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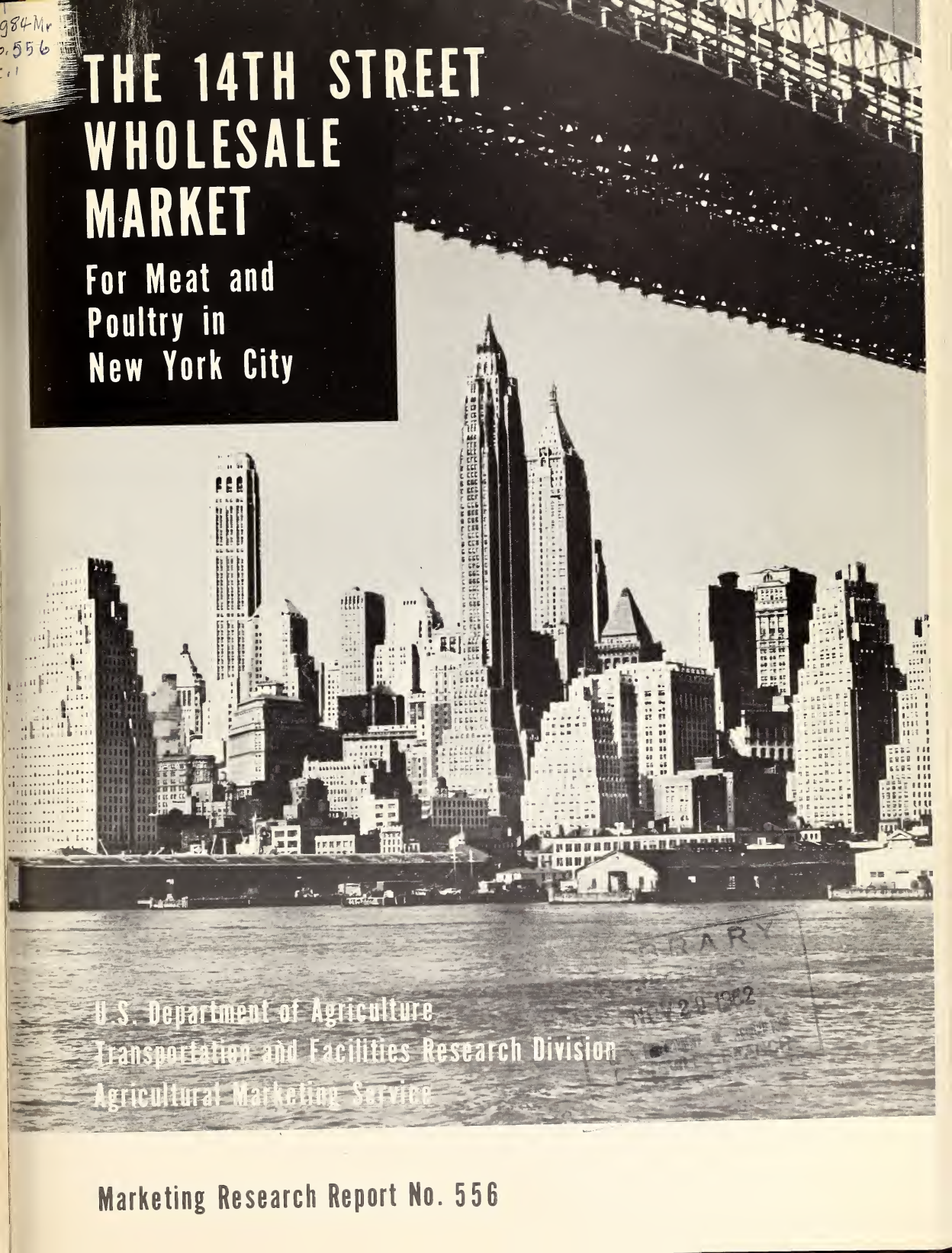
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THE 14TH STREET WHOLESALE MARKET

For Meat and
Poultry in
New York City



U. S. Department of Agriculture
Transportation and Facilities Research Division
Agricultural Marketing Service

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Marketing Research Report No. 556

Preface

This is the second report on studies being made by the Agricultural Marketing Service, U.S. Department of Agriculture, of wholesale marketing facilities for food in the nation's largest metropolitan area, the New York City area. The purpose of the studies is to improve efficiency in getting food from farmers to consumers.

The first report presented plans for facilities for handling fresh fruits and vegetables. These facilities are now under construction. This report deals with meat and poultry, and the third is to deal with butter, margarine, eggs, and cheese.

The U.S. Department of Agriculture plans to continue to assist the market sponsors, transportation agencies, food wholesalers, architects, engineers, and financial institutions to bring about the construction and successful operation of new marketing facilities. It is hoped that, through this work, foods moving through this market may be handled more efficiently than heretofore, that waste and deterioration will be reduced, that food dealers can improve their operations, and that consumers may obtain better products at fair prices.

Acknowledgments

The authors express appreciation to the many firms and individuals who furnished data used in this report.

Anthony Masciarelli, former city Commissioner of Markets, Albert S. Pacetta, present Commissioner, Abraham Frank, Director of Wholesale Markets, and members of the Inspecting Staff, New York City Department of Markets, assisted in organizing various aspects of the study and obtaining information from many sources.

Special appreciation is expressed to leaders in the industry and members of the organizations of operators in the market for their consultation and guidance on many phases of the study; to the merchants in the market for their assistance in furnishing much of the information included in this report; to Leonard S. Wegman Co., Barnett and Herenchak, consulting engineers, and Skidmore, Owens, and Merrill, architects-engineers, for supplying engineering and other technical data on design,

layout, and construction of facilities proposed in the report; and to railroad and truck companies associated with the market.

The Meat Inspection Division of the Agricultural Research Service and the Livestock Division of the Agricultural Marketing Service, U.S. Department of Agriculture, also assisted in the study.

The work was conducted under the general supervision of William C. Crow, Director, Transportation and Facilities Research Division, Agricultural Marketing Service. In addition to the authors, Kenneth L. Utter and Earl G. Taylor provided special assistance during the study. A. B. Lowstuter assisted substantially on the design and architectural features. He and Mrs. Catharine A. Perry prepared the layouts of facilities and illustrations in this report.

WASHINGTON, D.C.

November 1962

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Summary

Construction of a new wholesale market at Hunts Point or Jersey Meadows for meat and poultry to serve the New York City metropolitan area would save an estimated \$12 million annually in the cost of marketing these foods, this study indicates. Rentals required to finance and operate the market at either of these two sites would be about the same as the operators are paying for the facilities in the present market.

Reconstruction of the market at the present site would save about \$6.5 million a year, but rents for the wholesale stores and some other costs would be higher than at the other two sites, and other serious marketing problems would remain unsolved.

Detailed studies of the 14th Street wholesale market for meats and poultry in 1961 showed that facilities for handling the foods are inadequate, traffic congestion causes costly delays in moving the products into and out of the market area, working conditions are poor, and other serious problems hamper efficient operation. Lack of space for reconstruction and expansion at the present site, plus the high cost of such improvements, make it doubtful that the present market could be put into efficient condition.

In this study, three alternative plans for improvement were developed: (1) Construction of a new market at Hunts Point, adjacent to New York City's new wholesale fruit and vegetable market, now being developed; (2) construction of a new market at Jersey Meadows in New Jersey on the outskirts of New York City; and (3) reconstruction of the 14th Street market at its present site.

Total cost of construction of a new market at either Hunts Point or Jersey Meadows was estimated at \$24.9 million, and of reconstruction at the present site at \$65.1 million. At the first two locations, the market would have 80 acres, including room for expansion. At the present site, only 60 acres would be available, leaving no room for expansion later.

Considering the lack of space at the present market site, the old and inefficient facilities, the lack of good railway tracks and service at the stores, and other difficulties, the only satisfactory solution to this marketing problem is to build completely new facilities. These should be of a design and arrangement that will not only meet present needs but will anticipate the needs in future years.

Plans to build a new market should include: (1) 194 multiple-occupancy units 25 feet wide and 100 feet deep, including platforms 14 feet deep,

each with a second floor 25 feet wide and 72 feet deep; (2) two single-occupancy units, one 150 x 200 feet and the other 150 x 250 feet overall; (3) two restaurants and at least two public welfare facilities; (4) railroad house tracks to accommodate at least 200 cars; (5) paved streets at least 200 feet wide where buildings face each other, with parking for 1,000 cars and station wagons and 200 trucks in addition to the space at building platforms; (6) space for expansion to permit the construction of additional facilities as needed; and (7) a fence and gates to enclose the market area.

For the facilities proposed, a site of at least 80 acres would be required for the buildings, parking, streets, rail facilities, and expansion.

The proposed market may be financed and operated in any of several ways, depending primarily upon the site. A private corporation could finance and operate the market at any site. At a New York site, the market could be financed and operated by a State Regional Market Authority or by the city of New York. At a New Jersey site, the market could be financed and operated by the New Jersey Public Market Commission. Each method has its advantages and disadvantages.

The annual revenue required to finance and operate the proposed market, using the most economical method developed for each site, is \$5.6 million at the present market, \$2.2 million at Hunts Point, and \$2.1 million at Jersey Meadows. The average rentals required to finance and operate the market, based on the total square feet of first-floor, second-floor, and platform space proposed, are \$6.29 per square foot at the present market site, \$2.40 at Hunts Point, and \$2.36 at Jersey Meadows. Other methods of financing and operation evaluated at all sites are more costly.

The present cost of handling meat is estimated at \$41.53 per ton. This could be reduced to an estimated \$25.66 at Hunts Point, \$26.09 at Jersey Meadows, and \$33.30 at the present market area. The present cost of handling poultry is estimated at \$21.05 per ton. This could be reduced to \$12.63 at Hunts Point, \$12.99 at Jersey Meadows, and \$14.12 at the present market area.

