumed that this land can be acquired at a later date when it is needed. Hence, table 31 reflects the rentals needed to meet the annual revenue required to support the center, if it were built on 190 acres of the total 320 acres of land recommended.

The rentals established for each section of the center should yield the amount of revenue required to make that section self-supporting. Rentals per square foot should be the same for identical buildings built at the same time. This suggested schedule of rents would yield an amount slightly more than the annual revenue required, if there is 100 percent occupancy of facilities in each section of the center. While it has been suggested that no facility be built for which there is not a firm lease from a responsible firm, it is prudent that the rental scale established yield some margin above the minimum requirements. The schedule of rents shown in table 31 provides such a margin, plus the contingencies that were considered in computing the total annual revenue required.

Rents for the wholesale frozen-food stores, refrigerated storage, garage, filling station, restaurants, and private office space would be paid to the parent corporation by

TABLE 30.--Estimated total annual revenue required for a wholesale food-distribution center on each of three sites by trade corporation or type of facilities

Item	Trade corporation revenue				Frozen food stores revenue	Refrigerated storage revenue	Service facilities		Total revenue	Allied industry area revenue	Total revenue, including allied industry area
	Fruits and vegetables	Meat and meat products	Poultry, dairy products, eggs and seafood	Groceries			Team tracks revenue	Other service facilities revenue			
	1,000 dollars	1,000 dollars	1,000 dollars	1,000 dollars	1,000 dollars	1,000 dollars	1,000 dollars	1,000 dollars	1,000 dollars	1,000 dollars	1,000 dollars
Private funds:											
Eastern Market											
Debt service....	694	1,677	423	903	253	287	222	119	4,578	1,033	5,611
Taxes.....	227	547	137	295	83	93	73	39	1,494	337	1,831
Operating costs.	158	260	99	150	39	45	10	7	768		768
Totals.....	1,079	2,484	659	1,348	375	425	305	165	6,840	1,370	8,210
Union Produce Terminal											
Debt service....	491	1,554	383	828	243	277	187	102	4,065	817	4,882
Taxes.....	159	506	124	269	79	90	61	33	1,321	266	1,587
Operating costs.	158	260	99	150	39	45	10	7	768		768
Totals.....	808	2,320	606	1,247	361	412	258	142	6,154	1,083	7,237
Central Avenue											
Debt service....	520	1,332	310	695	225	260	123	71	3,536	429	3,965
Taxes.....	169	435	101	227	74	85	41	23	1,155	140	1,295
Operating costs.	158	260	99	150	39	45	10	7	768		768
Totals.....	847	2,027	510	1,072	338	390	174	101	5,459	569	6,028
Urban Renewal funds:											
Eastern Market											
Debt service....	497	1,287	295	667	222	256	110	66	3,400	349	3,749
Taxes.....	162	419	96	218	73	84	36	21	1,109	113	1,222
Operating costs.	158	260	99	150	39	45	10	7	768		768
Totals.....	817	1,966	490	1,035	334	385	156	94	5,277	462	5,739
Union Produce Terminal											
Debt service....	355	1,287	295	667	222	256	110	66	3,258	349	3,607
Taxes.....	115	419	96	218	73	84	36	21	1,062	113	1,175
Operating costs.	158	260	99	150	39	45	10	7	768		768
Totals.....	628	1,966	490	1,035	334	385	156	94	5,088	462	5,550

TABLE 31.--Estimated rentals needed to produce the total annual revenue required in a new food distribution center on each of three sites by trade corporation or type of facility

Type of facility	Units or buildings planned	Floor space	Private funds							
			Eastern Market				Union Produce Terminal			
			Annual revenue required	Estimated annual rents			Annual revenue required	Estimated annual rents		
				Per sq. ft.	Per unit	Total		Per sq. ft.	Per unit	Total
	Number	Square feet	1,000 dollars	Dollars	Dollars	1,000 dollars	1,000 dollars	Dollars	Dollars	1,000 dollars
Fruits and vegetables:										
Standard store units	65	186,875		2.30	6,615	430		2.10	6,050	393
Other buildings:										
1st floor	2	208,800		2.30		480		1.45		303
2nd floor:										
Auction room & offices		7,140		4.00		29		3.00		21
Other offices	141	42,300		4.00	1,200	169		3.00	900	127
Restaurants	2	5,750		2.75	8,000	16		2.50	7,000	14
Totals		450,865	1,079			1,124	808			858
Meat and meat products:										
Standard store units	98	421,400		3.00	12,900	1,264		2.85	12,255	1,201
Single-occupancy buildings	19	481,000		2.50		1,202		2.40		1,154
Meat dock	1	30,600		1.00		31		.95		29
Restaurant	1	4,300		2.75	12	12		2.50	11,000	11
Totals		937,300	2,484			2,509	2,320			2,395
Poultry, dairy products, eggs, and seafood:										
Poultry:										
Standard store units	20	57,500		2.30	6,615	132		2.10	6,050	121
Dairy products and eggs:										
Standard store units	30	86,250		2.30	6,615	198		2.10	6,050	181
Single-occupancy buildings	4	57,500		2.30		132		2.10		121
Fish and seafood:										
Standard store units	33	94,875		2.30	6,615	218		2.10	6,050	199
Totals		296,125	659			680	606			622
Dry groceries:										
Standard store units	42	270,900		2.00	12,900	542		1.85	11,925	501
Single-occupancy buildings	8	403,000		2.00		806		1.85		746
Restaurant	1	6,450		2.75	18,000	18		2.50	16,000	16
Totals		680,350	1,348			1,366	1,247			1,263
Frozen-food store units	18	134,640	375	2.85	21,350	384	361	2.80	20,950	377
Refrigerated storage	1	122,760	425	3.50		430	412	3.45		424
Totals		257,400	800			814	773			801
Service facilities:										
Team tracks			305			305	258			258
Other service facilities	4		165			165	142			142
Totals			470			470	400			400
Grand total			6,840			6,963	6,154			6,339

TABLE 31.--Estimated rentals needed to produce the total annual revenue required in a new food-distribution center on each of three sites by trade corporation or type of facility--Continued

Type of facility	Private funds				Urban Renewal Funds							
	Central Avenue				Eastern Market				Union Produce Terminal			
	Annual revenue required	Estimated annual rents			Annual revenue required	Estimated annual rents			Annual revenue required	Estimated annual rents		
		Per sq. ft.	Per unit	Total		Per sq. ft.	Per unit	Total		Per sq. ft.	Per unit	Total
	1,000 dollars	Dollars	Dollars	1,000 dollars	1,000 dollars	Dollars	Dollars	1,000 dollars	1,000 dollars	Dollars	Dollars	1,000 dollars
Fruits and vegetables:												
Standard store units		1.80	5,175	336		1.75	5,030	327		1.75	5,030	327
Other buildings:												
1st floor		1.80		376		1.75		365		1.15		240
2nd floor:												
Auction room & offices		3.15		22		3.00		21		2.35		17
Other offices		3.15	945	133		3.00	900	127		2.35	700	99
Restaurants		2.20	6,500	13		2.00	6,000	12		2.00	6,000	12
Totals	847			880	817			852	628			695
Meat and meat products:												
Standard store units		2.50	10,750	1,053		2.40	10,320	1,011		2.40	10,320	1,011
Single-occupancy buildings		2.00		962		2.00		962		2.00		962
Meat dock		.80		24		80		24		.80		24
Restaurant		2.20	9,000	9		2.00	9,000	9		2.00	9,000	9
Totals	2,027			2,048	1,966			2,006	1,966			2,006
Poultry, dairy products, eggs, and seafood:												
Poultry:												
Standard store units		1.80	5,175	104		1.75	5,030	101		1.75	5,030	101
Dairy products and eggs:												
Standard store units		1.80	5,175	155		1.75	5,030	151		1.75	5,030	151
Single-occupancy buildings		1.80		104		1.75		101		1.75		101
Fish and seafood:												
Standard store units		1.80	5,175	171		1.75	5,030	166		1.75	5,030	166
Totals	510			534	490			519	490			519
Dry groceries:												
Standard store units		1.60	10,300	433		1.55	10,000	420		1.55	10,000	420
Single-occupancy buildings		1.60		645		1.55		625		1.55		625
Restaurant		2.20	14,000	14		2.00	13,000	13		2.00	13,000	13
Totals	1,072			1,092	1,035			1,058	1,035			1,058
Frozen-food store units	338	2.60	19,450	350	334	2.55	19,060	343	334	2.55	19,060	343
Refrigerated storage	390	3.25		399	385	3.20		393	385	3.20		393
Totals	728			749	719			736	719			736
Service facilities:												
Team tracks	174			174	156			156	156			156
Other service facilities	101			101	94			94	94			94
Totals	275			275	250			250	250			250
Grand total	5,459			5,578	5,277			5,421	5,088			5,264

the lessees of such facilities. The revenue required to support the team-track area could be obtained in several ways. The overall market management could assume responsibility for this part of the market and assess a fee for each rail car arriving on team tracks or the team-track area could be leased to the railroad company.

The variations in the suggested rentals per square foot, between similar facilities in the various commodity sections, are due to differences in land required in each section, the amount of paving necessary, different amount of land in expansion areas, and management costs. Some of the standard store units have proportionally larger areas of mezzanine space than others; the rents per square foot for such facilities would not be the same. The higher rent per square foot for the meat stores, frozen-food, and refrigerated-storage space reflects the cost of insulation and refrigeration equipment.

The estimated annual rentals for each of the three sites would be as follows:

Financing without Urban Renewal funds:

Eastern Market	$7.0 million
Union Produce Terminal	$6.3 million
Central Avenue	$5.6 million

Financing with Urban Renewal funds:

Eastern Market	$5.4 million
Union Produce Terminal	$5.3 million

MEASURABLE MARKETING COSTS IN A NEW WHOLESALE FOOD DISTRIBUTION CENTER

Estimates of the major cost items for moving the 2.23 billion pounds of the seven food products through a new wholesale food-distribution center are shown in this section. Comparable estimates for handling 4.47 billion pounds of these products through the existing wholesale facilities were discussed earlier in this report.

These estimated marketing costs are based on the type and arrangement of facilities described and discussed in previous sections. In these discussions, it was pointed out that the facilities were designed to handle adequately the 2.23 billion pounds of food commodities received by the 368 wholesale dealers included in the plans for the center (table 19).

The handling and other costs in the proposed center were computed from a composite of costs, adjusted to Detroit rates, covering 93 modern facilities of wholesalers in 22 cities, including facilities in 9 modern terminal markets. These facilities were chosen because of their similarity to those facilities proposed for Detroit. A more detailed explanation of the cost items and the methods used in obtaining them is in the appendix.

Estimated handling and other costs in the proposed center cover these three major steps in the wholesale distribution of the seven food commodities:

1. Cartage and delay cost from first point of arrival to the wholesale dealers' facilities.
2. Costs within the market area, including costs of handling into, within, and loading out of the wholesale facilities, intramarket and intermarket transfers, rentals, warehouse charges, demurrage, waste and deterioration, and the like.
3. Costs for moving the products from the facilities to retail and other outlets in Detroit (including truck delay time) and loading the trucks that haul them out of the city.

The Eastern Market site is used to illustrate the layout of a wholesale food-distribution center. The investment cost of land and facilities, total annual revenue required, and the estimated rentals needed have been computed for three sites under two plans of land development.

It was found that, other than the rental of the facilities, the measurable marketing costs of moving the food products through the proposed wholesale center would be the same on each of the three sites. The rentals referred to in this discussion are those needed to meet the total revenue required to support the wholesale facilities needed for the fruit and vegetable section, meat and meat products section, poultry, dairy products, eggs, and seafood section, grocery section, and the store units of the frozen-food and refrigerated-storage facility. Excluded from these estimated annual rentals are those needed for the fruit auction and offices, other private offices, restaurants, refrigerated-storage area of the frozen-food and refrigerated-storage facility, team tracks, and other service facilities (table 31).

These estimated annual rentals are:

Financing without Urban Renewal funds:

Eastern Market	$5,819,000
Union Produce Terminal	5,326,000
Central Avenue	4,713,000

Financing with Urban Renewal funds:

Eastern Market	4,596,000
Union Produce Terminal	4,471,000

Estimated costs of moving 2.23 billion pounds of seven food commodities through the proposed center (if it were constructed on the Eastern Market site, with Urban Renewal funds) would total $19.9 million, or $0.89 per hundredweight (table 32).

These costs vary by type of food commodity. A later section discusses the marketing costs as they apply to each major movement through the proposed facilities, compared with costs for handling the same volume through the existing facilities. A more detailed breakdown of these costs, showing tonnage handled, costs per unit, and total costs is in appendix table 37.

Cartage Costs to the Dealers' Facilities

With the construction of new facilities in a suitable location, the cartage costs, from first point of arrival or origin in the city to the proposed market, is estimated to be only $240,000. No charge is shown for fruits and vegetables and poultry, since most, if not all, of these commodities would be delivered directly to the dealers' stores or house tracks adjacent to their facilities. Meats and meat products would incur the greatest cartage cost ($204,000), because meat must be brought from local slaughterers to the wholesale stores. Small quantities of dairy products, frozen foods, fish and seafood, and groceries would be carted either from a local processor to the dealer, or, in the case of fish and seafood, from team-track yards.

Handling Costs Within the Market Area

Total handling costs within the new center would approximate $4.5 million for the seven commodity groups or 22.4 percent of the total costs (table 32). These costs would be greatest for handling within the wholesale stores ($2.2 million). The next largest cost item would be for loading the products into the buyers' trucks ($1.1 million). The other handling costs are: Unloading $694,000, sales from team tracks, $95,000 (applicable only to fruits and vegetables); intramarket transfers, $188,000; and use of handling equipment, $127,000.