Producers, consumers, market employees, operators, buyers, transportation agencies, and the city would all share in both the measurable and nonmeasurable benefits arising from an improved market. The savings or reductions in costs would be reflected all the way through the marketing channels for meat and poultry, from the producer to consumer.

The 14th Street Wholesale Market for Meat and Poultry in New York City

By ROBERT L. HOLLAND, *agricultural marketing specialist*, and DONALD A. BOWERS, *industrial engineer, Transportation and Facilities Research Division, Agricultural Marketing Service*

Wholesale marketing facilities for meat and poultry that were designed for volumes and types of products of many years ago are definitely inadequate for today's needs. This is true in one of the world's great wholesale meat markets, the 14th Street wholesale market in New York City, the primary subject of this report.¹

Far-reaching changes have occurred in marketing of meat and poultry in the wholesale markets of the city and more are to come. The present market, on the lower west side of Manhattan, was built many decades ago. Many of the facilities still in use were built long before modern motor transportation was available, and many were built for other uses. As consumption of meat and poultry increased, many old facilities were diverted to use by wholesalers, by processors, and by purveyors who sell meat and poultry products to hotels, restaurants, clubs, and other institutions.²

Improvements in both the quality and quantity of services, and in the suitability and adequacy of facilities for handling fresh meat and poultry, are necessary to meet present competitive conditions. Increasing incomes and population, which lead to both higher per capita consumption and greater total consumption of meat, require improvements in handling meat and poultry in the New York market.

There are three major wholesale meat markets in New York City, the 14th Street wholesale market in Manhattan, the Brook Avenue market in the Bronx, and the Fort Greene market in Brooklyn. Minor wholesale and combination wholesale-and-retail meat markets, as well as individual operators wholesaling, processing, and purveying meat and poultry, are located throughout the city, but not in a concentration equal to that in the three major markets named.

This report deals with only one of these three markets, the 14th Street wholesale market.

The study was begun in late 1960 at the request of the Commissioner of Markets of New York City, the Mayor's Market Advisory Committee, the Marketmen's Association of Lower Manhattan,

and members of the industry. It is part of a broad program of the Agricultural Marketing Service aimed at improving the marketing facilities used in moving agricultural commodities from producer to consumer.

The major phases of this study were:

1. To analyze and evaluate the present marketing facilities for meat and poultry in the 14th Street wholesale market.
2. To estimate the major costs of handling these products under present conditions.
3. To determine kinds and amounts of facilities needed for efficient wholesale marketing of these products in New York City.
4. To estimate the costs of construction and the income required for new marketing facilities, in existing and in new locations, in the New York City metropolitan area.
5. To outline the benefits that might be derived from improved and efficient handling facilities.

Poultry is included in the study because some operators dealing in poultry are located in the market area being studied, and because of the similarity between the meat and poultry operations. Fruit and vegetable markets were discussed in a previous report (1).³ Studies of other commodities are being made by the Department of Agriculture and by private firms under contract with the city of New York.

Data in this report, unless otherwise noted, are for the year 1960. Data were obtained primarily through interviews with wholesalers, processors, purveyors of meat and poultry to institutions, railroad officials, representatives of the city and various other governmental bodies, and other interested persons. No attempt was made to study the entire dressed poultry market in the city, but only that part which is associated with the 14th Street wholesale market. References to poultry, unless otherwise noted, relate to dressed or ready-to-cook poultry only.

³ Italic numbers in parentheses refer to items in Literature Cited, p. 60.

¹ The term "market" is used herein synonymously with market area.

² This breakdown of operators will be maintained throughout this report, as each is descriptive of a specific segment of the market. The categories are described on page 17.

Meat and Poultry Supplies and Movement to the Market

Volume

The metropolitan area ⁴ of New York City received in 1960 an estimated 1,246,188 tons of meat and meat products, exclusive of lard. Of the tonnage received in New York, 56.3 percent, or 701,549 tons, was handled in the 14th Street wholesale market. The remainder, or 544,639 tons, was handled by operators in other markets, by isolated operators outside the major markets, or directly by food chain organizations and independent retailers. A higher percentage, but a much lower volume, of poultry was received in the market area. An estimated 155,066 tons of poultry was received in the New York City metropolitan area in 1960, of which about 115,648 tons was received in the 14th Street wholesale market area. Table 1 shows the estimated volume of meat and poultry receipts in the New York metropolitan area markets and the estimated receipts and proportions handled in the 14th Street market.

Estimated receipts of beef in the 14th Street market accounted for 58.7 percent, or almost 400,000 tons, of the beef arriving in the city in 1960. ⁵ Receipts of pork ranked second, at slightly less than 200,000 tons. Two other items, lamb and mutton and veal and calf, accounted for slightly more than 50,000 tons each. Of all meat receipts in this market, beef accounted for 56.8 percent, pork 26.2 percent, lamb and mutton 9.8 percent, and veal and calf 7.2 percent. Figure 1 shows the receipts of beef, pork, poultry, lamb and mutton, and veal and calf in the New York metropolitan area and the 14th Street wholesale market, and the per capita consumption of these products in the United States.

Receipts in New York City indicate that more beef and less pork are consumed per capita in the New York City metropolitan area than the averages for the United States.

⁴The standard metropolitan area, as defined by the Bureau of the Census of the U.S. Department of Commerce, contains the counties of Passaic, Morris, Somerset, Middlesex, Essex, Union, Hudson, and Bergen in New Jersey; and Westchester, Rockland, Bronx, Queens, Kings, Richmond, New York, Nassau, and Suffolk in New York. The Department of Commerce population reports for 1960 indicate a population for the area of 14.8 million, 10.7 million in New York counties and 4.1 million in New Jersey counties.

⁵Based on Estimated Annual Meat Supplies, New York Area, 1959-60, U.S. Department of Agriculture, Agricultural Marketing Service, Market News; Annual Receipts of Perishable Food in New York Metropolitan Area, 1960, N.Y. Department of Markets, Consumers' Service and Research Bureaus; and a survey of operators, made in the market during early 1961. A carlot is about 12½ tons.

TABLE 1.—*Estimated receipts of meats and poultry in the New York City metropolitan area, and estimated receipts and the proportions handled in the 14th Street wholesale market, New York City, 1960*

Meat	New York City metropolitan area ¹	14th Street wholesale market ²	Proportion handled in 14th Street market
	Tons	Tons	Percent
Beef-----	679, 268	398, 064	58. 6
Pork ³ -----	350, 322	183, 924	52. 5
Lamb and mutton ⁴ -----	130, 100	69, 111	53. 1
Veal and calf-----	86, 498	50, 450	58. 3
Meat total----	⁵ 1, 246, 188	701, 549	56. 3
Poultry-----	155, 066	115, 648	74. 6
Poultry and meat total----	1, 401, 254	817, 197	58. 3

¹ Sources: Estimated Annual Meat Supplies, New York Area, Market News Branch, Livestock Division, Agricultural Marketing Service. Period includes week of January 9, 1960, through week ending December 31, 1960. Also Annual Receipts of Perishable Food in New York Metropolitan Area, New York City Department of Markets, 1960.

² Based on a survey of operators in the market in early 1961.

³ Excludes 8,374 tons of lard and manufactured products.

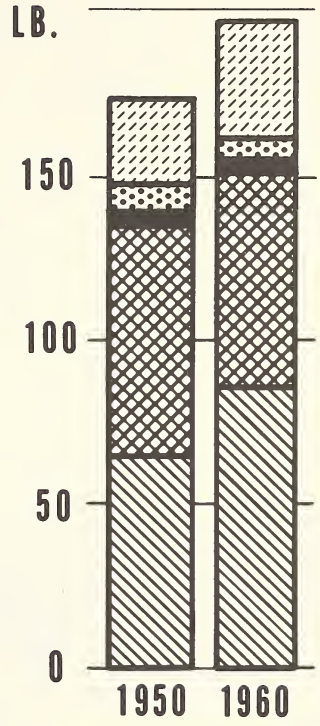
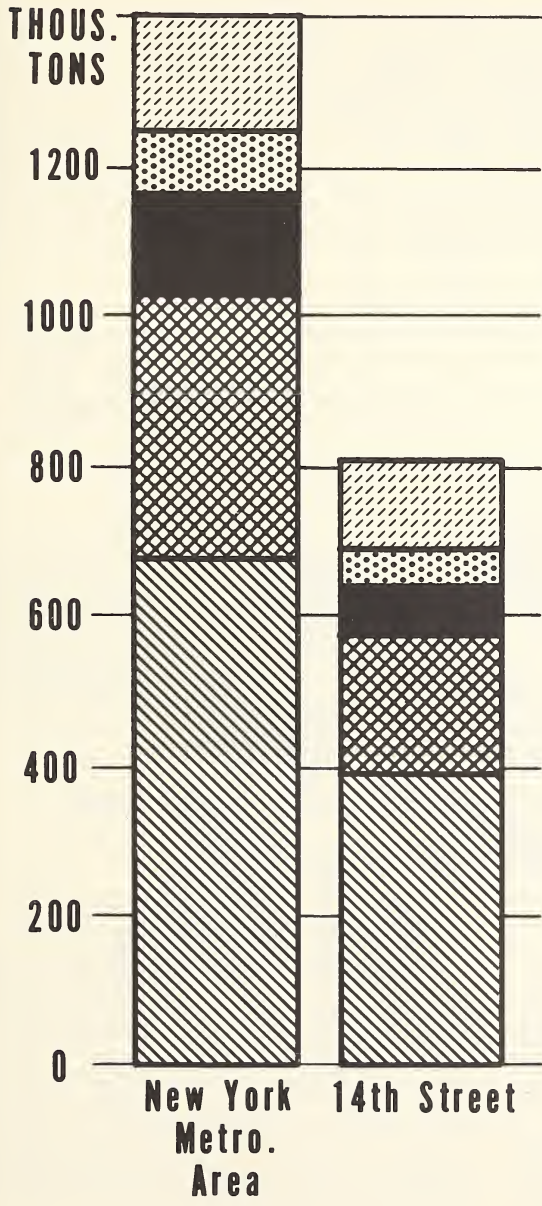
⁴ Excludes 24 tons of goat meat.