TABLE 32.--Summary of estimated annual costs of moving 2.23 billion pounds of seven food commodities through a modern wholesale food-distribution center, if constructed on the Eastern Market site with Urban Renewal funds

(Excluding receipts by food chain warehouses, 1.09 billion pounds of groceries received by independent wholesalers, and 241 million pounds of meat slaughtered locally)

Costs for--	Fruits and vegetables	Meats and meat products	Poultry	Dairy products and eggs	Frozen foods	Fish and seafood	Groceries	Total
	1,000 dollars	1,000 dollars	1,000 dollars	1,000 dollars	1,000 dollars	1,000 dollars	1,000 dollars	1,000 dollars
Cartage to dealers' facilities from:								
Team tracks	0	0	0	0	0	6.5	0	6.5
Rail docks (piggyback)	0	0	0	0	0	0	24.2	24.2
Local slaughterers	0	204.2	0	0	0	0	0	204.2
Detroit processors	0	0	0	1.3	0.6	0	3.6	5.5
Total cartage	0	204.2	0	1.3	0.6	6.5	27.8	240.4
Handling in the market:								
Labor:								
Unloading at the facilities	299.6	118.0	41.8	69.0	14.7	21.4	129.7	694.2
Handling within stores	171.0	929.9	85.0	184.2	267.6	171.3	409.8	2,218.8
Loading out to buyers' trucks	488.5	265.6	40.6	72.2	58.7	53.9	151.6	1,131.1
Sales from team tracks (unloading rail cars)	95.4	0	0	0	0	0	0	95.4
Intramarket transfers	67.4	70.7	8.2	13.6	2.3	5.3	20.0	187.5
Equipment	36.0	0	0	7.1	38.1	3.0	43.0	127.2
Total	1,157.9	1,384.2	175.6	346.1	381.4	254.9	754.1	4,454.2
Other, in the market:								
Rental of wholesale facilities	692.0	1,997.0	101.0	252.0	343.0	166.0	1,045.0	4,596.0
Public warehouse charges	0	80.0	150.0	24.7	119.1	25.0	0	398.8
Waste and deterioration	741.2	2.1	3.4	9.2	1.5	2.1	17.5	777.0
Intermarket transfers to independent wholesalers	0	0	0	0	0	0	26.8	26.8
Total, other	1,433.2	2,079.1	254.4	285.9	463.6	193.1	1,089.3	5,798.6
Total, in the market	2,591.1	3,463.3	430.0	632.0	845.0	448.0	1,843.4	10,252.8
Moving the products away from the market:								
Transporting to retail	4,066.2	1,301.5	526.0	764.0	787.7	413.7	795.4	8,654.5
Transporting to food chain warehouses	367.0	33.8	13.2	0	9.4	0	24.5	447.9
Loading trucks hauling to points outside Detroit	201.5	28.2	4.6	4.5	13.0	10.3	10.5	272.6
Total	4,634.7	1,363.5	543.8	768.5	810.1	424.0	830.4	9,375.0
Grand total	7,225.8	5,031.0	973.8	1,401.8	1,655.7	878.5	2,701.6	19,868.2

Other Costs in the Market Area

The other costs in the market would amount to approximately $5.8 million, or 29.2 percent of total costs. Rentals constitute the largest cost item within the market ($4.6 million), with waste and deterioration ($777,000), public warehouse charges ($399,000), and intermarket transfers ($27,000), making up the balance of the $5.8 million.

Costs of Moving the Products Away from the Market

The total costs for transporting the products from the market to retail and other points in Detroit, and for loading the trucks that haul them out of the city, would approximate $9.4 million, or 47.2 percent of the $19.9 million total costs. The cartage cost to retail stores is the largest item in this category ($8.7 million), with 68.5 percent (1.53 billion pounds) of the total volume moving direct to retail stores in Detroit. Costs for cartage to food-chain warehouses (255.7 million pounds) would amount to $448,000, and for loading trucks that haul to points outside the city (446,000 million pounds), are estimated to be $273,000.

COST REDUCTIONS AND BENEFITS FROM A MODERN WHOLESALE FOOD-DISTRIBUTION CENTER

Reducing costs of distribution, increasing the volume of business, and maintaining quality of food reaching the consumer are three major reasons for developing a new wholesale food-distribution center. Many benefits and cost reductions resulting from such a development would accrue to various groups, such as buyers, farmers, railroads, truckers, market employees, consumers, the city of Detroit, and the wholesalers themselves. Some of these benefits and cost reductions can be reliably measured, though many cannot. In this section, some potential benefits that might be expected to result from building a new center in Detroit are discussed.

Measurable Benefits and Cost Reductions

The measurable benefits, or cost reductions, are used to justify any expenditures in building new facilities. Unless it can be demonstrated that benefits would exceed costs (to whomsoever the benefits may accrue), there can be little justification for investing a large sum of money in a food distribution center.

Estimated marketing cost items were determined, as shown in the previous section, for 368 dealers who might operate in a new wholesale center (table 32). Comparable cost items for handling the same tonnage through the present wholesale facilities are shown in table 33, and appendix table 38. The differences in these cost items, by type of commodity, are shown in table 34 and represent the estimated annual measurable savings, or cost reductions, that might be expected if the facilities recommended in this report are constructed on the Eastern Market site, with Urban Renewal funds. The total estimated savings would amount to about $4,010,000, or a reduction of 16.8 percent of the present marketing costs. The fruit and vegetable dealers could save about $2,214,000 or 23.5 percent of their present costs. Savings that would be expected to accrue to other commodity wholesalers are: Poultry, $590,000; frozen foods, $505,000; dairy products and eggs, $306,000; groceries, $321,000; and fish and seafood, $245,000.

Cartage Costs to Dealers' Facilities

With the kinds of facilities recommended in this report, very little cartage cost is necessary, because rail spurs are provided to wholesale stores where rail receipts can

TABLE 33.--Summary of estimated annual costs of moving 2.23 billion pounds of seven food commodities through the present wholesale market areas at Detroit (Excluding receipts by food-chain warehouses, 1.09 billion pounds of dry groceries received by independent wholesalers and 241 million pounds of meat slaughtered locally)

Costs for--	Fruits and vegetables	Meats and meat products	Poultry	Dairy products and eggs	Frozen foods	Fish and seafood	Groceries	Total
	1,000 dollars	1,000 dollars	1,000 dollars	1,000 dollars	1,000 dollars	1,000 dollars	1,000 dollars	1,000 dollars
Cartage to dealers' facilities from:								
Team tracks	190.1	27.2	0	2.3	10.9	7.7	7.7	245.9
Rail docks (piggyback)	0	0	0	0	0	0	24.2	24.2
Local slaughterers	0	204.2	0	0	0	0	0	204.2
Detroit processors	0	0	0	1.3	0.6	0	3.6	5.5
Total cartage	190.1	231.4	0	3.6	11.5	7.7	35.5	479.8
Avoidable delay to inbound trucks	0	52.5	20.8	12.1	21.1	7.7	9.8	124.0
Total cartage and delay	190.1	283.9	20.8	15.7	32.6	15.4	45.3	603.8
Handling, in the markets:								
Labor:								
Unloading at the facilities	485.9	125.0	152.0	87.9	23.3	41.7	228.1	1,143.9
Handling within stores	267.0	1,403.4	138.8	361.8	53.9	315.8	562.4	3,103.1
Loading out to buyers' trucks	716.0	312.6	67.2	141.6	66.9	71.5	465.5	1,841.3
Sales from team tracks (unloading rail cars)	139.7	0	0	0	0	0	0	139.7
Intramarket transfers	59.4	99.9	9.2	3.2	18.9	9.7	24.5	224.8
Equipment	1.6	0	0	0.6	22.8	0	12.6	37.6
Total handling	1,669.6	1,940.9	367.2	595.1	185.8	438.7	1,293.1	6,490.4
Other, in the markets:								
Rentals:								
Wholesale facilities	314.2	706.8	115.9	147.4	47.7	98.7	193.4	1,624.1
Detroit Union Produce Terminal charges	104.3	0	0	0	0	0	0	104.3
Produce Terminal costs absorbed by railroads	195.0	0	0	0	0	0	0	195.0
Total rental equivalent	613.5	706.8	115.9	147.4	47.7	98.7	193.4	1,923.4
Public warehouse charges	0	247.6	308.7	84.1	1,057.6	99.9	513.1	2,311.0
Demurrage	47.2	0	0	0	0	0	1.7	48.9
Waste and deterioration	1,644.8	21.4	10.1	9.3	1.5	2.1	17.5	1,706.7
Intermarket transfers to independent wholesalers	385.6	35.0	4.7	48.0	0	11.8	44.8	529.9
Total, other	2,691.1	1,010.8	439.4	288.8	1,106.8	212.5	770.5	6,519.9
Total, in the markets	4,360.7	2,951.7	806.6	883.9	1,292.6	651.2	2,063.6	13,010.3
Moving the products away from the markets:								
Transporting to retail	4,208.1	1,551.0	708.1	799.7	808.1	444.1	851.6	9,370.7
Transporting to food chain warehouses	417.0	41.8	20.8	0	12.4	0	31.1	523.1
Loading trucks hauling to points outside Detroit	264.4	31.7	7.3	8.1	15.2	12.7	30.8	370.2
Total	4,889.5	1,624.5	736.2	807.8	835.7	456.8	913.5	10,264.0
Avoidable delay to outbound trucks	(79.0)	(36.0)	(17.7)	(7.0)	0	(26.1)	(3.5)	(169.3)
Grand total	9,440.3	4,860.1	1,563.6	1,707.4	2,160.9	1,123.4	3,022.4	23,878.1

TABLE 34.--Summary of estimated annual savings to independent wholesalers distributing 2.23 billion pounds of seven food commodities resulting from construction of a proposed food-distribution center on the Eastern Market site, with Urban Renewal funds

Savings on--	Fruits and vegetables	Meat and meat products	Poultry	Dairy products and eggs	Frozen foods	Fish and seafood	Groceries	Total
	1,000 dollars	1,000 dollars	1,000 dollars	1,000 dollars	1,000 dollars	1,000 dollars	1,000 dollars	1,000 dollars
Cartage to dealers' facilities from:								
Team tracks	190.1	27.2	0	2.3	10.9	1.2	7.7	239.4
Rail dock (piggyback)	0	0	0	0	0	0	0	0
Local slaughterers	0	0	0	0	0	0	0	0
Detroit processors	0	0	0	0	0	0	0	0
Total cartage	190.1	27.2	0	2.3	10.9	1.2	7.7	239.4
Avoidable delay to inbound trucks	0	52.5	20.8	12.1	21.1	7.7	9.8	124.0
Total cartage and delay	190.1	79.7	20.8	14.4	32.0	8.9	17.5	363.4
Handling in the market:								
Labor:								
Unloading at the facilities	186.3	7.0	110.2	18.9	8.6	20.3	98.4	449.7
Handling within stores	96.0	473.5	53.8	177.6	-213.7	144.5	152.6	884.3
Loading out to buyers' trucks	227.5	47.0	26.6	69.4	8.2	17.6	313.9	710.2
Sales from team track (unloading rail cars)	44.3	0	0	0	0	0	0	44.3
Intramarket transfers	-8.0	29.2	1.0	-10.4	16.6	4.4	4.5	37.3
Equipment	-34.4	0	0	-6.5	-15.3	-3.0	-30.4	-89.6
Total handling	511.7	556.7	191.6	249.0	-195.6	183.8	539.0	2,036.2
Other costs in the market:								
Rental of wholesale facilities	-78.5	-1, [illegible]	14.[illegible]	-104.6	-295.3	-67.3	-851.6	-2,672.6
Public warehouse charges	[illegible]	16 [illegible]	158.7	59.4	938.5	74.9	513.1	1,912.2
Demurrage	47.2	[illegible]	0	0	0	0	1.7	48.9
Waste and deterioration	903.6	19.3	6.7	0.1	0	0	0	929.7
Intermarket transfers to independent wholesalers	385.6	35.0	4.7	48.0	0	11.8	18.0	503.1
Total other	1,257.9	-1,068.3	185.0	2.9	643.2	19.4	-318.8	721.3
Total, market	1,769.6	-511.6	376.6	251.9	447.6	203.2	220.2	2,757.5
Moving the products away from the market:								
Transporting to retail	141.9	249.5	182.1	35.7	20.4	30.4	56.2	716.2
Transportation to food chain warehouses	50.0	8.0	7.6	0	3.0	0	6.6	75.2
Loading trucks hauling to points outside Detroit	62.9	3.5	2.7	3.6	2.2	2.4	20.3	97.6
Total	254.8	261.0	192.4	39.3	25.6	32.8	83.1	889.0
Avoidable delay to outbound trucks	(79.0)	(36.0)	(17.7)	(7.0)	0	(26.1)	(3.5)	(169.3)
Grand total	2,214.5	-170.9	589.8	305.6	505.2	244.9	320.8	4,009.9

be unloaded directly. Certain quantities of dairy products, frozen foods, and groceries would be carted from local processors, and some fish receipts would be carted from team tracks in Windsor, Ontario.

The total reductions in cartage costs would amount to $239,000, of which $190,000 would be saved by fruit and vegetable dealers. Savings in cartage costs to other commodity groups would be: Meat and meat products, $27,000; frozen foods, $11,000; groceries, $8,000; dairy products and eggs, $2,000; and fish and seafood, $1,000.

The present cost of $124,000 for avoidable delay within the market would be eliminated, because the wide streets and ample parking areas remove traffic congestion. The meat and meat product dealers would benefit by the greatest amount ($52,000) with the fruit and vegetable dealers receiving no benefit under this item since no measurable delay was incurred by incoming trucks hauling this commodity. Other commodity handlers who would benefit by eliminating avoidable delay are: Poultry, $21,000,; dairy products and eggs, $12,000; frozen foods, $21,000; fish and seafood, $8,000; and groceries, $10,000.

Handling Costs Within the Market Area

The greatest single cost reduction for operating in improved facilities would be from increased labor efficiency. In a new food-distribution center, products would be handled on the first floor of the buildings. The buildings would have platforms or docks of truck-bed or rail-car-floor height, and would be designed for the use of modern handling equipment.

Carcass meats could be placed on overhead rails at the edge of the platform and moved into coolers with a minimum of labor. Products received in boxes or cartons could be loaded onto skids or pallets in the car or truck, or on the platform, and moved into the store rapidly and economically. Bulk products could be loaded onto efficient handling equipment and transported to display platforms, coolers, or processing rooms, with minimum labor requirements. Even without these devices, measurable savings would accrue because of the improved facilities. Cost reductions from these sources have been classified as "handling costs." Handling costs include the flow of products through store units from the time they arrive and are unloaded, and include loading onto outbound trucks, sales at team tracks, intramarket transfers, and use of handling equipment. Such cost reductions, shown in table 34, amount to $2,036,000, or 50.8 percent of the total measurable benefits.

Of the seven types of wholesale dealers, the grocery wholesalers would benefit by the greatest amount in reduction of handling costs ($539,000); loading out operations would make up 58.2 percent, or $314,000 of these savings.

Total handling costs, within the market, for the frozen-food dealers would increase in new facilities by $196,000. This, however, would be more than offset by the reduction in public warehouse service charges. As has been mentioned previously, about 80 percent of the frozen-food receipts were handled through public warehouses, at a cost of more than $1 million. In the new facilities, the costs for handling within the stores would increase by $214,000, while public warehouse charges would decrease $938,000.

Other commodity dealers could expect these reductions in total handling costs: Fruits and vegetables, $512,000; meats and meat products, $557,000; poultry, $192,000; dairy products and eggs, $249,000; fish and seafood, $184,000.

The costs for intramarket transfers would decrease by $37,000 with meat and meat products showing the greatest decrease ($29,000). The reduction of intermarket transfers shows a saving of $503,000, which amounts to a total cost reduction of $540,000 for these rehandling operations.

Costs for modern handling equipment in the new center would increase. This additional cost ($90,000) would be recovered many times in the savings in handling into, within and out of the market facilities.

Other Costs in the Market Area

Reduction of other costs in the market area (rents, public warehouse service charges, demurrage, and the like) would amount to $721,000, or 18 percent of total savings. The fruit and vegetable wholesalers would receive the greatest benefits ($1,258,000), with frozen-food wholesalers next ($643,000). Handlers of meat and meat products would have increased costs of $1,068,000; grocery handler's costs would increase by $319,000. These increased costs would result from an estimated increase in rents.

Total rental charges in a new center, on any one of the three sites, would be greater than rentals in the observed facilities. The amount of increase in rentals of wholesale facilities on each of the three sites, by type of financing, is shown in table 35. The increases in rents range from $2.5 million on the Union Produce Terminal site (with use of Urban Renewal funds), to $3.9 million on the Eastern Market site (without using Urban Renewal funds). The rentals shown in table 32, and the amount of increase in rentals in table 34 are based upon a food distribution center on the Eastern Market site developed under the Urban Renewal program.

A market constructed on either of the other sites or under other methods of financing would require different rental schedules than shown in table 34, for the Eastern Market site. Such differences can be computed from the rental schedules shown in table 35. These differences in amount of rent needed for a market on other sites, or under other methods of land development, would in turn reflect the same amount of difference in total measurable cost reductions.

The increased rentals necessary to pay for the new facilities would be more than offset by reductions in labor costs, public warehouse service charges paid by dealers, and waste and deterioration. In addition, the tenants would be building equity in the land and facilities.

The annual reduction in public warehouse charges is estimated at $1,912,000. The recommended new facilities are designed to provide adequate floor space to handle the normal day-to-day movement of the products. Public warehouse space would be used to store reserve stocks, and surplus stocks during peak seasons of production.

Demurrage costs could be eliminated in a new market, with an annual saving of $49,000. These savings would accrue to the fruit and vegetable dealers ($47,000) and the grocery wholesalers ($2,000).

Improved facilities would materially reduce waste and deterioration costs, especially for fruit and vegetable dealers. These savings would be possible because perishable commodities would not be stored outside the facility where they are subject to spoilage caused by weather; pilferage would be reduced; and owing to less handling, bruising and breakage would be less. Cost reduction from this source, shown in table 34, amounts to $930,000 annually.

If a wholesale food-distribution center is built and occupied by the dealers, charges for intermarket transfers to independent wholesalers would result in a cost reduction of $503,000. The largest amount of these savings would accrue to the fruit and vegetable dealers ($386,000). Other commodities whose dealers would benefit are: Meat and meat products, $35,000; poultry, $5,000; dairy products and eggs, $48,000; fish and seafood, $12,000; and groceries, $18,000.

Costs of Moving the Products Away from the Market Area

Reduction of transportation and other costs in moving the products from the center is estimated at $880,000, or 22.2 percent of total cost reductions. The improved facilities would increase the efficiency of loading the buyers' trucks, and eliminate avoidable delay at the wholesale stores. This reduction in cost is estimated at $716,000 for trucks that move the commodities to retail points in Detroit. For the same reasons, the cost reduction in loading and moving the products to food-chain warehouses would be reduced by

TABLE 35.--Estimated annual rentals needed by commodity group for wholesale marketing facilities if built on each of three sites and land is acquired and developed with private funds or with Urban Renewal funds; amount of rent presently paid; and amount of increase in rentals needed

Item	Fruits and vegetables	Meat and meat products	Poultry	Dairy products and eggs
	1,000 dollars	1,000 dollars	1,000 dollars	1,000 dollars
Estimated rentals needed:				
Private financing:				
Eastern Market	910.0	2,497.0	132.0	330.0
Union Produce Terminal	696.0	2,384.0	121.0	302.0
Central Avenue	712.0	2,039.0	104.0	259.0
Use of Urban Renewal funds:				
Eastern Market	692.0	1,997.0	101.0	252.0
Union Produce Terminal	567.0	1,997.0	101.0	252.0
Amount of rent paid in present market areas	613.5	706.8	115.9	147.4
Estimated increase in rentals:				
Private financing:				
Eastern Market	296.5	1,790.2	16.1	182.6
Union Produce Terminal	82.5	1,677.2	5.1	154.6
Central Avenue	98.5	1,332.2	-11.9	111.6
Use of Urban Renewal funds:				
Eastern Market	78.5	1,290.2	-14.9	104.6
Union Product Terminal	-46.5	1,290.2	-14.9	104.6

	Frozen foods	Fish and seafood	Groceries	Total
	1,000 dollars	1,000 dollars	1,000 dollars	1,000 dollars
Estimated rentals needed:				
Private financing:				
Eastern Market	384.0	218.0	1,348.0	5,819.0
Union Produce Terminal	377.0	199.0	1,247.0	5,326.0
Central Avenue	350.0	171.0	1,078.0	4,713.0
Use of Urban Renewal funds:				
Eastern Market	343.0	166.0	1,045.0	4,596.0
Union Produce Terminal	343.0	166.0	1,045.0	4,471.0
Amount of rent paid in present market areas	47.7	98.7	193.4	1,923.4
Estimated increase in rentals:				
Private financing:				
Eastern Market	336.3	119.3	1,154.6	3,895.6
Union Produce Terminal	329.3	100.3	1,053.6	3,402.6
Central Avenue	302.3	72.3	884.6	2,789.6
Use of Urban Renewal funds:				
Eastern Market	295.3	67.3	851.6	2,672.6
Union Produce Terminal	295.3	67.3	851.6	2,547.6

$75,000. The costs of loading trucks that haul the products out of the city would be decreased by $98,000.

Nonmeasurable Benefits

Many savings or benefits which cannot be measured easily in dollars might accrue from the construction of a new wholesale food-distribution center. They may even be greater than the measurable benefits shown in this section. Such benefits would be shared by wholesalers, buyers, growers, transportation agencies, market employees, consumers, and the city of Detroit.

In addition to the savings described above, wholesalers would find that in a new market, it would be possible for them to transact their business with fewer man-hours of labor per day. While products could be unloaded into their stores at any time of the day they desire, with regulated selling hours which could be established in a unified market, the sales period could be much shorter than at present. Furthermore, many merchants would no longer find it necessary to operate in two or more places. This change would effect considerable savings over and above the savings in handling operations. In addition, more efficient operation in improved facilities probably would improve the competitive position of some wholesalers and increase their volume of business.

Buyers desiring to visit the market could expect to save a good deal of time by purchasing in the proposed center. They would have adequate parking space, conveniently located, wherever they wished to stop, and would be able to select their merchandise and promptly have it loaded on a truck. Buyers would no longer find it necessary to visit several different dealers, in a number of outlying locations, to buy what they need to supply their customers.

Satisfactory marketing facilities also would benefit growers of agricultural products. Provision of adequate facilities might very well attract both additional buyers and additional local produce. Such an assembly point could bring together both supply and demand in such a way as to reduce selling and purchasing costs to buyers and producers.

The railroads serving Detroit have been at a relative disadvantage in being unable to place carloads of merchandise at the store of many merchants.

When shippers compare the cost of transporting their products to the stores by rail and by truck, the cost of getting those products to their stores by rail is found to be higher than shipments made by truck. If it were not for the relatively low cost of refrigeration often afforded by the rail cars, railroads would probably have a smaller percentage of business. When facilities such as those suggested in this report are constructed, railroads would benefit in two ways: First, they would be able to place cars adjacent to stores, and second, they could participate in the general light industrial expansion often attracted to food-distribution centers.

Truckers would benefit by being able to reduce the time necessary to get their loads to the destination and unload them, and get the trucks away. They could probably also decrease their loading time for outbound loads. Such a market center, by centralizing inbound and outbound movement, might also increase the probability of return loads being secured in the immediate locality.

Working conditions for persons employed in food wholesaling in Detroit would be materially improved in a new market. Since the buildings are designed for efficient handling practices by use of proper equipment, the task of the laborers would be less arduous, their productivity would be increased, and over a period of time, this could increase their hourly earnings. Regular hours of work would be expected, and large amounts of overtime or irregular employment would not be necessary. With the complete rebuilding of the market facilities, the general environment in which the workers operate would be materially improved. Many facilities not now available, such as adequate parking, would be provided.

Consumers in and around Detroit would benefit from a new market center as much as any other group. Food products should be provided in better condition and at more reasonable prices. Competition among wholesalers may reduce costs and the reduction may be passed on to the consumer. With a variety of foods from which to select, consumers might even increase purchases of some foods.

The city of Detroit would benefit in several ways from the construction of a new center: (1) The wholesale food business, transacted in an adequate market, should increase in volume because of the increased business that improved conditions would bring to the wholesalers operating in it, and to the retailers who use it as a source of their supplies. (2) As all citizens are consumers, the city would be rendering a real service to its residents by encouraging the development of satisfactory facilities for the handling of their foods. (3) Traffic problems in several parts of the city would improve. (4) The removal of the wholesale perishable food business from some of the present market areas would facilitate the redevelopment of that part of the city for other uses. (5) The transfer of the wholesale food business to modern facilities would help the city solve some problems in the enforcement of sanitary and fire regulations. (6) The facilities that might be built in the new market area would probably pay considerably more in taxes than is received from the present facilities.

Much gain apparently would result from the removal of low-return, dilapidated facilities from the present sites and the location of other types of business in the area. There should be little difficulty in attracting new tenants to this area if new buildings were constructed.

CONCLUSIONS AND RECOMMENDATIONS

The findings of this report strongly support the following conclusions and recommendations:

1. That the construction of a new food-distribution center to replace the present inefficient and outmoded wholesale facilities is economically feasible, and that many organizations and persons would benefit by such an establishment.

2. That a new wholesale food-distribution center should be built at a location convenient to all types of retail outlets to handle the distribution of the seven food commodities. The facilities to be included and the area needed should follow the suggestions made in this study.

3. That a master plan for a complete wholesale food-distribution center be prepared and adopted at the outset, so that the first building to be constructed will not interfere with the development of the center.

4. That plans for such a market center be coordinated with the city's master plan, including plans for redevelopment of blighted areas, future location of major expressways and other transportation, and other facilities now under consideration.

5. That a strong sponsoring group be set up to implement these recommendations, and bring about the fulfillment of this major step in Detroit's development.

The U. S. Department of Agriculture has given, and will continue to give, assistance to the food-distribution center sponsors and other interested agencies, in bringing about the construction and successful operation of a new wholesale food-distribution center in the Detroit area. It is hoped that, through this study, foods moving through the wholesale distribution facilities of the city may be handled more efficiently, that waste and deterioration will be reduced, that food dealers can improve their operations, that increased outlets for farm products may result, and that consumers may obtain better products at reasonable prices.

APPENDIX

DETERMINING THE RECEIPTS, DISTRIBUTION, AND MARKETING COSTS FOR THE SEVEN FOOD COMMODITIES IN THE WHOLESALE MARKETS

Data were obtained relating to volume of receipts of each food commodity, the distribution or flow pattern through the various wholesale facilities, and the handling and other costs for moving the products from the first point of arrival through the markets to the retail destination.

The information was obtained from the U.S. Department of Agriculture Market News Service, the wholesale dealers, buyers who patronized the markets, truckers, railroad officials, labor union officials, representatives of the city, and others interested in the wholesale food industry in Detroit.

Table 36 shows the total receipts of each of the seven food commodities, the volume handled, the total cost, and the cost per hundredweight for each major movement of the products through the wholesale marketing facilities in Detroit. These data reflect the flow and the cost of each movement, from the first point of arrival in the city, through the various marketing channels, to the retail outlets in Detroit, or to the trucks that carried them out of the city.

These marketing costs are grouped in three consecutive steps: (1) Costs of moving the products from the first point of arrival to the dealers' facilities, (2) handling and other costs for moving them through the wholesale facilities, and (3) costs of transporting products away from the facilities or market areas.

Determining the Volume of Receipts

In order to compute the total costs of handling and transporting, it was necessary first to determine the total volume of each of the seven food commodities arriving in Detroit at the various unloading points.