⁵ Excludes 8,525 tons of offal products.






Sources

The Western States supplied 313,804 tons, or 38.4 percent, of all meat and poultry receipts in the 14th Street wholesale market in 1960. Beef was shipped primarily from that area, and Colorado led the Western States in tons shipped to the market. The West North Central States supplied 205,934 tons, or 25.2 percent, of the receipts in the market, of which the greater part originated in Nebraska, Iowa, and Missouri. Pork was the principal meat shipped from this area. The Eastern States supplied 196,944 tons, or 24.1 percent, of the receipts in the market. Pennsylvania and New Jersey supplied more than half of the receipts originating in the area. The Southern States supplied 88,257 tons, or 10.8 percent, of the receipts in the market, of which a large part was poultry. East North Central States shipped only a small percentage of meat and poultry to the market; however, it is a common practice for this area to supply Pennsylvania and New Jersey

Receipts of Meat and Poultry in N. Y. Metropolitan Area and in 14th Street Market, 1960



PER CAPITA CONSUMPTION OF MEATS AND POULTRY IN U. S., 1950 AND 1960.

- LEGEND**
-  Beef
 -  Pork
 -  Lamb & Mutton
 -  Veal & Calf
 -  Poultry

SOURCE: AGRICULTURAL STATISTICS 1960; NATIONAL FOOD SITUATION, 1962 OUTLOOK; AND DATA COLLECTED IN THE 14TH-ST. WHOLESALE MARKET AREA, NEW YORK CITY, 1960.

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FIGURE 1.

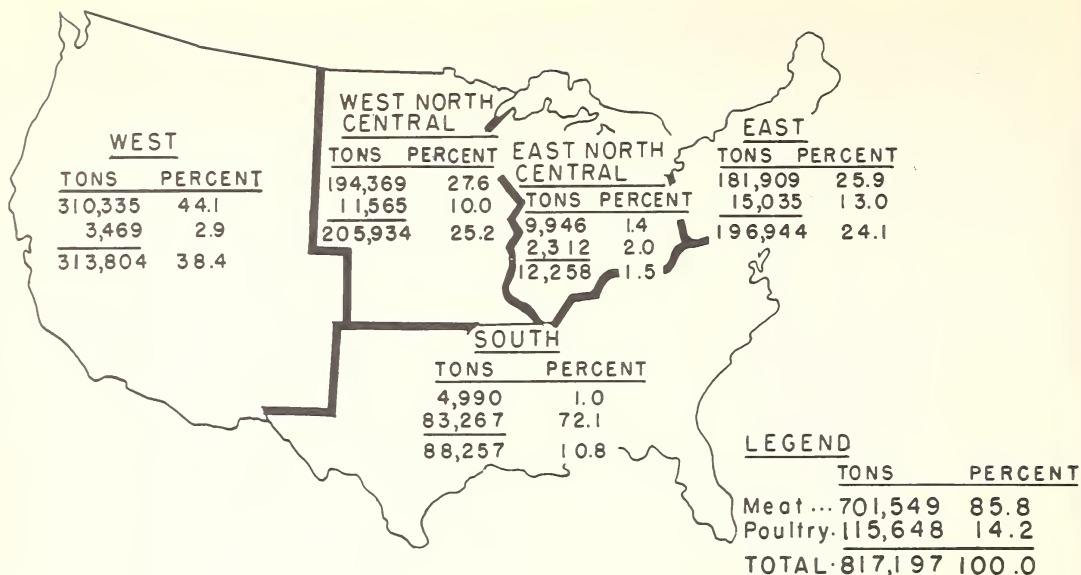


FIGURE 2.—Sources of meat and poultry in the 14th Street wholesale market, New York City, 1960.

slaughterers with live animals. Because of the short distance involved, animals can be shipped from the East North Central area to Pennsylvania and New Jersey without a rest stop. This accounts for the apparently low volume of the East North Central area and the relatively higher volume from the Eastern States. The areas and the estimated volumes of meat and poultry receipts in the market from each area in 1960 are shown in figure 2.

Transportation

In the 14th Street market, 33.9 percent of all receipts of meat and poultry were by rail, direct or by rail-truck.⁶ Almost 95 percent of the estimated receipts of poultry and 61.6 percent of the meat were received by truck from producing or slaughtering areas. A further breakdown of volume and transportation is given in the following section.

Description of Present Wholesale Meat and Poultry Market Facilities

14th Street Wholesale Market

The 14th Street market includes an area of about 35 acres bounded by 15th Street and Horatio, West, Hudson, Ninth, and Eleventh Avenues. It is at a point midway between the Holland and Lincoln tunnels on the west side of Lower Manhattan.

Although no adequate data are available on the number of operators or tonnages for earlier years, the growth of independent operators in the market appears to have paralleled that of the industry. This has been prompted by increased consumption of meat in hotels, restaurants, and similar institutions, changes in shipper characteristics in surplus-producing areas, increased specialization, and the growth of retail food chains. (7)

⁶ "Rail-truck" refers to shipments that move part of the way to market by rail car and are transferred to trucks at team tracks, or by piggyback shipment.

Kinds and Amounts of Facilities

The wholesale food industry occupies about 70 percent, or 178, of the 260 facilities being used in the 14th Street market. A few dealers operate in stores immediately adjacent to the market, especially on the east side of Ninth Avenue in the vicinity of West Street and along West 14th Street between Eighth and Ninth Avenues. Of the 260 facilities in the market area, 178 are occupied by handlers of food, of which 140 are occupied by handlers of meat and 20 by handlers of poultry. Table 2 shows the number and types of use for the facilities in the market area.

While the total market occupies about 14 blocks and covers about 35 acres, the principal group of meat and poultry operators are in a 7-block area between West 14th Street and Gansevoort Street, on the north and south, and between Hudson Street

and West Street, on the east and west. The land use in the market is shown in figure 3.

The buildings in the market are mostly three to five stories high. A few have as many as seven or eight stories. Several, including most of those in the Gansevoort meat center, have only two stories. Generally, the buildings are old, many are in poor repair, few are of fireproof construction, and few have both front and rear entrances.

Most of the buildings being used for handling meat and poultry were not designed or built for handling these products. Many have been diverted from other uses, such as use for tenements or warehouses. Streets in the area, except West Street and West 14th Street, are narrow, and all are congested with both market and nonmarket traffic.

Meat and poultry operators generally use only the first floor for product handling and storage. A few with overhead railroad connections use second or third floors for storage of meat. Some poultry operators use second-floor areas for cold storage. Additional cooler space, and sometimes a freezer, are located on levels other than the street. The basements available are poorly used except for equipment and supply storage. Occasionally a cooler is located in a basement.

The facilities for handling meat and poultry vary widely in size, ranging from 200 square feet to over 35,000 square feet. The average floor area for the 160 operators is 6,669 square feet. Sidewalks are used as loading platforms for practically all units in the market, except for the city-owned

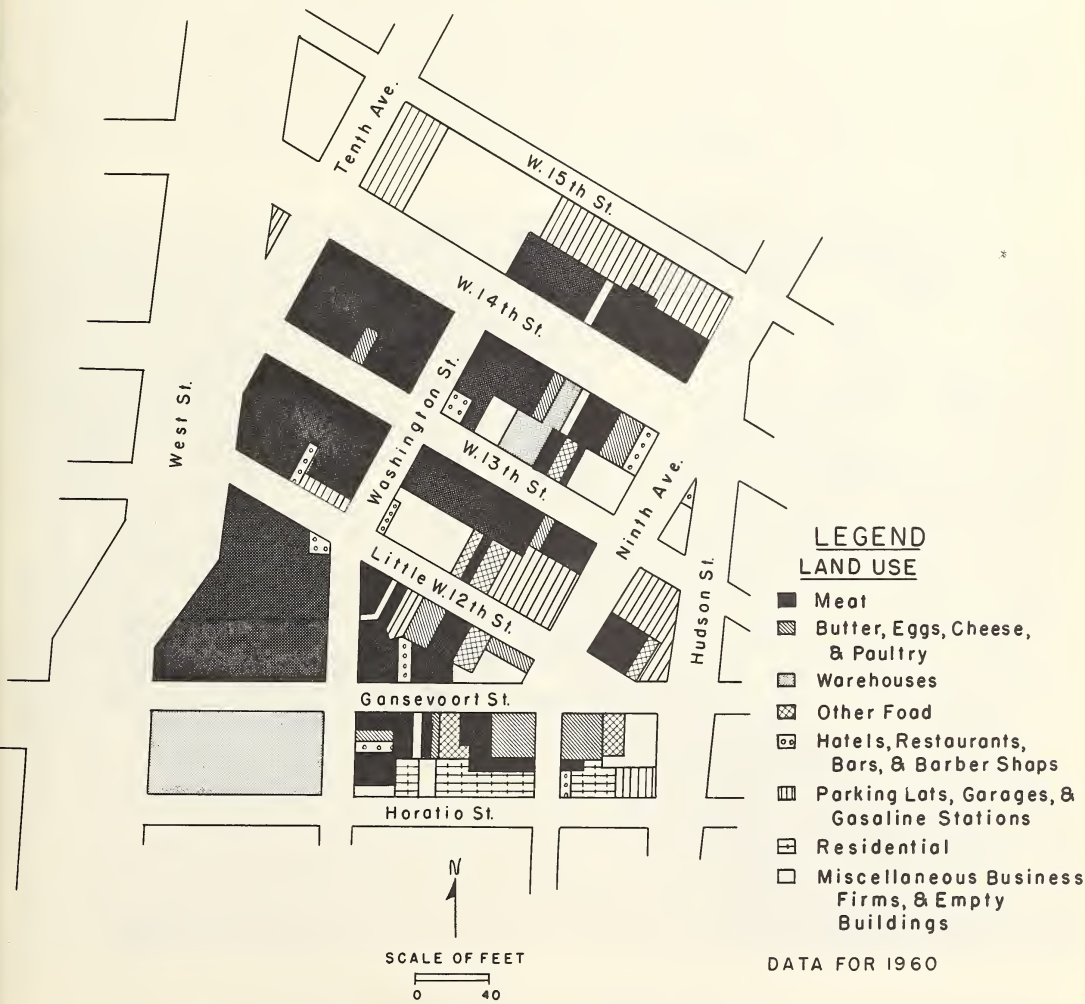


FIGURE 3.—Land use, 14th Street wholesale market, New York City, 1960.