In the case of fruits and vegetables, poultry, and dairy products and eggs, the records of the U.S. Department of Agriculture Market News Service were used as a basis for obtaining the rail and truck receipts. Since these records did not reflect 100 percent of the unloads, visits were made to several wholesalers in the market areas, the food-chain warehouses, and the farmers' markets, in order to determine the total receipts, by type of carrier and point of arrival.

In the case of meat and meat products, frozen foods, fish and seafood, and groceries, no reliable records of total receipts were available. The total receipts for these products, by type of carrier and point of arrival, were obtained by visiting the dealers who handled these products. This included all independent wholesalers, food-chain warehouses, processors, and public warehouses.

The total receipts of each food product as described above were reviewed for reliability by comparing them with the apparent per capita consumption, and relating the consumption rate of one product to another.

TABLE 36.--Estimated annual costs of moving 4.74 billion pounds of seven food commodities from first point of arrival through the wholesale facilities in the various market areas of Detroit
(Items in parentheses are not included in totals, because they are part of other items)

Costs for--	Fruits and vegetables			Meat and meat products			Poultry			Dairy products and eggs		
	Volume	Average cost per cwt.	Total cost	Volume	Average cost per cwt.	Total cost	Volume	Average cost per cwt.	Total cost	Volume	Average cost per cwt.	Total cost
	Million pounds	Dollars	1,000 dollars	Million pounds	Dollars	1,000 dollars	Million pounds	Dollars	1,000 dollars	Million pounds	Dollars	1,000 dollars
Moving the products to dealers' facilities:												
Cartage from:												
Team tracks	170.7	1.11	190.1	17.4	0.16	27.2	0	0	0	2.9	0.08	2.3
Boat docks	0	0	0	0	0	0	0	0	0	0	0	0
Rail docks (piggyback)	0	0	0	0	0	0	0	0	0	0	0	0
Detroit processors	0	0	0	0	0	0	0	0	0	5.6	0.08	4.4
Total or average	170.7	0.11	190.1	17.4	0.16	27.2	0	0	0	8.5	0.08	6.7
Avoidable delay to inbound trucks[1]	0	0	0	(56.5)	0.09	52.5	(84.1)	0.02	20.8	(169.0)	0.01	12.1
Total or averags cartage and delay	170.7	0.11	190.1	17.4	0.46	79.7	(84.1)	0.02	20.8	8.5	0.22	18.8
Receipts, with no cartage:[2]												
Rail cars on house tracks	538.5	0	0	95.7	0	0	3.6	0	0	8.4	0.	0
Sales from team tracks	200.8	0	0	0	0	0	0	0	0	0	0	0
Trucks from shipping points	270.4	0	0	106.1	0	0	135.6	0	0	211.7	0	0
Locally slaughtered meat	0	0	0	343.2	0	0	0	0	0	0	0	0
Farmers' market receipts	245.4	0	0	0	0	0	0	0	0	0	0	0
Total volume, no cartags	1,255.1	0	0	545.0	0	0	139.2	0	0	220.1	0	0
Total or average	1,425.8	0.01	190.1	562.4	0.01	79.7	139.2	0.01	20.8	228.6	0.01	18.8
Handling, in the market:												
Labor:												
Unloading at the facilities	(1,336.1)	0.06	861.0	(388.0)	0.05	192.2	(151.7)	0.11	162.3	(251.6)	0.04	109.6
Handling within stores	(972.9)	0.08	782.3	(223.0)	0.67	1,494.8	(129.7)	0.12	161.8	(242.0)	0.17	416.1
Loading out to buyers' trucks	(1,581.5)	0.06	1,027.7	(731.3)	0.09	686.8	(151.7)	0.05	74.4	(251.6)	0.07	164.5
Sales from team tracks (unloading rail cars)	(200.8)	0.07	139.7	0	0	0	0	0	0	0	0	0
Intramarket transfers	(73.7)	0.08	59.4	(53.7	0.19	99.9	(6.0)	0.15	9.2	(1.4)	0.23	3.2
Equipment	(654.5)	([3])	14.7	0	0	0	0	0	0	(228.6)	([3])	1.9
Total or average	(1,425.8)	0.20	2,884.8	(562.4)	0.44	2,473.7	(139.2)	0.29	407.7	(228.6)	0.30	695.3
Other, in the market:												
Rentals:												
Wholesale facilities	(813.9)	0.05	386.4	(562.4)	0.21	1,206.6	(139.2)	0.08	118.1	(228.6)	0.09	202.0
Detroit Union Produce Terminal charges	(611.9)	0.02	104.3	0	0	0	0	0	0	0	0	0
Produce Terminal costs absorbed by railroads	(611.9)	0.03	195.0	0	0	0	0	0	0	0	0	0
Total rentals and rental equivalent	(1,425.8)	0.05	685.7	(562.4)	0.21	1,206.6	(139.2)	0.08	118.1	(228.6)	0.09	202.0
Public warehouse charges	0	0	0	(38.1)	0.65	247.6	(29.5)	1.05	308.7	(10.9)	0.77	84.1
Demurrage	(767.1)	0.01	50.2	(75.5)	([3])	0.3	0	0	0	0	0	0
Waste and deterioration	(1,425.8)	0.13	1,829.7	(562.4)	([3])	21.4	(139.2)	0.01	10.1	(228.6)	([3])	10.9
Intermarket transfers to:												
Food-chain warehouses	(200.2)	0.21	417.0	(49.3)	0.21	105.1	(9.7)	0.21	20.8	0	0	0
Other Detroit wholesalers	(156.2)	0.25	385.6	(119.6)	0.20	233.5	(2.8)	0.17	4.7	(23.0)	0.21	48.0
Total or average, other	(1,425.8)	0.24	3,368.2	(562.4)	0.32	1,814.5	(139.2)	0.33	462.4	(228.6)	0.15	345.0
Total or average, in the market	1,425.8	0.44	6,253.0	562.4	0.76	4,288.2	139.2	0.62	870.1	228.6	0.45	1,040.3
Moving the products away from the market:												
Transporting to retail in Detroit:												
Central area	127.9	0.52	660.4	74.3	0.61	454.0	23.1	0.65	151.2	19.7	0.52	101.6
Northeastern area	577.0	0.53	3,061.5	181.9	0.63	1,148.6	50.1	0.65	325.1	98.0	0.56	548.4
Southwestern area	350.1	0.46	1,602.9	137.4	0.60	820.3	42.3	0.67	281.6	69.8	0.53	368.3
Total or average	1,055.0	0.50	5,324.8	393.6	0.62	2,422.9	115.5	0.66	757.9	187.5	0.54	1,018.3
Loading trucks hauling to points outside Detroit	370.8	0.11	393.7	168.8	0.10	173.3	23.7	0.06	15.4	41.1	0.03	12.7
Total or average	1,425.8	0.40	5,718.5	562.4	0.46	2,596.2	139.2	0.56	773.3	228.6	0.45	1,031.0
Avoidable delay to outbound trucks	(946.5)	0.01	(79.0)	(308.6)	0.03	(102.9)	(86.0)	0.02	(17.7)	(104.2)	0.01	(7.0)
Grand Total	1,425.8	0.85	12,161.6	562.4	1.24	6,964.1	139.2	1.19	1,664.2	228.6	0.91	2,090.1

[1] Applies to trucks from shipping areas that unloaded at the Eastern Market area and certain independent wholesale facilities in the central area.
[2] There were no cartage costs incurred for these receipts from the first point of arrival to the wholesale facilities, since they were the first point of arrival.
[3] Less than one-half cent.

TABLE 36.--Estimated annual costs of moving 4.74 billion pounds of seven food commodities from first point of arrival through the wholesale facilities in the various market areas of Detroit--Continued

(Items in parentheses are not included in totals, because they are part of other items)

Costs for--	Frozen foods			Fish and seafood			Groceries			Totals		
	Volume	Average cost per cwt.	Total cost	Volume	Average cost per cwt.	Total cost	Volume	Average cost per cwt.	Total cost	Volume	Average cost per cwt.	Total cost
	Million pounds	Dollars	1,000 dollars	Million pounds	Dollars	1,000 dollars	Million pounds	Dollars	1,000 dollars	Million pounds	Dollars	1,000 dollars
Moving the products to dealers' facilities:												
Cartage from:												
Team tracks	7.8	0.14	10.9	7.0	0.11	7.7	24.5	0.13	31.2	230.3	0.12	269.4
Boat docks	0	0	0	0	0	0	0.1	0.10	0.1	0.1	0.10	0.1
Rail docks (piggyback)	0	0	0	0	0	0	87.7	0.14	122.8	87.7	0.14	122.8
Detroit processors	0.4	0.15	0.6	0	0	0	42.4	0.12	53.0	48.4	0.12	58.0
Total or average	8.2	0.14	11.5	7.0	0.11	7.7	154.7	0.13	207.1	366.5	0.12	450.3
Avoidable delay to inbound trucks[1]	(87.2)	0.02	21.1	(40.7)	0.02	7.7	(36.8)	0.03	9.8	(474.3)	0.03	124.0
Total or average cartage and delay	8.2	0.39	32.6	7.0	0.22	15.4	154.7	0.14	216.9	366.5	0.16	574.3
Receipts, with no cartage:[2]												
Rail cars on house tracks	51.1	0	0	2.8	0	0	1,077.3	0	0	1,777.4	0	0
Sales from team tracks	0	0	0	0	0	0	0	0	0	200.8	0	0
Trucks from shipping points	89.7	0	0	56.3	0	0	938.9	0	0	1,808.7	0	0
Locally slaughtered meat	0	0	0	0	0	0	0	0	0	343.2	0	0
Farmers' market receipts	0	0	0	0	0	0	0	0	0	245.4	0	0
Total volume, no cartage	140.8	0	0	59.1	0	0	2,016.2	0	0	4,375.5	0	0
Total or average	149.0	0.02	32.6	66.1	0.02	15.4	2,170.9	0.01	216.9	4,742.0	0.01	574.3
Handling, in the market:												
Labor:												
Unloading at the facilities	(154.6)	0.02	24.2	(71.1)	0.06	41.7	(2,372.1)	0.05	1,256.9	(4,725.2)	0.06	2,647.9
Handling within stores	(32.5)	0.19	62.5	(56.1)	0.56	315.8	(1,845.6)	0.18	3,250.7	(3,501.8)	0.19	6,484.0
Loading out to buyers' trucks	(154.6)	0.04	68.6	(71.1)	0.10	71.5	(2,372.1)	0.10	2,298.3	(5,313.9)	0.08	4,391.8
Sales from team tracks (unloading rail cars)	0	0	0	0	0	0	0	0	0	(200.8)	0.07	139.7
Intramarket transfers	(6.6)	0.29	18.9	(2.4)	0.40	9.7	(29.6)	0.34	100.5	(173.4)	0.17	300.8
Equipment	(149.0)	0.02	22.8	0	0	0	(2,170.9)	0.01	118.0	(3,203.0)	[3]	175.4
Total or average	(149.0)	0.13	197.0	(66.1)	0.66	438.7	(2,170.9)	0.32	7,024.4	(4,742.0)	0.30	14,121.6
Other, in the market:												
Rentals:												
Wholesale facilities	(149.0)	0.04	56.9	(66.1)	0.15	98.7	(2,170.9)	0.03	716.7	(4,130.1)	0.07	2,785.4
Detroit Union Produce Terminal charges	0	0	0	0	0	0	0	0	0	(611.9)	0.02	104.3
Produce Terminal costs absorbed by railroads	0	0	0	0	0	0	0	0	0	(611.9)	0.03	195.0
Total rentals and rental equivalent	(149.0)	0.04	56.9	(66.1)	0.15	98.7	(2,170.9)	0.03	716.7	(4,742.0)	0.06	3,084.7
Public warehouse charges	(128.8)	0.82	1,057.6	(17.4)	0.57	99.9	(556.2)	0.37	2,080.1	(780.9)	0.50	3,878.0
Demurrage	0	0	0	0	0	0	(312.7)	[3]	7.0	(1,155.3)	[3]	57.5
Waste and deterioration	(149.0)	[3]	1.5	(66.1)	[3]	2.1	(2,170.9)	[3]	99.1	(4,742.0)	0.04	1,974.8
Intermarket transfers to:												
Food chain warehouses	(5.7)	0.22	12.4	0	0	0	(81.9)	0.15	126.2	(346.8)	0.20	681.5
Other Detroit wholesalers	0	0	0	(5.0)	0.24	11.8	(119.3)	0.15	181.6	(425.9)	0.20	865.2
Total or average, other	(149.0)	0.76	1,128.4	(66.1)	0.32	212.5	(2,170.9)	0.15	3,210.7	(4,742.0)	0.22	10,541.7
Total or average, in the market	149.0	0.89	1,325.4	66.1	0.99	651.2	2,170.9	0.47	10,235.1	4,742.0	0.52	24,663.3
Moving the products away from the market												
Transporting to retail in Detroit:												
Central area	13.4	0.71	94.5	7.1	1.15	81.9	249.7	0.30	737.0	515.2	0.44	2,280.6
Northeastern area	62.8	0.74	464.5	20.7	1.26	261.8	828.8	0.26	2,167.4	1,819.3	0.44	7,977.3
Southwestern area	37.0	0.75	278.6	8.0	1.26	100.4	512.6	0.23	1,182.7	1,157.2	0.40	4,634.8
Total or average	113.2	0.74	837.6	35.8	1.24	444.1	1,591.1	0.26	4,087.1	3,491.7	0.43	14,892.7
Loading trucks hauling to points outside Detroit	35.8	0.04	15.4	30.3	0.04	12.7	579.8	0.03	164.8	1,250.3	0.06	788.0
Total or average	149.0	0.57	853.0	66.1	0.69	456.8	2,170.9	0.20	4,251.9	4,742.0	0.33	15,680.7
Avoidable delay to outbound trucks	0	0	0	(47.2)	0.05	(26.1)	(51.6)	0.03	(14.1)	(1,544.1)	0.02	(246.3)
Grand total	149.0	1.48	2,211.0	66.1	1.70	1,123.4	2,170.9	0.68	14,703.9	4,742.0	0.86	40,918.3

[1] Applies to trucks from shipping areas that unloaded at the Eastern Market area and certain independent wholesale facilities in the central area.
[2] There were no cartage costs incurred for these receipts from the first point of arrival to the wholesale facilities, since they were the first point of arrival.
[3] Less than one-half cent.