TABLE 2.—Type and number of facilities in 14th Street wholesale meat market, New York City, 1960¹

Type of facility	Distribution by uses
	<i>Number</i>
Food:	
Meat and meat products.....	140
Poultry.....	20
Fruits and vegetables	10
Butter, eggs, and cheese.....	2
Other foods.....	6
Total.....	178
Other:	
Gas stations, garages, parking lots.....	20
Restaurants, bars, hotels.....	13
Others.....	39
Vacant.....	10
Total.....	82
Grand total.....	260

¹ Includes the area bounded by West 15th, Horatio, and West Streets, 11th Ave., Hudson Street, and 9th Avenue.

Gansevoort meat center, which uses sidewalks for parked vehicles that are being loaded and unloaded. Facilities are back to back, few having rear entrances. Incoming and outgoing shipments must move through the front entrances. Many of the units use portable stairs or platforms in loading and unloading vehicles (fig. 4). The platform is usually stored on the sidewalk when not in use (fig. 5).

Meat-rail connections between truck and house rail systems are usually inclined (fig. 6). A notable exception exists at the Gansevoort meat center, which has adequate platform areas at truckbed level. Trucks, however, must park at an incline to be unloaded at most stores in the center. Many of the meat-rail facilities for unloading are complicated by a number of switches and crossovers, necessitated by the limited entrances and differences in elevation (fig. 7).

The assessed value of the land and improvements in the 14-block area of the 14th Street market was \$17.9 million in 1960. Land values were \$8.9 million, and improvements were valued at \$9.0 million. Figure 8 shows the average assessed value per square foot of land and improve-

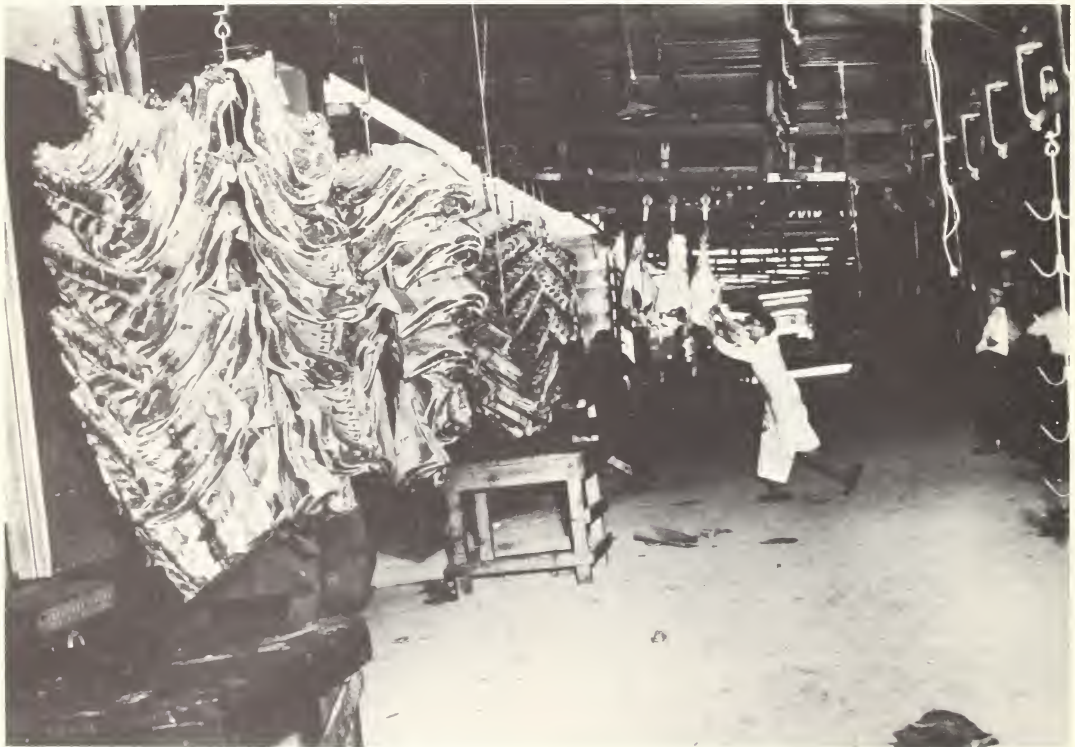
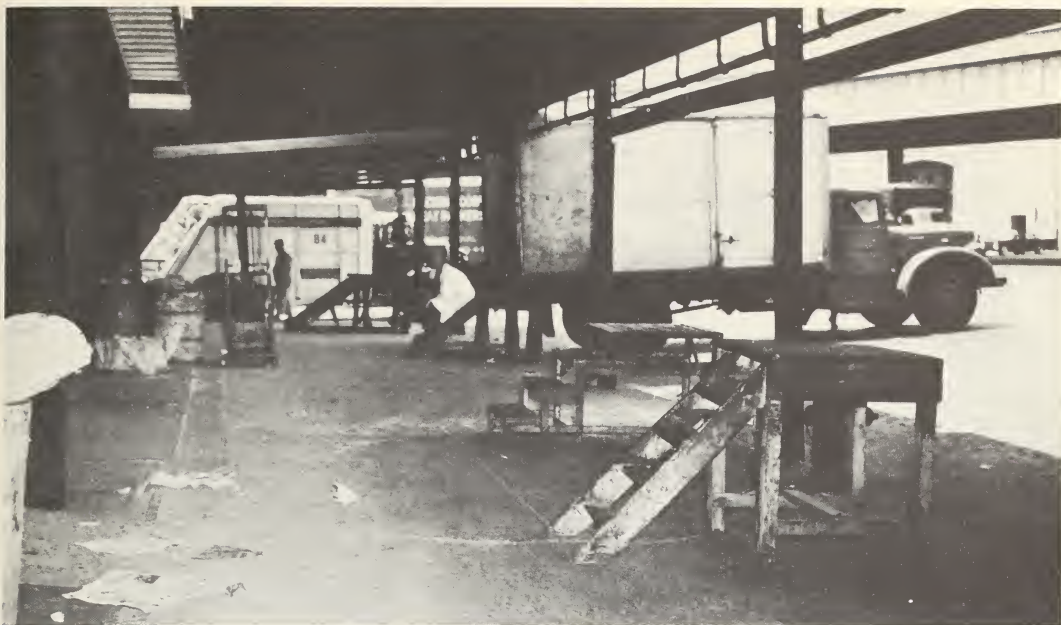


FIGURE 4.—Portable stair and platform being used for loading meat in the 14th Street wholesale meat market, New York City, 1960.

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FIGURE 5.—Storage of portable stairs and platforms of the type commonly used in the 14th Street wholesale market in loading and unloading operations, New York City, 1960.

ments by blocks for the market. The average assessed value for land was \$10.18 per square foot, and for improvements, \$10.31.

Within the present market, a one-block area, which was initially a playground, was developed by the city into a meat center in 1950 (fig. 9). This area is bounded by West, Little West 12th, Washington, and Gansevoort Streets, and is commonly referred to as the Gansevoort meat center. Initially, 34 units were constructed, and later 2 properties were developed on the south side of the block. In June 1961, 36 tenants occupied these units, one of which was used as a restaurant. Exclusive of the two later developed properties, which are well planned meat-handling facilities developed under leases from the city, there are 25,635 square feet of cooler space and 12,188 square feet of receiving space for the 33 units devoted to handling meat and poultry in the center, or a ratio of about 2 feet of cooler space for each foot of receiving and shipping space. Second floors are used mostly for offices, storage, and welfare areas (dressing rooms, toilets, restrooms, etc.). A few operators have also installed freezers on second floors.

Units in the Gansevoort meat center are small, and only a few have rear entrances. There are no rail spurs from which meat can be unloaded directly into the coolers; this is one of the most objectionable features in the center. Good features include truckbed-height platforms and good assembly and shipping areas. Rents in the center

range from as much as \$6.48 per square foot for cooler space to as little as \$0.50 per square foot for office space. These units are especially desirable, considering other rents and values in the area, and as a result an unusually high rate of occupancy has been maintained. Changes in methods of transportation and increased use of trucks also make the center more attractive, as it is located on the periphery of the entire market.

Rail Facilities

Only 22, or 15.8 percent, of the meat and poultry operators have railroad tracks. The rail facilities in the market are elevated two or three stories above street level (fig. 10). The operators with rail sidings must unload on the second or third floor, and then use elevators to lower the meat into first-floor coolers. The transfer from refrigerator car to store coolers is a time-consuming operation which often requires that meat be moved down a corridor to an elevator and then lowered into the store.

Others who receive by rail use yards outside the market area and truck the meat to the market. The Gansevoort meat center, even though adjacent to the overhead tracks, does not have facilities by which meat may be transferred directly from cars to coolers. Many, of course, do not receive meat by railroad but depend on over-the-road trailers, locally slaughtered meat, meat purchased



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FIGURE 6.—An incline on the meat-rail system of an operator's loading area in the 14th Street wholesale meat market, New York City, 1960.



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FIGURE 7.—A complicated rail system at the entrance and exit to an operator's place of business in the 14th Street wholesale meat market, New York City, 1960.

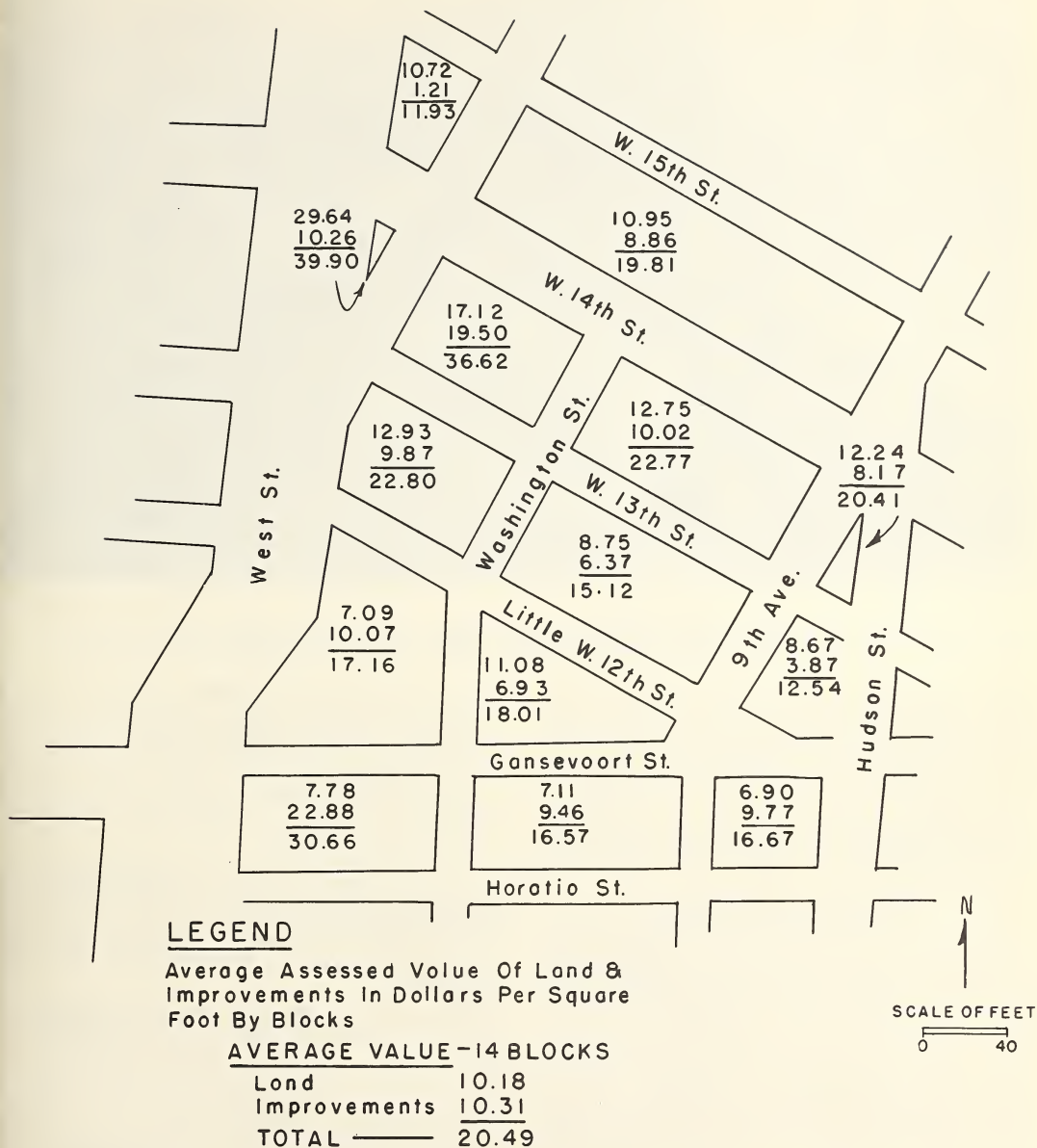


FIGURE 8.—Assessed value of property in the 14th Street wholesale meat market, New York City, 1960.



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FIGURE 9.—The Gansevoort meat center, showing the easy access of motor vehicles to the location, the West Side highway, and the elevated railroad tracks, New York City, 1960.

from other operators in the market, or a combination of these sources or methods. Almost two-thirds of the meat receipts in the 14th Street market in 1960 arrived in semitrailers and vans. Direct rail receipts accounted for only 14.7 percent of the meat and only 2.5 percent of the poultry. Table 3 shows the estimated receipts of meat and poultry by method of transportation, and of meat by type of operator.

Ownership of Facilities

All facilities in the market are privately owned except the Gansevoort meat center, which is owned by the city of New York and managed by the Department of Markets. Only 9, or 5.6 percent, of all operators own the facilities they occupy. It is estimated that these operators handled 52,182 tons, or 6.5 percent, of the meat and poultry going through the market in 1960 (51,246 tons of meat and 936 tons of poultry). The remaining 151 operators in the market occupy rented facilities and account for the remaining 93.5 percent of the meat and poultry handled.

Space Utilized

Operators in the 14th Street wholesale market estimated that 1,067,000 square feet of floor space

was used by meat and poultry operators. Table 4 shows the amount of floor space used for offices, coolers, freezers, and other uses, by type of operator. Other uses include those for platforms, where available; storage areas for office supplies, wrapping materials, and equipment; and receiving and shipping areas.

With few exceptions, the sidewalk areas in front of the facilities are used as parking space and loading and unloading areas. Few operators have satisfactory loading and unloading areas for trucks. Parking space is extremely limited in the entire area.

Almost two-thirds of the space used by meat and poultry operators in the market is refrigerated. Basically, two types of refrigeration are necessary: Cooler, usually about 32 to 34 degrees Fahrenheit; and freezer, usually zero or colder. Almost half (47.8 percent) of the total space devoted to meat and poultry was in coolers and 17.4 percent was in freezers. Cooler space is sometimes used as work areas, which often results in raising cooler temperatures. Of the remaining space, 9.3 percent was used as office space and 25.5 percent was devoted to storage and unused areas.



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FIGURE 10.—The only direct railroad into the 14th Street market in New York City in 1960 was elevated.

TABLE 3.—Estimated receipts of meat and poultry by method of transportation and by type of operator, 14th Street wholesale market, New York City, 1960

Product and type of operator	Method of transportation						Total truck, rail, and rail-truck	
	Truck		Rail		Rail-truck ¹		Volume	Percentage ²
	Volume	Percentage	Volume	Percentage	Volume	Percentage		
Meat:	<i>Tons</i>	<i>Percent</i>	<i>Tons</i>	<i>Percent</i>	<i>Tons</i>	<i>Percent</i>	<i>Tons</i>	<i>Percent</i>
Wholesalers.....	271, 197	52. 5	102, 076	19. 8	143, 052	27. 7	516, 325	73. 6
Processors.....	132, 080	85. 5	104	. 1	22, 360	14. 4	154, 544	22. 0
Purveyors.....	28, 756	93. 7	676	2. 2	1, 248	4. 1	30, 680	4. 4
Meat total.....	432, 033	61. 6	102, 856	14. 7	166, 660	23. 7	701, 549	100. 0
Poultry.....	107, 870	93. 3	2, 915	2. 5	4, 863	4. 2	115, 648	100. 0
Meat and poultry total.....	539, 903	66. 1	105, 771	12. 9	171, 523	21. 0	817, 197	100. 0

¹ Rail-truck movement contains both piggyback shipments and rail car movements that are unloaded and trucked to the market.

² Represents the percentage of meat handled by wholesalers, processors, and purveyors, by classification.

TABLE 4.—*Estimated space used for office, cooler, freezer, and other uses by 160 meat and poultry operators in the 14th Street wholesale market, New York City, 1960*

Type of operator and space usage	Space used	Average per operator
Wholesalers:	<i>Square feet</i>	<i>Square feet</i>
Office-----	66, 557	708
Cooler-----	351, 919	3, 744
Freezer-----	72, 656	773
Other ¹ -----	133, 762	1, 423
Total, wholesalers-----	624, 894	6, 648
Purveyors:		
Office-----	23, 763	475
Cooler-----	102, 300	2, 046
Freezer-----	59, 200	1, 184
Other-----	69, 550	1, 391
Total, purveyors-----	254, 813	5, 096
Processors:		
Office-----	9, 200	575
Cooler-----	55, 861	3, 491
Freezer-----	53, 584	3, 349
Other-----	68, 688	4, 293
Total, processors-----	187, 333	11, 708
All operators:		
Office-----	99, 520	622
Cooler-----	510, 080	3, 188
Freezer-----	185, 440	1, 159
Other-----	272, 000	1, 700
Total, all operators-----	1, 067, 040	6, 699

¹ "Other uses" includes storage for equipment, office supplies, and packaging supplies, loading and unloading platforms, and miscellaneous items.

Traffic Situation

Several thousand vehicles move through the market daily, some spending only a few minutes in it, others spending as much as 4 to 6 hours. These vehicles include semitrailers, vans, pickup trucks, station wagons, and automobiles. Semitrailer units and vans are used primarily for bringing meat and poultry into the market; the others are primarily for delivering meat from the market. Actual counts of vehicles in the market were made on numerous occasions during this study. Counts were made of the number of vehicles in the area and of those waiting to enter the area, average waiting time, and time required to move through the market. Counts were made at various times of day and on various days of the week. Waiting time at operators' stores and at the market periphery was estimated by the drivers. The actual times required for a truck to move from the periphery to the store and to move from the store back to the periphery were observed and are used in this report where applicable.

These traffic studies and counts indicate that the concentration of vehicles in the market area is greatest between 7:00 a.m. and 9:30 a.m., which coincides with rush-hour traffic. It is heaviest on Mondays and Tuesdays. Movements during this period are especially difficult and slow. Vehicular saturation is maintained almost every morning from about 7:00 a.m. until noon, after which the activity in the market slackens.