Establishing the Flow Pattern

After the total receipts for each commodity had been determined, the flow pattern was developed. This was done by obtaining the sales pattern of a sample of dealers, which amounted to going through sales tickets (or invoices), and ascertaining the percentage of sales going to certain areas within and outside the Detroit area, and to certain types of customers.

Although the volume of individual commodities sold may vary considerably throughout a year, business of most dealers is done with a relatively steady list of customers, week after week. Even if there is some degree of turnover in customers, the type of customers and the area where they are located were not found to change measurably from week to week.

For each commodity group, however, the situation varied, and discussions with sales managers of a number of dealers were necessary, to establish the most suitable days of the week and the particular weeks from which a representative sales pattern could be obtained.

In the case of fresh fruits and vegetables, three of the largest volume days were taken in 2 months of two seasons of the year, and the sales pattern was based on the two averages thus developed.

For meat and meat-product dealers, sales were based on 1 or 2 weeks during the year, depending on the variability of the patterns, and the normal marketing season of different types of meat.

For poultry, dairy products and eggs, fish, frozen foods, and groceries, sales patterns were based on sales invoices for 1 week, and, in some instances, for 2 weeks, in March and in September.

The sales from the public warehouses were based upon those of the local wholesalers, who deliver a part of their receipts to a retailer, and haul the remainder from the warehouse into their facilities for subsequent delivery.

Sales patterns, thus developed, showed the amounts of merchandise, by commodity, arriving at the various market areas or terminal facilities, the movements within and between those areas or terminal facilities, and all subsequent flows until the merchandise reached retail outlets or was loaded on trucks for shipment outside the Detroit area. For all these movements, costs of handling were developed.

The information obtained from the sample dealers (expressed in percentages) was applied to the annual volume of each commodity group handled during the year, resulting in the total "volume" sales pattern for the given commodity, by market areas.

A careful examination was necessary to avoid counting certain movements twice. The sales pattern for a market area includes sales to wholesalers in other market areas, and these intermarket movements, and some intramarket movements, must ultimately be distributed to retail. These movements between wholesalers occur mainly because a dealer is short of the product, or does not carry it and regularly buys it from another dealer. These intermarket movements were put on a net intermarket movement basis--that is, the difference between sales to and purchases from dealers in other market areas. The net intermarket movement was added to direct receipts of the market area's flow to retail outlets, if the net movement in was larger, and subtracted if the net movement out was larger. This adjusted volume was then shown as distributed to retail outlets or moved out of the city.

Computing the Marketing Costs

The marketing costs comprise the direct charges for handling 4.74 billion pounds of the seven food commodities that passed through the wholesale marketing facilities of Detroit in the year studied, without regard to who paid the charges.

Cartage Costs

Instead of determining local cartage and delivery costs from the records of dealers and others who haul merchandise, another approach was believed by the contractor to be more accurate. The many and diverse operations involved, the difficulties in separating the many purposes for which trucks are used, and the lack of accurate and complete cost records of these firms--all made it undesirable to compute costs from records of a "typical" hauler. Cartage costs were determined on the basis of truck rental rates obtained from public cartage companies, the per hour wage rates of drivers, the average size of load, and the time required to make delivery and return.

Truck rental data, obtained from several large local cartage and truck rental companies, showed that their charges were almost the same. These cartage rates are very competitive, because Detroit has many such companies. Moreover, their rates are relatively low because these companies can buy their equipment, insurance, gasoline, oil, and other supplies at considerably lower prices than average-size wholesalers and retailers can. They can also get repair work done at lower rates.

Cartage costs for moving the products from point of arrival to a market facility included: Labor and truck rental rates for loading trucks from rail cars or a local processing plant; round-trip hauling time to move the product to the dealer's store or other market facility; and placing it on the tailgate for unloading into the facility. Of course, no inbound cartage charges were incurred on direct delivery to market facilities by over-the-road trucks or rail cars on house tracks.

Commodities moving through various channels from the market areas to retail outlets and other points may move in different ways. The four major channels studied are:

1. Food-chain warehouses, delivering to their stores with company-owned trucks, or having all merchandise delivered by a cartage concern, as was the case with one chain.

2. An independent wholesale dealer, delivering merchandise in his own trucks, or sometimes hiring a cartage company to deliver for him.

3. A retailer, picking up his orders at the wholesalers' stores.

4. A truck jobber, buying from the carlot receiver, and selling to the consumer or the retailer from his truck.

Costs of delivery to retail stores from chain warehouses were computed from records kept by warehouse foremen. These records carried specific information on the size of truck load, time required to load, the specific retail stores visited per trip, the time of arrival and departure at each retail store, and the total time required for each round trip.

From these data, together with the per-hour rental costs of the delivery trucks, including the driver's hourly rate, it was possible to compute the cost per hour and per unit for an average load of merchandise moved from the chain warehouses.

The cost of distribution to retail and other outlets, by type of product, from market areas, was computed in a similar manner. The average truck loading time was determined for each market area from a sample of wholesale dealers in each area, as well as the average size per load, the number of delivery stops per round trip, and the time required per stop. The cost per hour of the particular truck used for the specific movement was obtained from cartage companies. In addition, the hourly wage rate of the driver and helper (if any), and the total time required for the operations mentioned, completed the information necessary to compute these costs.

Thus, for each of the wholesale areas and the chain warehouses, the following information was assembled for all commodity groups in order to arrive at the total transportation costs:

1. Hourly rental cost of the particular size of truck.
2. Total hourly rate of driver and helper, if any, including overtime and fringe benefits.
3. Truck standing time while loading at the particular market or terminal facility.
4. Round-trip driving time to the various destinations, including the number of stops per trip, and unloading time at the points along the route.
5. Average volume delivered per trip.

In addition to this information assembled for each commodity group, the centers of distribution were determined for each retail area in order to arrive at the average round-trip driving time for each wholesale area.

To measure the costs of transportation to the retail areas for wholesalers located outside the four established market areas, the handlers of dairy products, eggs, and dry groceries were subgrouped as being in three other areas: "Central," "Northeast," and "Southwest." For the other commodity groups, however, dealers operating outside the four market areas were so very widely scattered throughout the city, and so few dealers were "clustered" within these three other areas, that they were grouped as "other facilities".

Avoidable Delay to Trucks

Estimates of the cost of delay to trucks and drivers hauling the products to the market areas were obtained by interviewing many dealers and drivers in the market. Traffic congestion has existed at some of the market places, during certain hours, for many years. On certain streets in the Eastern Market area and at some of the chain warehouses, the traffic congestion becomes a problem during the early hours of the day. Much of this congestion is created by narrow streets and lack of space for market personnel to park their cars.

Avoidable delay was computed for intermarket movement, and for transporting the commodities away from the markets. This includes the movement from market area to market area, to chain warehouses, and to retail and other points. These delay costs are included in the transportation charges and were obtained in the same manner as were delay costs for trucks hauling to the markets.

Handling Costs

Handling costs include labor costs incurred at the facilities such as unloading cars or trucks, internal handling operations, and loading out.

"Unloading" is defined as moving the merchandise from the car or truck onto the sidewalk, facility floor, platform, or overhead rail in the case of hanging meat; moving it into the facility is included as an internal handling operation. However, unloading may also include the moving of the merchandise from the car or truck into the facility if this is done in one continuous operation, as in the case with cars unloading at the 12th Street meat docks and the Detroit Union Produce Terminal.

Assembling orders, splitting unit loads, moving merchandise into and out of coolers, freezer units, and ripening rooms, or moving merchandise between floors are included in internal handling operations. More specialized internal handling operations, such as boning and breaking carcasses, grinding meat in meat wholesaling, and icing and re-icing boxes for poultry wholesaling are included. Internal handling operations that involved cooking or other processing operations, on the other hand, were excluded. Other internal handling operations excluded were the slaughter of livestock; the dressing of poultry, the machine sizing, grading and packing of eggs and the filleting fish.

"Loading out" includes, in general, moving merchandise from a sidewalk, facility floor, platform, or overhead rail into an outbound vehicle.

Records of wages paid to warehouse workers were taken from earning cards, or other records of wholesale dealers. All overtime costs and such items as bonuses were included. Fringe benefits paid by employers were the same for drivers and warehousemen, if they were members of the same union local. The stores of many food wholesalers in the Detroit area were unionized. However, some dealers in the Eastern Market area, and most dealers in the Western Market area, employ nonunion workers.

For all labor employed by wholesalers in the various commodity groups, union and nonunion wages were computed. Annual nonunion wages were obtained by commodity groups from a sample of dealers in the various market areas.

The total annual labor costs at the wholesale facilities (unloading, internal handling, and loading out) were obtained for a sample of each of the seven food commodity groups. The total annual labor costs, for each type of commodity handled for the sample group, was divided by the respective annual volume moved through the facilities, to obtain an average cost per hundredweight.

Observations were made as to the average size of load of incoming cars and trucks, and the average number of man-hours required to unload. Similar information was obtained for loading outbound trucks. With this information, the per-unit cost of unloading into a facility and the per-unit loading-out cost was derived. The internal handling costs were obtained by deducting from the total labor charges per hundredweight for all handling operations the per-unit costs of loading in and loading out.

Sales from Team Tracks

The cost of unloading rail cars at the team tracks into the buyers' trucks averaged about 7 cents per hundredweight. Fruits and vegetables were the only commodity group to which this cost applied. When the buyer makes his purchases from samples on the floor of the dealer's store, the dealer then sends a man with the buyer to the team tracks to open the car and unload the packages to the buyers truck, and he then returns to the store. Sometimes, a man stays in the team-track yards, and loads the items onto the trucks on instructions from the sales slips. Usually, these purchases are in relatively small lots, and more man-hours are required to unload a car in this manner, than when the commodity is carted to the store in much larger loads.

Intramarket Transfers

A total of 173.4 million pounds of the seven food commodities moved from one store to another within the wholesale market areas. There are many reasons for these intramarket transfers. During a time of short supply, a dealer will buy from another dealer, in order to supply the requirements of his regular customers. Also, many jobbers and purveyors obtain a large amount of their products from carlot receivers and other large-volume handlers. During seasons of heavy supply, when products are slow in moving in the farmers' markets, the farmers sell to wholesale dealers rather than take home an unsold load, or part of a load.

The cost per unit for such handling varied greatly among commodities. It includes the cost of loading from the store to a truck, or other conveyance, transporting to the buyer's store, unloading into the store, and return. This cost was derived in a manner similar to the costs for loading, unloading, and cartage as described previously.

Use of Handling Equipment

Except in the food-chain warehouses, frozen-food facilities, and some of the large-volume egg wholesale stores, very little handling equipment is used in the wholesale facilities. The operating costs, depreciation, and maintenance of such equipment as fork-lift trucks and electric and hydraulic jacks was furnished by the firms using the devices. For the other equipment (pallets, dead and semilive skids, two- and four-wheel hand-trucks), estimates were made of the original cost and average life.

With this information, together with the volume of each commodity so handled, a cost per unit for handling equipment was computed.

Rentals

Rental costs were obtained from each wholesale dealer in the city. If a dealer rented the facility, he gave his rental cost; if he owned his facility, he was asked to estimate what his rental cost would be, based on rents paid for similar facilities. At the Detroit Union Produce Terminal, there is a "car charge" in lieu of a space rental charge. At the time of the study the car charge was $5 per car for each car received by dealers operating in the terminal. The amount of assigned space for each dealer was based upon the number of carlots the firm received annually at the terminal. However, it was evident that the $5 charge did not pay all expenses for operating the terminal. Thus, to make the rental charges as closely comparable as possible for all facilities, an additional charge of $195,000 was included in these rental costs as costs which are absorbed by the railroads. This figure is based on a minimum rental cost at other facilities for fruit and vegetable wholesalers in the city, and on information secured from various railroad officials and produce dealers.

Public Warehouse Service Charges

The size, weight and type of package or container, the type of commodity, and the period of time in storage determined the average charges per hundredweight that the wholesale dealers paid for storing or handling products that were moved into public warehouses. Warehouse charges were obtained from the managers. They include the unloading of rail cars, moving the merchandise into and out of storage, and loading out to the trucks. For each applicable commodity group stored, an average warehouse charge was calculated, with the period of time that the commodity was stored as one factor.

Demurrage

The amount of demurrage paid was a very small part of total marketing cost, and only three commodity groups incurred demurrage (fruits and vegetables, meat and meat products, and groceries). Many fruit and vegetable dealers in the Union Produce Terminal intentionally held perishable items in refrigerated cars, and paid demurrage because they had no cooler space in their facilities. Some meat wholesalers incurred demurrage when their inventories were moving slowly. The chain warehouses and some large-volume independent grocery dealers often made "bargain purchases" in large quantities and incurred demurrage, because of lack of immediate storage space when the goods were received.

Actual costs for demurrage were furnished by the railroads at the Union Produce Terminal, the chain warehouse managers, and independent dealers.

Waste and Deterioration

Other costs include waste and deterioration losses incurred because of inadequate facilities and poor or excessive handling. This information was assembled in two separate surveys, and was obtained from three sources: A number of wholesale dealers (some of whom figured a certain amount of losses in determining markup, of which only a portion was avoidable); a few chain warehouses, where records were kept on waste and deterioration; observation and estimates of the wastes lying around facilities, information furnished by garbage collectors.