Shipments usually arrive in the market in the afternoon in preparation for the next day's business. Deliveries are usually made during the morning, although frequently some are made in the afternoon. Semitrailers were noted in the market throughout the day. There is considerable waiting by semitrailers on the periphery of the market, especially between 7:00 a.m. and noon. Waiting periods, according to drivers questioned in the market, range from a few minutes to several hours. Average waiting time was about 1.25 hours.

The time required for a buyer's vehicle to move through the market, locate at a store, load, and return to the periphery, averaged about 2.5 hours. Only slightly less time was required for trucks belonging to operators in the market to perform similar operations, although some scheduling of both loading and unloading is possible for the market operators.

There is space for 400 vehicles at tailboard locations at the stores.⁷ Actual counts of vehicles in the market at various times have indicated as many as 800, almost twice the capacity of the tailboard space available. Situations like this occur mostly on Monday and Tuesday, but occasionally on other days also. Adequate parking is not available for the additional 400 trucks, and therefore many are parked in the streets.

Traffic congestion is a primary problem. Timely delivery to or from the market is difficult for most operators. This is further complicated by the fact that meat is a heavy commodity and should be loaded quickly and efficiently. Only a few small purchases can be carried to vehicles waiting near the loading zone. Although it is practically impossible for the majority of the facilities in the 14th Street market, meat should be kept under constant refrigeration, especially in the summer, to prevent both deterioration and dehydration.

Present trends indicate that the traffic problem will become more acute in the immediate future. This will be caused by: (1) Increased activity necessary to supply a greater population, (2) increased incomes which result in greater total consumption of meat, and (3) changes in methods of transportation due in part to the lack of proper

⁷ Tailboard space refers to any area devoted to loading or unloading vehicles. In the 14th Street market area, this generally corresponds to the sidewalk area immediately in front of or adjacent to the entrance of the operator's place of business.

railroad facilities in the present market area. Several large operators have recently switched from refrigerated rail cars to refrigerated piggyback shipments. Others have used semitrailers to transport meat from the West to New York City. The changes tend to increase traffic congestion in the market area.

Although ordinances in some areas of the city prohibit use of the streets by trucks and semitrailers over a certain length, the market allows trucks of all legal lengths to enter the area.

Number and Types of Operators

Many classifications of the 160 operators in the area can be made; however, the one used in this report is based on the type of function performed. In any except a very minute classification, the differences between operators do not follow clear and distinct lines. The classification used throughout this report is wholesalers, purveyors, and processors.

A *wholesaler* may receive in carlots and may actually act as a broker at times. Normally he receives carcasses, "breaks" them (cuts them up), and sells them to retail outlets or other operators. He normally does not do any processing such as sausage manufacturing or meat curing, although he may do some aging of meats. He may do some boning. His normal source of supply is outside the market area.

A *purveyor* generally provides a specialized service to hotels, restaurants, clubs, airlines, steamship companies, and public institutions, by supplying meat and meat products to specification as to cuts, age, and packaging. He may supply in bulk or in individual portions, and usually his normal trade is in small lots. A purveyor may purchase from wholesalers and processors and he may sell to them various cuts for which he has no other outlets. His normal sales are to institutional consumers. A large part of his supply comes from the immediate market area.

A *processor* produces products that require some alteration, and he usually manufactures sausage, cured products, or other processed meats. In most instances, slaughterers would be classified as processors; however, there is no slaughtering in the 14th Street market. The majority of the processors are in the business of preparing sausages and curing meats. Their normal sources of supply are producing areas or slaughterers, although specialized cuts may be obtained within the market. Thus the breakdown between wholesalers, purveyors, and processors is not along well-defined perimeters.

Of all operators in the market, 94, or 58.7 percent, were classified as wholesalers; 50, or 31.3 percent, as purveyors; and 16, or 10 percent, as processors. The number of operators by type of

products handled and by type of operation conducted is shown in table 5.

A total of 48, or 30 percent, of all operators in the market deal in beef; 12, or 7.5 percent, deal in pork; and 20, or 12.5 percent, deal in poultry. The remainder, or one-half of the operators, handle various combinations of beef, pork, veal and calf, lamb and mutton, and poultry. Some operators handle only two of these, but others handle three, four, or all five.

Other Major Meat Markets

As previously mentioned, Brook Avenue and Fort Greene markets are the other two major wholesale meat markets serving the metropolitan area of New York City. Brook Avenue market (although no data were collected) appears to be the second largest meat market in the city, handling an estimated 16 to 20 percent of the meat volume in the metropolitan area. Plans should be made to study and improve this important market.

Fort Greene, the third largest wholesale meat market serving the city, was recently studied and a report issued by a private engineering firm. (3) That report recommended new facilities at a new location for this important market. Fort Greene market is currently handling 10 to 12 percent of the volume of meat in the New York City area. Other wholesale meat markets serving the area are at Jamaica and Mineola, in New York, and in Newark and Passaic, in New Jersey, but these handle a relatively small volume in comparison to the three major markets discussed.

TABLE 5.—*Number of operators, by type of operation, handling meat and poultry in the 14th Street wholesale market, New York City, 1960*

Product handled	Wholesalers	Purveyors	Processors	Total
	<i>Number</i>	<i>Number</i>	<i>Number</i>	<i>Number</i>
Beef-----	29	9	10	48
Beef, lamb and mutton, or veal and calf, or pork--	12	-----	1	13
Pork-----	11	-----	1	12
Veal and calf, and lamb and mutton--	9	2	2	13
Poultry-----	16	4	-----	20
All five ¹ -----	2	21	1	24
Miscellaneous ² -----	15	14	1	30
Total-----	94	50	16	160

¹ These five include the following categories: Beef, pork, lamb and mutton, veal and calf, and poultry.

² Includes 11 operators who failed to respond to a survey by inspectors of the city of New York, and who, from visual inspection, are known to operate places of business in the 14th Street market.

Food Chain Organizations

Food chain organizations are not classified as such in this report. Food chains' meat-handling facilities usually function as do those of any other operator in wholesaling, purveying, or processing meat. Their needs are basically the same in respect to design, construction, and location. Primary differences concern volume and their customers.

Flow of Meat and Poultry Through Market

The movement of 1,401,254 tons of meat and poultry through the market channels in New York City constitutes a complex distribution problem. A total of 817,197 tons of meat and poultry, or 58.3 percent of New York City's total supply, moves through the 14th Street wholesale market. The movement shown in figure 11 is based on reports of the Market News Branch of the Livestock Division, Agricultural Marketing Service, U.S. Department of Agriculture, and on personal interviews with operators in the market, extensive examinations of operators' delivery and receipt records, interviews with railroad and trucking company officials and examinations of their records, and interviews with market reporters and inspectors for the city of New York.

Much of the meat moving to, through, and from the 14th Street market moves on trucks. Of the 277,294 tons of meat and poultry arriving in 1960 in the city by rail, 171,523 tons, or about three-fifths, of rail shipments were transferred to trucks before arriving in the market. A total of 711,426 tons arrived in the market area by truck. Rail cars with meat destined for the 14th Street market were usually unloaded at the 30th Street yard. Only 105,771 tons arrived directly in the market by rail. The principal "first point of arrival" for meat and poultry handled through the market was in the market proper. Except for the rail-truck shipments, which necessitate transfer from rail to highway equipment, all meat arriving in the market moved directly to the market once it arrived in the city. The 30th Street yard was the nearest team track where transfer could be made; it is 15 to 20 blocks from the market. This is the principal team track used.

A much smaller amount of meat is unloaded from the rail cars at other team tracks in the metropolitan area and moved to the 14th Street market. The major portion unloaded at team tracks other than the 30th Street yard moves to other markets and to food-chain and independent warehouses outside the market.

Transfers

Two types of transfers are made between operators, intramarket and intermarket. Intermarket transfers are made between the 14th Street

Many of the food chains operate their meat facilities in conjunction with their grocery warehousing, and, as a consequence, are located outside the 14th Street market area. Some of the purchases of the chains are reflected in the volumes estimated for the market area. Chains generally acquire their supply of meat and meat products just as any other operator.

market and other wholesale meat markets in the metropolitan area. These transfers are reflected as movements out of the market to the boroughs, metropolitan New York, or outside the metropolitan area, as shown in figure 11.

Intramarket transfers are transfers made between operators within the market area. The nature of the operations of the various types of operators dictates that, to obtain maximum usage from the various cuts of meat, transfers must be made. Some operators specialize in particular cuts and obtain these from other operators in the market. Operators at various times do not have a sufficient supply of a particular cut of meat to fill their demand, and so must obtain the product from other operators in the market. Most of the intramarket transfers are made for those purposes.

An estimated 42,794 tons of meat and 2,081 tons of poultry were double-handled in the market in 1960.⁸ Wholesalers of meat transferred 21,541 tons, processors 14,266 tons, and purveyors 6,987 tons.

Imported Meats

Less than 8 percent of the meat supply was imported from abroad into New York City in 1960. Operators in the 14th Street market handled only a small percentage of this, because facilities for handling it efficiently are not available. The operators who do business in imported meats use mostly the facilities of public cold storage warehouses near or outside the market area. Volumes of imported meat handled in the 14th Street market are included in the total volumes given in this report. The imported meats arrive in the market by truck.