Considerable breakage losses occur at stores in the Western Market and Eastern Market areas, where merchandise is unloaded from trucks by hand onto sidewalks or hard floors. Additional breakage occurs inside the stores when merchandise is shifted from one location in a store to another. Also, many small-volume jobbers, who handle fruits and vegetables in these two markets, buy most of their supplies from the Union Produce and 12th Street Terminals in small quantities with the intent of immediate sale. This rehandling and prolonged "shelf time" when a sale is not made, together with lack of proper storage space, contributed to spoilage. Lack of coolers, or insufficient cooler space during the summer, and inadequate protection from inclement weather in the winter, also were found to cause losses.

Intermarket Transfers

Costs for intermarket transfers include charges for loading the trucks from the stores, round-trip cartage costs from the store to the chain warehouses or other dealers, and unloading to the tailgates of the trucks. Each of the separate costs that make up the total charge for this operation was described previously.

ESTIMATED MARKETING COSTS IN THE PROPOSED FOOD-DISTRIBUTION CENTER

Detailed marketing cost estimates, by commodity groups, for a proposed food-distribution center, if constructed on a site acquired by use of Urban Renewal funds, are shown in table 37. The proposed market center is assumed to have adequate facilities to handle the 2.23 billion pounds of seven food commodities, that were received by 368 independent wholesalers whose facilities were badly in need of replacement.

The total receipts of the seven food commodities of the five food-chain organizations (1,179.2 million pounds) are excluded from these cost estimates. These organizations have constructed, or are planning to construct, new, efficient warehouses of modern design, in areas where the greatest efficiencies could be obtained in handling and transporting the products to their retail stores.

TABLE 37.--Estimated annual costs of moving 2.23 billion pounds of seven food commodities through a modern wholesale food-distribution center in Detroit, if constructed on the Eastern Market site, with land acquired with Urban Renewal funds

(Items in parentheses are not included in totals since they are part of other items.)

Cost for--	Fruits and vegetables			Meat and meat products			Poultry			Dairy products and eggs		
	Volume	Average cost per cwt.	Total cost	Volume	Average cost per cwt.	Total cost	Volume	Average cost per cwt.	Total cost	Volume	Average cost per cwt.	Total cost
	Million pounds	Dollars	1,000 dollars	Million pounds	Dollars	1,000 dollars	Million pounds	Dollars	1,000 dollars	Million pounds	Dollars	1,000 dollars
Moving the products to dealers' facilities:												
Cartage from:												
Team tracks	0	0	0	0	0	0	0	0	0	0	0	0
Rail docks (piggyback)	0	0	0	0	0	0	0	0	0	0	0	0
Local slaughterers	0	0	0	102.1	0.20	204.2	0	0	0	0	0	0
Detroit processors	0	0	0	0	0	0	0	0	0	1.7	0.08	1.3
Total or average	0	0	0	102.1	0.20	204.2	0	0	0	1.7	0.08	1.3
Receipts, no cartage:[1]												
Rail cars on house tracks	535.7	0	0	100.3	0	0	0	0	0	0	0	0
Sales from team tracks	137.0	0	0	0	0	0	0	0	0	0	0	0
Trucks from shipping points	140.6	0	0	92.7	0	0	129.4	0	0	172.2	0	0
Farmers' market receipts	245.4	0	0	0	0	0	0	0	0	0	0	0
Total volume, no cartage	1,058.7	0	0	193.0	0	0	129.4	0	0	172.2	0	0
Total or average	1,058.7	0	0	295.1	0.07	204.2	129.4	0	0	173.9	([2])	1.3
Handling in the market:												
Labor:												
Unloading at the facilities	(676.3)	0.04	299.6	(295.1)	0.04	118.0	(129.4)	0.03	41.8	(173.9)	0.04	69.0
Handling within stores	(359.3)	0.05	171.0	(147.6)	0.63	929.9	(110.2)	0.08	85.0	(173.9)	0.11	184.2
Loading out to buyers' trucks	(921.7)	0.05	488.5	(295.1)	0.09	265.6	(129.4)	0.03	40.6	(173.9	0.04	72.2
Sales from team tracks (unloading rail cars)	(137.0)	0.07	95.4	0	0	0	0	0	0	0	0	0
Intramarket transfers	(115.0)	0.06	67.4	(44.2)	0.16	70.7	(8.7)	0.09	8.2	(12.2)	0.11	13.6
Equipment	(1,058.7)	([2])	36.0	0	0	0	0	0	0	(173.9)	([2])	7.1
Total or average	(1,058.7)	0.11	1,157.9	(295.1)	0.47	1,384.2	(129.4)	0.14	175.6	(173.9)	0.20	346.1
Other, in the market:												
Rental of wholesale facilities	(813.3)	0.08	692.0	(295.1)	0.68	1,997.0	(129.4)	0.08	101.0	(173.9)	0.14	252.0
Public warehouse service charges to wholesale dealers	0	0	0	(12.3)	0.65	80.0	(14.3)	1.05	150.0	(3.2)	0.77	24.7
Waste and deterioration	(1,058.7)	0.07	741.2	(295.1)	([2])	2.1	(129.4)	([2])	3.4	(173.9)	0.01	9.2
Intermarket transfers to independent wholesalers in Detroit	0	0	0	0	0	0	0	0	0	0	0	0
Total or average, other	(1,058.7)	0.13	1,433.2	(295.1)	0.71	2,079.1	(129.4)	0.20	254.4	(173.9)	0.16	285.9
Total or average, in the market	1,058.7	0.24	2,591.1	295.1	1.17	3,463.3	129.4	0.33	430.0	173.9	0.36	632.0
Moving products away from the market:												
Transporting to retail in Detroit:												
Central area	97.3	0.61	593.0	48.4	0.53	256.5	22.0	0.51	111.1	16.8	0.50	83.4
Northeastern area	352.9	0.65	2,310.4	97.4	0.57	555.2	42.4	0.55	234.0	76.3	0.55	417.9
Southwestern area	195.7	0.59	1,162.8	94.2	0.52	489.8	37.0	0.49	180.9	54.8	0.48	262.7
Total or average	645.9	0.63	4,066.2	240.0	0.54	1,301.5	101.4	0.52	526.0	147.9	0.52	764.0
Transporting to food-chain warehouses	200.2	0.18	367.0	19.9	0.17	33.8	9.7	0.14	13.2	0	0	0
Loading trucks hauling to points outside Detroit	212.6	0.09	201.5	35.2	0.08	28.2	18.3	0.03	4.6	26.0	0.02	4.5
Total or average	1,058.7	0.44	4,634.7	295.1	0.46	1,363.5	129.4	0.42	543.8	173.9	0.44	768.5
Grand total	1,058.7	0.68	7,225.8	295.1	1.70	5,031.0	129.4	0.75	973.8	173.9	0.81	1,401.8

[1] There will be no cartage costs for these receipts from the first point of arrival to the dealers' facilities, because they are the first point of arrival.
[2] Less than one-half cent.

TABLE 37.--Estimated annual costs of moving 2.23 billion pounds of seven food commodities through a modern wholesale food-distribution center in Detroit, if constructed on the Eastern Market site, with land acquired with Urban Renewal funds--Continued

(Items in parenthesis are not included in totals since they are part of other items.)

Cost for--	Frozen foods			Fish and seafood			Dry groceries			Totals		
	Volume	Average cost per cwt.	Total cost	Volume	Average cost per cwt.	Total cost	Volume	Average cost per cwt.	Total cost	Volume	Average cost per cwt.	Total cost
	Million pounds	Dollars	1,000 dollars	Million pounds	Dollars	1,000 dollars	Million pounds	Dollars	1,000 dollars	Million pounds	Dollars	1,000 dollars
Moving the products to dealers' facilities:												
Cartage from:												
Team tracks	0	0	0	5.5	0.12	6.5	0	0	0	5.5	0.12	6.5
Rail docks (piggyback)	0	0	0	0	0	0	17.4	0.14	24.2	17.4	0.14	24.2
Local slaughterers	0	0	0	0	0	0	0	0	0	102.1	0.20	204.2
Detroit processors	0.4	0.15	0.6	0	0	0	3.0	0.12	3.6	5.1	0.11	5.5
Total or average	0.4	0.15	0.6	5.5	0.12	6.5	20.4	0.14	27.8	130.1	0.18	240.4
Receipts, no cartage:[1]												
Rail cars on house tracks	57.8	0	0	0	0	0	176.4	0	0	870.2	0	0
Sales from team tracks	0	0	0	0	0	0	0	0	0	137.0	0	0
Trucks from shipping points	87.2	0	0	60.6	0	0	161.6	0	0	844.3	0	0
Farmers' market receipts	0	0	0	0	0	0	0	0	0	245.4	0	0
Total volume, no cartage	145.0	0	0	60.6	0	0	338.0	0	0	2,096.9	0	0
Total or average	145.4	([2])	0.6	66.1	([2])	6.5	358.4	([2])	27.8	2,227.0	0.01	250.4
Handlings in the market:												
Labor:												
Unloading at the facilities	(145.4)	0.01	14.7	(66.1)	0.03	21.4	(358.4)	0.04	129.7	(1,844.6)	0.04	694.2
Handling within stores	(130.9)	0.20	267.6	(56.1)	0.31	171.3	(257.6)	0.16	409.8	(1,235.7)	0.18	2,218.8
Loading out to buyers' trucks	(145.4)	0.04	58.7	(66.1)	0.08	53.9	(358.4)	0.04	151.6	(2,090.0)	0.05	1,131.1
Sales from team trucks (unloading rail cars)	0	0	0	0	0	0	0	0	0	(137.0)	0.07	95.4
Intramarket transfers	(3.3)	0.07	2.3	(3.7)	0.14	5.3	(18.4)	0.11	20.0	(205.5)	0.09	187.5
Equipment	(145.4)	0.03	38.1	(66.1)	([2])	3.0	(358.4)	0.01	43.0	(1,802.5)	0.01	127.2
Total or average	(145.4)	0.26	381.4	(66.1)	0.39	254.9	(358.4)	0.21	754.1	(2,227.0)	0.20	4,454.2
Other, in the market:												
Rental of wholesale facilities	(145.4)	0.24	343.0	(66.1)	0.25	166.0	(358.4)	0.29	1,045.0	(1,981.6)	0.23	4,596.0
Public warehouse service charges to wholesale dealers	(14.5)	0.82	119.1	(4.4)	0.57	25.0	0	0	0	(48.7)	0.82	398.8
Waste and deterioration	(145.4)	([2])	1.5	(66.1)	([2])	2.1	(358.4)	([2])	17.5	(2,227.0)	0.03	777.0
Intermarket transfers to independent wholesalers in Detroit	0	0	0	0	0	0	(17.9)	0.15	26.8	(17.9)	0.15	26.8
Total or average, other	(145.4)	0.32	463.6	(66.1)	9.29	193.1	(358.4)	0.30	1,089.3	(2,227.0)	0.26	5,798.6
Total or average, in the market	145.4	0.58	845.0	66.1	0.68	448.0	358.4	0.51	1,843.4	2,227.0	0.46	10,252.8
Moving the products away from the market:												
Transporting to retail in Detroit:												
Central area	12.7	0.73	93.1	7.1	1.11	78.7	50.9	0.31	155.4	255.2	0.54	1,371.2
Northeastern area	58.1	0.78	452.3	20.7	1.20	248.9	126.5	0.34	425.5	774.3	0.60	4,644.2
Southwestern area	33.8	0.72	242.3	8.0	1.08	86.1	72.8	0.29	214.5	496.3	0.54	2,639.1
Total or average	104.6	0.75	787.7	35.8	1.16	413.7	250.2	0.32	795.4	1,525.8	0.57	8,654.5
Transporting to food-chain warehouses	5.7	0.16	9.4	0	0	0	20.2	0.12	24.5	255.7	0.18	447.9
Loading trucks hauling to points outside Detroit	35.1	0.04	13.0	30.3	0.03	10.3	88.0	0.01	10.5	445.5	0.06	272.6
Total or average	145.4	0.56	810.1	66.1	0.64	424.0	358.4	0.23	830.4	2,227.0	0.42	9,375.0
Grand total	145.4	1.14	1,655.7	66.1	1.33	878.5	358.4	0.75	2,701.6	2,227.0	0.89	19,868.2

Also excluded from these estimated costs are the receipts (1,094.7 million pounds) of 28 of the 76 independent grocery wholesalers. These dealers had adequate and efficient facilities, or conducted a retail business in connection with their wholesale operations. It was determined that they would not benefit by moving to a new market.

The plans do not include facilities for the 36 slaughterers of livestock, who produced 343.2 million pounds of meat. However, 102.1 million pounds of this meat was transferred to independent meat wholesalers, and is included in the total volume of wholesale food products in computing the costs of moving the products through the proposed center.

For comparison, table 38 is included to show the costs and the volume handled in each marketing operation studied, for each of the seven commodity groups.

The total volume of each food product received by the chain warehouses, together with the volume and the cost of each handling operation, was obtained at the time of the survey. These costs, and the amount of each product involved, were deducted from the volumes (4.74 billion pounds) and costs ($40,918,000) of all food commodities that moved through the wholesale markets (table 36). Similarly, the 1.09 billion pounds of groceries and the 241.1 million pounds of meat were excluded, in order to obtain the costs and the volume handled as shown in table 38.

The estimated cartage, handling, and other costs per unit for each of the commodity groups, if handled through a new center, were computed from a composite of costs, adjusted to Detroit rates.

Cost data were collected from 93 modern facilities of wholesalers in 22 cities, including facilities in 9 modern terminal markets. These facilities were chosen for study because they closely resemble the types of facilities proposed for a new wholesale market center in Detroit.

In addition to the modern and efficient facilities chosen for this study, dealers were chosen who were considered to be efficient operators, and who reflected different sizes of operation and types of services performed.

For each of the cities studied, the various marketing costs (unloading, handling within the stores, and loading out) were adjusted for differences in wage rates to arrive at estimated comparable costs for Detroit.