Average Volumes Handled

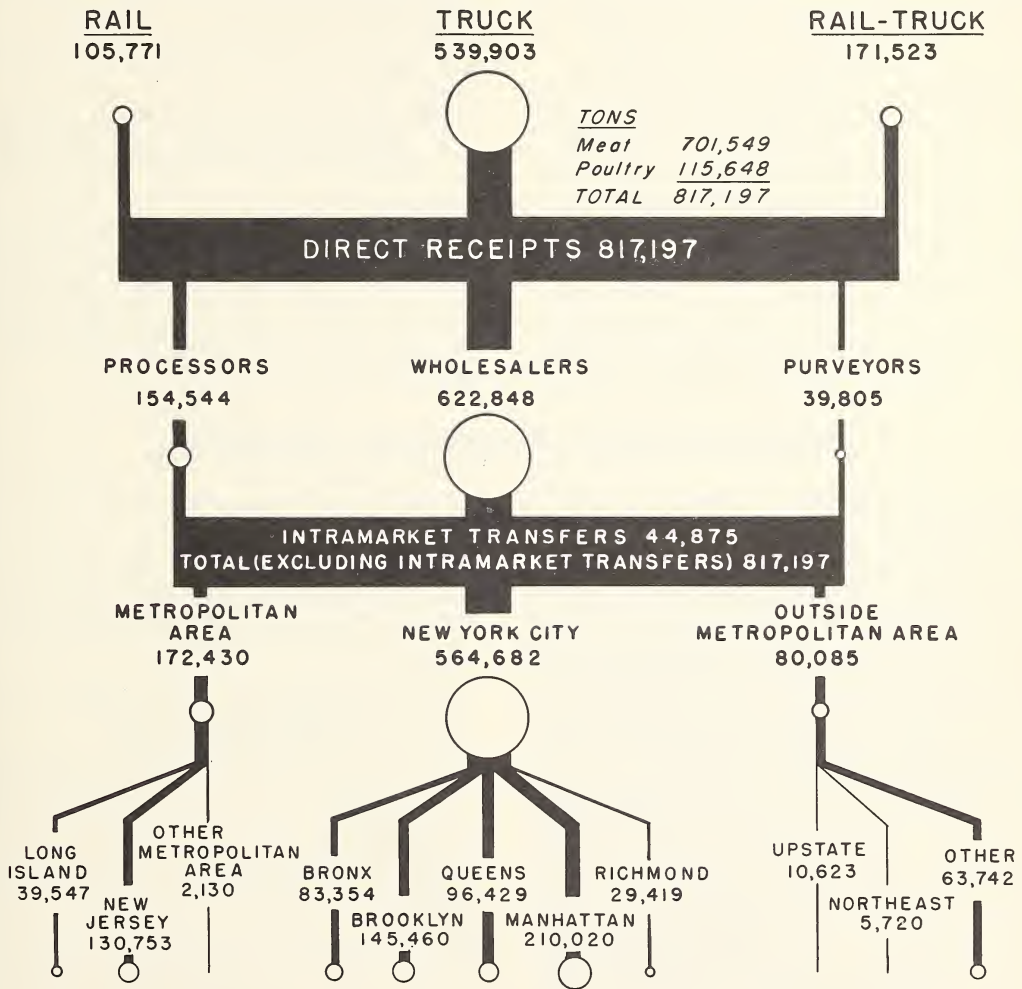
The average volume of meat and poultry handled per operator in the 14th Street market was 5,388 tons in 1960.⁹ The larger operators

⁸ Intramarket transfers result in double handling in the market. Double-handled meat, as referred to here, is handled in at least two operators' places of business within the market.

⁹ Average volume handled includes intramarket transfers.

MOVEMENT OF MEAT AND POULTRY THROUGH THE
14th STREET WHOLESALE MARKET-NEW YORK CITY
817,197 TONS

DATA FOR 1960



U.S. DEPARTMENT OF AGRICULTURE

NEG AMS 271-62 (4) AGRICULTURAL MARKETING SERVICE

FIGURE 11.

handled, on the average, the equivalent of about 20 cars per week, and the smaller operators handled less than a car per week. On the average, processors handled a greater volume than did either purveyors or wholesalers. Processors averaged 10,550 tons annually, wholesalers 6,896 tons, and purveyors 818 tons. Poultry operators averaged 5,886 tons per year, or about 1 million pounds per month.

Distribution of Products

Observations and examination of operators' records indicate that meat and poultry are shipped from the 14th Street wholesale market to practically every State in the Union and to many overseas points. Small quantities of extremely high-quality cuts are regularly shipped to such points as Florida, Maine, and vacation centers throughout the United States. Small shipments are sometimes destined for overseas customers, especially in tourist areas in the Caribbean.

Most of the receipts moving through the market are distributed in the metropolitan area of New York. Figure 11 shows the destinations and the

percentages of meat and poultry shipped to each in 1960. It is estimated that 69.1 percent of all meat and poultry receipts in the market in 1960 was shipped to the five boroughs of New York City. New Jersey received 16.0 percent of the receipts, 5.1 percent went to other metropolitan New York City outlets, and 9.8 percent went to outlets in upstate New York, the northeastern United States, and other points throughout and outside the United States. Within the city of New York, Manhattan received 25.7 percent, Brooklyn 17.8 percent, Bronx 10.2 percent, Queens 11.8 percent, and Richmond 3.6 percent. The large movement to Manhattan was due to the institutional trade.

The effects of other modern markets can be noted in the small amounts going into New England. New England shipments from the 14th Street market compete with shipments from the Boston area.

Wholesalers distributed 516,325 tons, or 73.6 percent, of the meat received in the market; processors 154,544 tons, or 22.0 percent; and purveyors 30,680 tons, or 4.4 percent. About 6.1 percent of the meat and 1.8 percent of the poultry distributed was classed as intramarket handled, and not included in the above figures.

Selected Costs Incurred in Handling

Many of the methods of handling meat and poultry in the 14th Street wholesale market are inefficient, and are costly to producers, market operators, and consumers.

In this report, the costs of handling are assumed to be the same for processors, purveyors, and wholesalers. With processing omitted, the operations of each for receiving, shipping, and order assembly are almost identical. Processing costs were not estimated, because processors were a minority group and because of the wide divergences among processing operations.

Selected costs in this report are confined to those incurred from the first point of arrival in the New York metropolitan area until the meat or poultry reaches the outlets for retail or other wholesale distribution. They do not include costs for shipment from producing areas to New York. Present practice is to ship meat and poultry f.o.b. New York, whether it be to a rail yard some distance from the market, to a rail siding alongside the facility, or by truck to the door. The costs presented herein do not include costs of heat, light, telephone, selling, or management.

Costs included are: Labor cost and fringe benefits paid employees for unloading, handling within, loading, and shipping out; transportation cost to move meat to stores and away from stores in the market, especially avoidable-delay cost; rentals paid, either actual, or estimated in the case of ownership; other handling costs such as those for cartage, demurrage, and icing; and estimated

deterioration, pilferage, and theft caused by inadequate facilities.

The four classifications of costs used in this report are:

1. Costs to operators in handling and moving meat and poultry to the facilities in the market.
2. Costs of handling and storage within the market.
3. Costs of moving the product from the market to retail and other wholesale markets.
4. Costs that are nonmeasurable.

The estimated costs shown in this section were obtained from several sources. A detailed survey of all operators in the market was made by the New York City Department of Markets. Information was obtained on rents, or rental values in the case of owner-occupied facilities, amount and classification of labor involved, volume of meat and poultry handled, transportation methods used to get the product to the market, methods of shipping, and general information on types of operation. All operators were then classified according to type of operation and volume of meat handled. Based on this classification, a sample of operators was selected that represented all types of operators and volumes of products handled. The sample contained 17 operators who handled 17.4 percent of the volume of all operators in the market.

Information was assembled from these 17 operators on their costs of operation. An analysis was made of their receipts and shipments, cartage, delay in movement to the market, unloading, han-

ding involved in the intramarket movement, handling and labor costs in preparing and shipping the products from the market, delays involved, and costs of shipping to retail or other outlets. These costs were expanded to represent the entire volume in the market, where applicable. These costs, plus the costs obtained in the general survey of all operators, are presented in later sections of this report. Where possible, checks on both volumes and costs were made by using information obtained from railroads, truck companies, refrigeration companies, and operators of service facilities in the market.

Selected Costs From First Point of Arrival to the Market

The estimated costs of cartage from the 30th Street yards and other rail yards, for 166,660 tons of meat and 4,863 tons of poultry, and the avoidable delay involved in that movement, plus the avoidable delay in moving 432,033 tons of meat and 107,870 tons of poultry directly to the market by truck, constitute the major costs in getting meat and poultry to the market in New York City. These are costs that might be reduced substantially by improving the marketing facilities.

A large part of the meat and poultry moves directly to the market without a change in method of delivery. In 1960, a total of 105,771 tons of meat and poultry arrived directly in the market by rail, and 539,903 tons by truck. An additional 171,523 tons arrived by rail, but was consigned to operators who did not have rail sidings adjacent to their places of business. These cars were unloaded at outside yards and the foods were trucked to the 14th Street market.

Cartage to the market for all shipments delivered to team tracks, the avoidable delays on this and other truck shipments, and other costs, such as icing, amounted to \$1,786,800 for meat, and \$120,500 for poultry in 1960. These costs total \$1,907,300, an average of \$2.33 per ton, for all meat and poultry.

Table 6 gives a breakdown of costs and receipts by various methods for getting meat and poultry into the market. Average costs are obtained by dividing total costs by the number of tons involved.

Early in 1961, some operators without adjacent rail sidings in the market increased their truck receipts and reduced their rail receipts. This reduced their costs considerably.

Selected Costs of Handling Within the Market

The estimated handling costs in the 14th Street market include costs of unloading, handling within the facilities, order assembly, loading out, spoilage, theft, product deterioration, rental, and refrigeration for the coolers and work areas. All these costs may be affected considerably by the

TABLE 6.—Estimated costs of selected items for moving 817,197 tons of meat and poultry from the first point of arrival to the 14th Street wholesale market, New York City, 1960¹

Item	Receipts	Average cost per ton	Total cost
Cartage to market:			
Meat	<i>Tons</i>	<i>Dollars</i>	<i>1,000 dollars</i>
Rail.....	102, 856	-----	-----
Truck.....	432, 033	-----	-----
Rail-truck ²	166, 660	7. 20	1, 199. 9
Total.....	701, 549	1. 71	1, 199. 9
Poultry			
Rail.....	2, 915	-----	-----
Truck.....	107, 870	-----	-----
Rail-truck.....	4, 863	7. 20	35. 0
Total.....	115, 648	. 30	35. 0
Volume on which no cartage is involved.....	645, 674	-----	-----
Avoidable delay, truck and rail-truck ³			
Meat.....	598, 693	. 75	446. 6
Poultry.....	112, 733	. 76	85. 5
Total.....	711, 426	. 75	532. 1
Other meat costs ⁴	210, 464	. 67	140. 3
Total			
Meat.....	701, 549	2. 55	1, 786. 8
Poultry.....	115, 648	1. 04	120. 5
Grand total.....	817, 197	2. 33	1, 907. 3

¹ The first point of arrival refers to rail yard siding, market, or other point of delivery to which shipments are made f.o.b. Cartage then refers to the movement from the first point of arrival to the market.