Cartage Costs

The costs per unit for carting products from team tracks and local processors to the new market would not change from the observed rates. However, the total tonnage so moved would be reduced from 336.4 million pounds to 130.1 million pounds. With house tracks provided for facilities that receive rail-car shipments, cartage from team tracks is eliminated. It is assumed that some fish and seafood will continue to arrive at team tracks in Windsor, Ontario, and be carted to stores in Detroit.

Small amounts of meats, dairy products, frozen foods, and groceries were carted from local processors and slaughterers, and rail docks (piggyback) during the study. It is assumed that this operation will continue, and that the volumes and costs of these operations will not change.

Avoidable Delay

Costs of avoidable delay, caused by traffic congestion in the market, would be eliminated in a modern food-distribution center, by providing wide streets and ample parking areas.

TABLE 38.--Estimated annual costs of moving 2.23 billion pounds of seven food commodities from first point of arrival through wholesale facilities in the market areas of Detroit (excluding receipts by food-chain warehouses, 1,094.7 million pounds of groceries received by independent wholesalers and 241.1 million pounds of meat slaughtered locally)

(Items in parentheses are not included in totals, because they are part of other items)

Costs for--	Fruits and vegetables			Meat and meat products			Poultry			Dairy products and eggs		
	Volume	Average cost per cwt.	Total cost	Volume	Average cost per cwt.	Total cost	Volume	Average cost per cwt.	Total cost	Volume	Average cost per cwt.	Total cost
	Million pounds	Dollars	1,000 dollars	Million pounds	Dollars	1,000 dollars	Million pounds	Dollars	1,000 dollars	Million pounds	Dollars	1,000 dollars
Moving products to dealers' facilities:												
Cartage from:												
Team tracks	170.7	0.11	190.1	17.4	0.16	27.2	0	0	0	2.9	0.08	2.3
Rail docks (piggyback)	0	0	0	0	0	0	0	0	0	0	0	0
Local slaughterers	0	0	0	102.1	0.20	204.2	0	0	0	0	0	0
Detroit processors	0	0	0	0	0	0	0	0	0	1.7	0.08	1.3
Total or average	170.7	0.11	190.1	119.5	0.19	231.4	0	0	0	4.6	0.08	3.6
Avoidable delay to inbound trucks[1]	0	0	0	(56.5)	0.09	52.5	(84.1)	0.02	20.8	(169.0)	0.01	12.1
Total or average cartage and delay	170.7	0.11	190.1	119.5	0.24	283.9	(84.1)	0.02	20.8	4.6	0.34	15.7
Receipts with no cartage:[2]												
Rail cars on house tracks	335.1	0	0	82.9	0	0	3.6	0	0	0.3	0	0
Sales from team tracks	200.8	0	0	0	0	0	0	0	0	0	0	0
Trucks from shipping points	106.7	0	0	92.7	0	0	125.8	0	0	169.0	0	0
Farmers' market receipts	245.4	0	0	0	0	0	0	0	0	0	0	0
Total volume, no cartage	880.0	0	0	175.6	0	0	129.4	0	0	169.3	0	0
Total or average	1,058.7	0.02	190.1	295.1	0.10	283.9	129.4	0.02	20.8	173.9	0.01	15.7
Handling in the market:												
Labor cost:												
Unloading at the facilities	(768.7)	0.06	485.9	(312.6)	0.04	125.0	(132.2)	0.11	152.0	(196.9)	0.04	87.9
Handling within stores	(405.5)	0.07	267.0	(147.6)	0.95	1,403.4	(110.2)	0.13	138.8	(187.4	0.19	361.8
Loading out to buyers trucks	(1,014.1)	0.07	716.0	(312.6)	0.10	312.6	(132.2)	0.05	67.2	(196.9)	0.07	141.6
Sales from team tracks (unloading rail cars)	(200.8)	0.07	139.7	0	0	0	0	0	0	0	0	0
Intramarket transfers	(73.7)	0.08	59.4	(53.7)	0.19	99.9	(6.0)	0.15	9.2	(1.4)	0.23	3.2
Equipment	(87.1)	([3])	1.6	0	0	0	0	0	0	(173.9)	([3])	0.6
Total or average	(1,058.7)	0.16	1,669.6	(295.1)	0.66	1,940.9	(129.4)	0.28	367.2	(173.9)	0.34	595.1
Other, in the market:												
Rentals:												
Wholesale facilities	(446.8)	0.07	314.2	(295.1)	0.24	706.8	(129.4)	0.09	115.9	(173.9)	0.08	147.4
Detroit Union Produce Terminal charges	(611.9)	0.02	104.3	0	0	0	0	0	0	0	0	0
Produce Terminal costs absorbed by railroads	(611.9)	0.03	195.0	0	0	0	0	0	0	0	0	0
Total rentals and rental equivalent	(1,058.7)	0.06	613.5	(295.1)	0.24	706.8	(129.4)	0.09	115.9	(173.9)	0.08	147.4
Public warehouse charges	0	0	0	(38.1)	0.65	247.6	(29.5)	1.05	308.7	(10.9)	0.77	84.1
Demurrage	(563.7)	0.01	47.2	0	0	0	0	0	0	0	0	0
Waste and deterioration	(1,058.7)	0.16	1,644.8	(295.1)	([3])	21.4	(129.4)	0.01	10.1	(173.9)	0.01	9.3
Intermarket transfers to independent wholesalers in Detroit	(156.2)	0.25	385.6	(17.5)	0.20	35.0	(2.8)	0.17	4.7	(23.0)	0.21	48.0
Total or average, other	(1,058.7)	0.25	2,691.1	(295.1)	0.34	1,010.8	(129.4)	0.34	439.4	(173.9)	0.17	288.8
Total or average, in the market	1,058.7	0.41	4,360.7	295.1	1.00	2,951.7	129.4	0.62	806.6	173.9	0.51	883.9
Moving the products away from the market:												
Transporting to retail in Detroit:												
Central area	97.3	0.60	586.0	48.4	0.63	304.9	22.0	0.67	147.9	16.8	0.51	85.7
Northeastern area	352.9	0.68	2,407.6	97.4	0.67	652.6	42.4	0.70	296.6	76.3	0.55	422.8
Southwestern area	195.7	0.62	1,214.5	94.2	0.63	593.5	37.0	0.71	263.6	54.8	0.53	291.2
Total or average	645.9	0.65	4,208.1	240.0	0.65	1,551.0	101.4	0.70	708.1	147.9	0.54	799.7
Transporting to food-chain warehouses	200.2	0.21	417.0	19.9	0.21	41.8	9.7	0.21	20.8	0	0	0
Loading trucks hauling to points outside Detroit	212.6	0.12	264.4	35.2	0.09	31.7	18.3	0.04	7.3	26.0	0.03	8.1
Total or average	1,058.7	0.46	4,889.5	295.1	0.55	1,624.5	129.4	0.57	736.2	173.9	0.46	807.8
Avoidable delay to outbound trucks	(946.5)	0.01	(79.0)	(120.2)	0.03	(36.0)	(86.0)	0.02	(17.7)	(104.2)	0.01	(7.0)
Grand total	1,058.7	0.89	9,440.3	295.1	1.65	4,860.1	129.4	1.21	1,563.6	173.9	0.98	1,707.4

[1] Applies to trucks from shipping areas that unloaded at the Eastern Farmers' Market area and certain other wholesale facilities in the central area.
[2] There were no cartage costs incurred for these receipts from the first point of arrival to the wholesale facilities, since they were the first point of arrival.
[3] Less than one-half cent.

TABLE 38.--Estimated annual costs of moving 2.23 billion pounds of seven food commodities from first point of arrival through wholesale facilities in the market areas of Detroit (excluding receipts by food-chain warehouses, 1,094.7 million pounds of groceries received by independent wholesalers and 241.1 million pounds of meat slaughtered locally)

(Items in parentheses are not included in totals, because they are part of other items)

Cost for--	Frozen foods			Fish and seafood			Groceries			Totals		
	Volume	Average cost per cwt.	Total cost	Volume	Average cost per cwt.	Total cost	Volume	Average cost per cwt.	Total cost	Volume	Average cost per cwt.	Total cost
	Million pounds	Dollars	1,000 dollars	Million pounds	Dollars	1,000 dollars	Million pounds	Dollars	1,000 dollars	Million pounds	Dollars	1,000 dollars
Moving products to dealers' facilities:												
Cartage from:												
Team tracks	7.8	0.14	10.9	7.0	0.11	7.7	6.0	0.13	7.7	211.8	0.12	245.9
Rail docks (piggyback)	0	0	0	0	0	0	17.4	0.14	24.2	17.4	0.14	24.2
Local slaughterers	0	0	0	0	0	0	0	0	0	102.1	0.20	204.2
Detroit processors	0.4	0.15	0.6	0	0	0	3.0	0.12	3.6	5.1	0.11	5.5
Total or average	8.2	0.14	11.5	7.0	0.11	7.7	26.4	0.13	35.5	336.4	0.14	479.8
Avoidable delay to inbound trucks[1]	(87.2)	0.02	21.1	(40.7)	0.02	7.7	(36.8)	0.03	9.8	(474.3)	0.03	124.0
Total or average cartage and delay	8.2	0.40	32.6	7.0	0.22	15.4	26.4	0.17	45.3	336.4	0.18	603.8
Receipts with no cartage:[2]												
Rail cars on house tracks	50.0	0	0	2.8	0	0	170.4	0	0	645.1	0	0
Sales from team tracks	0	0	0	0	0	0	0	0	0	200.8	0	0
Trucks from shipping points	87.2	0	0	56.3	0	0	161.6	0	0	799.3	0	0
Farmers' market receipts	0	0	0	0	0	0	0	0	0	245.4	0	0
Total volume, no cartage	137.2	0	0	59.1	0	0	332.0	0	0	1,890.6	0	0
Total or average	145.4	0.02	32.6	66.1	0.02	15.4	358.4	0.01	45.3	2,227.0	0.03	603.8
Handling in the market:												
Labor:												
Unloading at the facilities	(145.4)	0.02	23.3	(71.1)	0.06	41.7	(387.8)	0.06	228.1	(2,014.7)	0.06	1,143.9
Handling within stores	(23.3)	0.23	53.9	(56.1)	0.56	315.8	(257.7)	0.22	562.4	(1,198.8)	0.26	3,103.1
Loading out to buyers trucks	(145.4)	0.05	66.9	(71.1)	0.10	71.5	(387.8)	0.12	465.5	(2,260.1)	0.08	1,841.3
Sales from team tracks (unloading rail cars)	0	0	0	0	0	0	0	0	0	(200.8)	0.07	139.7
Intramarket transfers	(6.6)	0.29	18.9	(2.4)	0.40	9.7	(7.1)	0.35	24.5	(150.9)	0.15	224.8
Equipment	(145.4)	0.02	22.8	0	0	0	(358.4)	([3])	12.6	(764.8)	([3])	37.6
Total or average	(145.4)	0.13	185.8	(66.1)	0.66	438.7	(358.4)	0.36	1,293.1	(2,227.0)	0.29	6,490.4
Other, in the market:												
Rentals:												
Wholesale facilities	(145.4)	0.03	47.7	(66.1)	0.15	98.7	(358.4)	0.05	193.4	(1,615.1)	0.10	1,624.1
Detroit Union Produce Terminal charges	0	0	0	0	0	0	0	0	0	(611.9)	0.02	104.3
Produce Terminal costs absorbed by railroads	0	0	0	0	0	0	0	0	0	(611.9)	0.03	195.0
Total rentals and rental equivalent	(145.4)	0.03	47.7	(66.1)	0.15	98.7	(358.4)	0.05	193.4	(2,227.0)	0.09	1,923.4
Public warehouse charges	(128.8)	0.82	1,057.6	(17.4)	0.57	99.9	(137.2)	0.37	513.1	(361.9)	0.64	2,311.0
Demurrage	0	0	0	0	0	0	(77.1)	([3])	1.7	(640.8)	0.01	48.9
Waste and deterioration	(145.4)	([3])	1.5	(66.1)	([3])	2.1	(358.4)	([3])	17.5	(2,227.0)	0.08	1,706.7
Intermarket transfers to independent wholesalers in Detroit	0	0	0	(5.0)	0.24	11.8	(29.4)	0.15	44.8	(233.9)	0.23	529.9
Total or average, other	(145.4)	0.76	1,106.8	(66.1)	0.32	212.5	(358.4)	0.21	770.5	(2,227.0)	0.29	6,519.9
Total or average, in the market	145.4	0.89	1,292.6	66.1	0.99	651.2	358.4	0.58	2,063.6	2,227.0	0.58	13,010.3
Moving the products away from the market:												
Transporting to retail in Detroit:												
Central area	12.7	0.73	92.1	7.1	1.15	81.9	50.9	0.33	169.6	255.2	0.58	1,468.1
Northeastern area	58.1	0.77	447.2	20.7	1.26	261.8	126.5	0.35	441.6	774.3	0.64	4,930.2
Southwestern area	33.8	0.80	268.8	8.0	1.26	100.4	72.8	0.33	240.4	496.3	0.60	2,972.4
Total or average	104.6	0.77	808.1	35.8	1.24	444.1	250.2	0.34	851.6	1,525.8	0.61	9,370.7
Transporting to food-chain warehouses	5.7	0.22	12.4	0	0	0	20.2	0.15	31.1	255.7	0.20	523.1
Loading trucks hauling to points outside Detroit	35.1	0.04	15.2	30.3	0.04	12.7	88.0	0.04	30.8	445.5	0.08	370.2
Total or average	145.4	0.57	835.7	66.1	0.69	456.8	358.4	0.25	913.5	2,227.0	0.46	10,264.0
Avoidable delay to outbound trucks	0	0	0	(52.2)	0.05	(26.1)	(12.7)	0.03	(3.5)	(1,321.8)	0.01	(169.3)
Grand total	145.4	1.49	2,160.9	66.1	1.70	1,123.4	358.4	0.84	3,022.4	2,227.0	1.07	23,878.1

[1] Applies to trucks from shipping areas that unloaded at the Eastern Farmers' Market area and certain other wholesale facilities in the central area.
[2] There were no cartage costs incurred for these receipts from the first point of arrival to the wholesale facilities, since they were the first point of arrival.
[3] Less than one-half cent.

Rail and Truck Receipts

The amount of commodities that would arrive on house tracks in a new wholesale market would be greater than the present volume. This increase is due largely to the decrease in team-track receipts. A small increase in truck receipts of fruits and vegetables is anticipated, since there would be no discrimination against any type of transportation bringing the products to the market.

No house tracks are recommended for the new facilities handling poultry, dairy products and eggs, and fish and seafood. Receipts by rail of these products was relatively small, and is tending to decrease more each year. This decrease is being offset by an increase in truck receipts. Any rail receipts of these commodities could arrive at the team tracks. It is assumed that certain quantities of fruits and vegetables will continue to be sold from team tracks. This is a common practice in many modern fruit and vegetable wholesale markets.

The costs for unloading into the dealers' stores, internal handling, and loading out to trucks were based on information obtained from operation of modern facilities in other cities as described previously. The internal arrangement of the recommended facilities, together with the truckbed and rail-car-floor-height platforms, and use of handling equipment would reduce these handling costs substantially.

In the case of fruits and vegetables, the amount unloaded into the stores includes the receipts by rail car on house tracks (535.7 million pounds) and trucks from shipping points (140.6 million pounds). The receipts at the farmers' market and sales from team tracks are excluded.

For each of the other food commodities, all receipts are unloaded into the dealers' stores.

The amount of the various food commodities that are handled within the stores varies, depending on the commodity. In many instances, a carlot, or truckload, is stacked in the store or on the front platform, and loaded onto the buyers' trucks without requiring sorting or restacking. Only those quantities that are restacked, sorted, repacked, moved into and out of cooler rooms and ripening rooms, or similarly handled within the stores carry the handling cost.

The amount of fruits and vegetables that is loaded out to trucks includes the total receipts (including farmers' market receipts), less the amount sold from team tracks. For all other commodities, this item includes the total receipts.

The cost per hundredweight of loading trucks from rail cars on team tracks would remain the same, but the tonnage so handled is expected to be less.

In the new facilities, the handlers of the various food commodities would tend to sell a greater amount of their products to out-of-market buyers, and less to jobbers and other buyers in the market. The amount of each commodity sold from one handler to another in the market would vary, depending upon the particular food commodity. For meats, the quantity would be proportionally greater than for other food items, because the hotel and restaurant suppliers, and meat processors depend upon the wholesalers for a large amount of their supplies. Some of the fruit and vegetable repackers and speciality handlers also depend upon the large-volume receivers for a part of their supplies. In other food lines, the transfers between dealers are confined largely to off-season shortage of supplies and other emergency needs to fill customer orders.

The per-unit cost of these intramarket transfers would be reduced, since the loading and unloading costs would be less in the new facilities and avoidable delay would be eliminated.

The charge for use of handling equipment is based upon the cost of such equipment, its expected life, and its maintenance cost. It is assumed that, in a modern market, the wholesale handlers of the food commodities would use more handling equipment that they do in their present facilities, so total cost for this item is expected to be greater than that previously incurred.

Other Costs in the Market Area

The total annual rent for each food commodity is based upon the total amount of revenue required to amortize the investment cost of land and facilities, and to pay real estate taxes and operating expenses for a wholesale food-distribution center located on a site acquired with the use of Urban Renewal funds. These rental charges would be greater than those in the present outmoded and inefficient facilities.

The costs for public warehouse charges in a modern distribution center are based upon the rates that were in effect during the time of the study. In modern facilities, the wholesale handlers of the various food commodities would have adequate space to handle their products for a day-to-day operation. There would be a need to rent public warehouse space to store reserve stocks, and to hold some items during periods of oversupply.

With adequate handling space in modern facilities, it is assumed that no demurrage charges would be incurred in a new food-distribution center.

The costs for waste and deterioration are computed from information obtained from wholesale handlers in modern facilities in other cities. It was found that even with efficient handling equipment and adequate storage and cooler space, there is a certain amount of breakage and spoilage.

The average cost of transporting the products from the proposed center to retail outlets and to chain warehouses is based upon the costs of this operation in the present market areas. It is assumed that the use of more efficient facilities with platforms level with truckbeds and the elimination of traffic congestion would reduce the cost of loading trucks.

The distance and running time from any of the three sites considered to the central points of distribution in Detroit and return were used to compute the transporting costs described previously. The differences in transportation costs to retail and other outlets in Detroit from the Union Produce Terminal site, the Eastern Market site, and the Central Avenue site were so small that they were considered negligible. The cost for unloading at retail stores and other destinations in Detroit will not change if a new market area is developed. The combined average costs for loading, transporting, and unloading make up the average cost of cartage from the proposed market center.

The cost for loading trucks that haul the products out of Detroit would be reduced, since the loading-out operations would be less costly with truckbed-high platforms and the utilization of handling equipment.

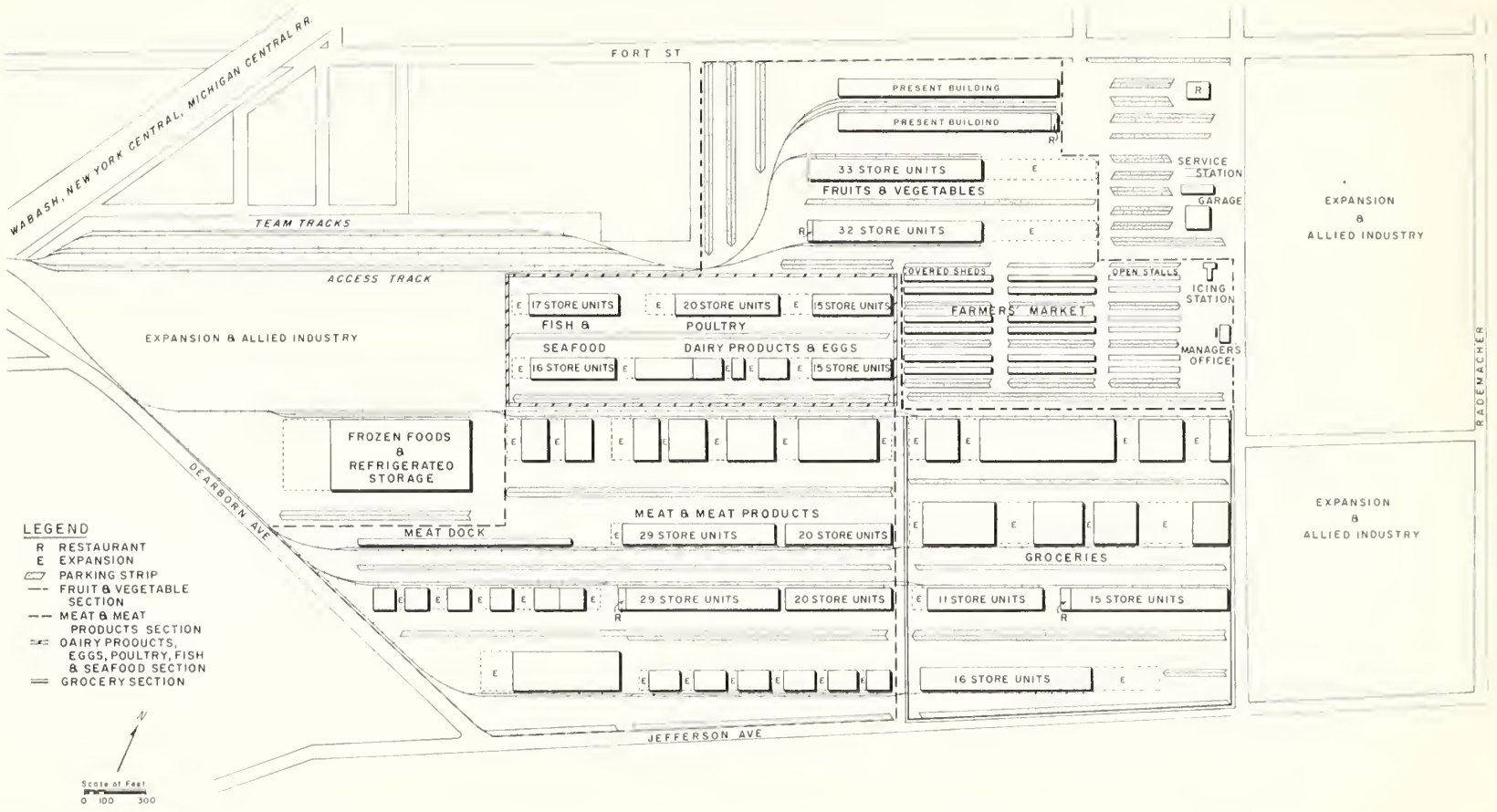

Figure 39.--A layout of facilities for a wholesale food-distribution center on the Produce Terminal site.

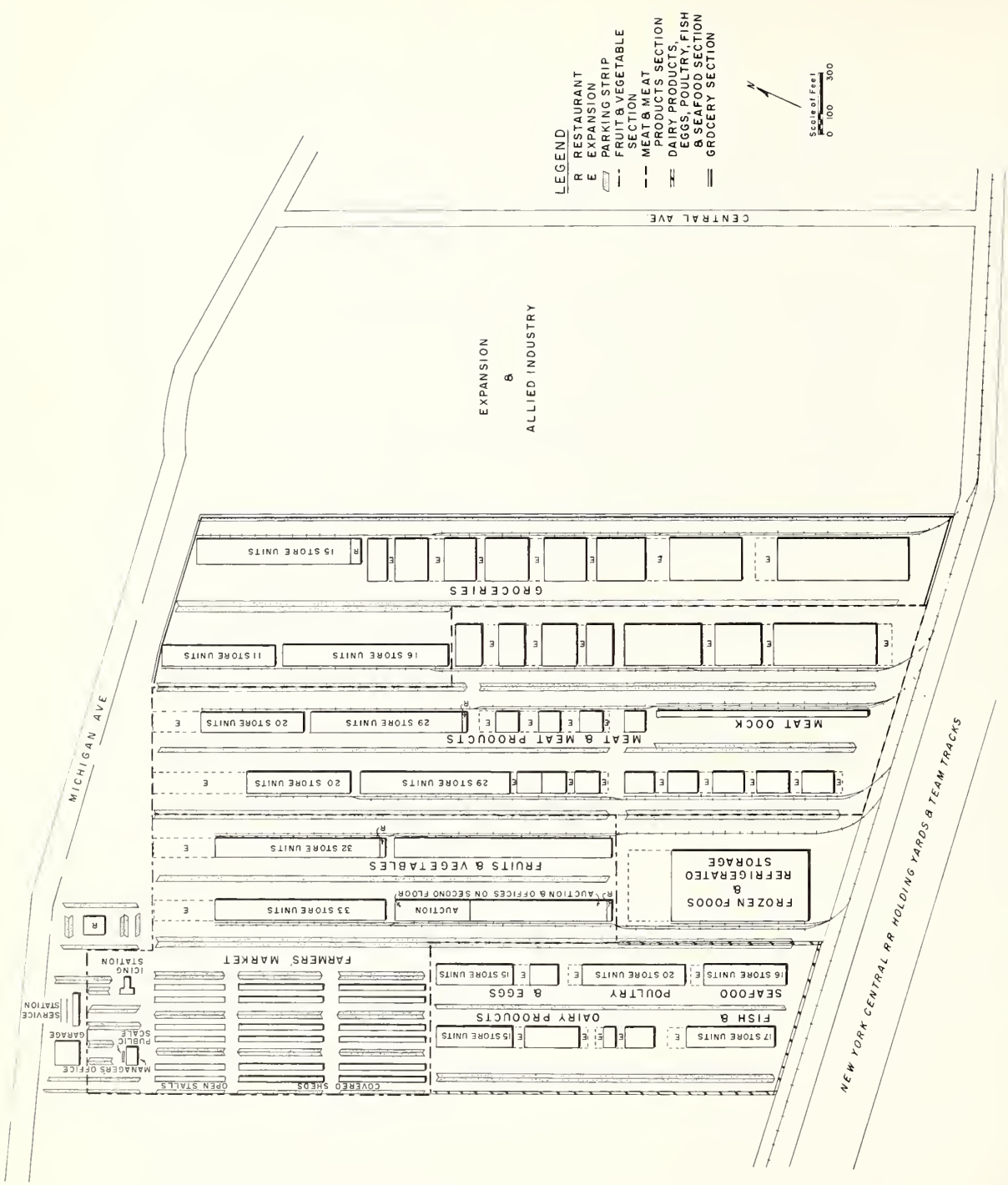

Figure 40.--A layout of facilities for a wholesale food-distribution center located on the Central Avenue site.

The marketing research in this report is part of a broad continuing program of USDA's Agricultural Marketing Service to bring marketing Services to farmers, industry, and consumers. The seal shown below is the symbol of the 50th year of organized marketing service. In 1913, the first marketing agency, the Office of Markets, was established in the U.S. Department of Agriculture. It was the predecessor of the Agricultural Marketing Service.

This report adds to a group that has helped to improve the marketing of foods in cities. The research in this study shows how marketing facilities may be made more efficient, how foods may move through such facilities more efficiently, how to reduce waste and deterioration, how food dealers can improve their operations, and how consumers can get better products at reasonable prices.

Research to improve wholesale facilities is now being carried on in a half-dozen such major cities as Boston, New York, Chicago, Pittsburgh, and San Juan, P. R. Altogether, plans have been developed for improved wholesale food marketing facilities in more than 50 cities. The more than 30 of these facilities that have been built as a result of this research are bringing annual savings in food handling costs of many millions of dollars, which are shared with consumers and producers.

An important part of the background of such research is AMS cooperation with city and State government agencies, local planning agencies and trade groups. In many cases, it has been possible and profitable to relocate scattered wholesale stores into one center as a part of urban renewal programs. Thus, AMS research benefits a very large segment of the American economy.

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