² Rail-truck shipments refer to shipments which arrive at a yard distant from the market and are transferred to a truck for movement from yard to market, or arrive by piggyback shipment.

³ Avoidable delay is the difference between the time necessary to deliver to the market with no traffic congestion and the actual time required. Differences between meat and poultry are due to delivery truck volumes.

⁴ Other costs cover the cost of re-icing rail cars that require it at New York in the summer.

nature of the facilities used. Facility handling costs do not include the processing costs of the 16 processors; therefore, the cost of making sausage, curing pork, and processing other meats is excluded. Boning, breaking, and packaging wholesale cuts, and purveying are considered as normal wholesale operations. Costs for moving the volume handled by processors are included at rates comparable to those of the other segments of the industry. Costs of light, water, heat, advertising, management, selling, telephone, and telegraph do not depend on facilities, and are not included in the handling costs.

The estimated cost of unloading 817,197 tons of meat and poultry in 1960 was \$2,129,700, an average of \$2.61 per ton. Cost of handling meat and

poultry in the facility, once it had been unloaded, was estimated at \$6,338,400, an average of \$7.76 per ton. Loading out is a more expensive operation than unloading, mainly because of smaller units and order assembly. Total estimated loading costs were \$2,913,600, or \$3.56 per ton handled.

Spoilage, theft, and deterioration costs for both meat and poultry were estimated. Shrinkage losses are considerable, and range from a negligible amount to as high as 3 to 4 percent of the wholesale value, depending largely on handling conditions and quality of refrigeration in the facilities. Shrinkage losses are affected by the temperature, humidity, exposure time, method of shipment, and amount of handling. No estimates of shrinkage are given in this report. No accurate data or comparisons are available to substantiate savings that might be realized. Spoilage, theft, and product deterioration are estimated at 1 percent of the wholesale value. This is a conservative figure for meat, especially considering the nature of the facilities in the market. Estimated cost for spoilage, theft, and product deterioration was \$6,075,000, or \$7.43 per ton.

Rentals amounted to \$1,939,700 and refrigeration \$792,200. Rental costs are based on charges for facilities. For owner-occupied facilities, estimates of the rental value were made by comparisons with like rented facilities in the market. Rentals included all refrigerated space, office space, and work areas within the facilities. No allowances were made for sidewalk areas, even though this area is often used for loading, unloading, and storage.

Intramarket handling costs for 44,875 tons of meat and poultry were estimated at \$842,200, an average of \$18.77 per ton. These costs include the extra handling, weighing, loading out, receiving, transportation, and avoidable delay in the movement of the meat and poultry from one facility to another in the market.

Total handling costs for unloading, handling within facilities, loading out, spoilage, theft, deterioration, rentals, facility refrigeration, and intramarket handling were estimated at \$21,030,800 annually, an average of \$25.74 per ton. These costs were estimated at \$27.92 per ton of meat and \$12.47 per ton of poultry. Table 7 gives a breakdown of these costs.

Selected Costs of Movement From the Market

The costs of moving 817,197 tons of meat and poultry from the market to purchasers were estimated at \$8,633,000, an average of \$10.56 per ton. Average costs of the operation itself were estimated at \$6.18 per ton, and average costs for avoidable delay at \$4.38 per ton. The costs of moving the product from the operators' places of business to the purchasers include the costs of

transportation, avoidable delay, and bridge and tunnel tolls where applicable.

The outlet for meat and poultry might be a retail store, an institution such as a hospital, hotel, or restaurant, an independent or chain-store meat

TABLE 7.—Estimated costs of selected items for moving 817,197 tons of meat and poultry through operators' places of business in the 14th Street wholesale market, New York City, 1960¹

Item	Receipts	Average cost per ton	Total cost
	<i>Tons</i>	<i>Dollars</i>	<i>1,000 dollars</i>
Unloading receipts			
Meat.....	701, 549	2. 80	1, 964. 3
Poultry.....	115, 648	1. 43	165. 4
Total.....	817, 197	2. 61	2, 129. 7
Handling within facilities			
Meat.....	701, 549	8. 73	6, 124. 5
Poultry.....	115, 648	1. 85	213. 9
Total.....	817, 197	7. 76	6, 338. 4
Loading out			
Meat.....	701, 549	3. 83	2, 686. 9
Poultry.....	115, 648	1. 96	226. 7
Total.....	817, 197	3. 56	2, 913. 6
Spoilage, theft, deterioration ²			
Meat.....	701, 549	8. 00	5, 612. 4
Poultry.....	115, 648	4. 00	462. 6
Total.....	817, 197	7. 43	6, 075. 0
Rentals			
Meat.....	701, 549	2. 41	1, 694. 3
Poultry.....	115, 648	2. 12	245. 4
Total.....	817, 197	2. 37	1, 939. 7
Refrigeration			
Meat.....	701, 549	. 99	693. 2
Poultry.....	115, 648	. 86	99. 0
Total.....	817, 197	. 97	792. 2
Intramarket handling ³			
Meat.....	42, 794	19. 01	813. 5
Poultry.....	2, 081	13. 79	28. 7
Total.....	44, 875	18. 77	842. 2
Total			
Meat.....	701, 549	27. 92	19, 589. 1
Poultry.....	115, 648	12. 46	1, 441. 7
Grand total.....	817, 197	25. 74	21, 030. 8

¹ Estimates do not include processing costs such as sausage making or pork curing. Handling costs are included for volumes handled by processors.

² Based on 1 percent of the wholesale value of meat and poultry.

³ Includes cost of handling, cartage between operators' places of business, and avoidable delay in movements. Costs of refrigeration and rentals are included above and distributed between the volume of receipts in the market exclusive of double handling.

TABLE 8.—*Estimated costs of selected items for moving 817,197 tons of meat and poultry from the 14th Street wholesale market to outlets, New York City, 1960*

Item	Receipts	Average cost per ton	Total cost ¹
Cartage ²	<i>Tons</i>	<i>Dollars</i>	<i>1,000 dollars</i>
Meat.....	701, 549	6. 41	4, 503. 5
Poultry.....	115, 648	4. 71	544. 7
Total.....	817, 197	6. 18	5, 048. 2
Avoidable delay ³			
Meat.....	701, 549	4. 64	3, 257. 8
Poultry.....	115, 648	2. 82	327. 0
Total.....	817, 197	4. 38	3, 584. 8
Total avoidable delay and cartage			
Meat.....	701, 549	11. 06	7, 761. 3
Poultry.....	115, 648	7. 54	871. 7
Grand total.....	817, 197	10. 56	8, 633. 0

¹ Includes bridge and tunnel toll costs where applicable.

² Costs of only the movement from the market to the edge of the city or to air terminals, rail yards, or other points of departure are included on those shipments that are classified as "other" to areas outside the New York City area, because of the wide range of locations and rates. Includes delivery cost for shipments going to upstate New York, areas outside the metropolitan area of New York in New Jersey, and the northeast areas such as Connecticut or other distant areas. All loading costs are included in table 7.

³ Includes avoidable delay in both going to the market and returning from it, both for vehicles owned or leased by operators and for vehicles owned or leased by purchasers of products.

facility, or another wholesale operator's facility in another market. Limited amounts frequently are shipped to customers outside the metropolitan area. Costs are not estimated for shipments destined for customers in such places as Florida, California, and other areas that frequently use meat and poultry products prepared in the market. The costs of transporting this product to the edge of the metropolitan area or to air terminals, rail yards, or other points of departure are included. If operators distribute the product with their own or leased vehicles, or if it is picked up in the market by the purchaser's truck, the costs are included. Loading costs for all products were considered as part of the estimated cost of within-facility handling. Estimated costs of moving meat from the market are higher than for poultry because of the smaller shipments, and because poultry is usually ice packed and does not require a refrigerated truck for delivery to the metropolitan area. These costs are shown in table 8. A more detailed breakdown of these costs is shown in table 22.

Summary of Total Costs for Selected Items

Total costs for selected items in handling 817,197 tons of meat and poultry through the 14th Street wholesale market were \$31,571,100, an average of \$38.63 per ton of product received and shipped. The average cost in 1960 of handling meat was \$41.53 per ton, and for poultry was \$21.05 per ton.

Cartage to the market from the first point of arrival, avoidable delays, and icing represented the major items of cost in receiving meat in the 14th Street market that might be affected appreciably in a new market. During 1960, these costs amounted to \$1,907,300, an average of \$2.33 per ton of meat and poultry.

TABLE 9.—*Summary of estimated costs for selected items in distributing 817,197 tons of meat and poultry through the facilities of the 14th Street wholesale market, New York City, 1960*

Item	Volume	Average cost per ton	Total cost
Movement to market	<i>Tons</i>	<i>Dollars</i>	<i>1,000 dollars</i>
Cartage ¹	171, 523	7. 20	1, 234. 9
Avoidable delay ²	711, 426	. 75	523. 1
Icing ³	210, 464	. 67	140. 3
Total.....	817, 197	2. 33	1, 907. 3
Unloading receipts.....	817, 197	2. 61	2, 129. 7
Handling within facilities.....	817, 197	7. 76	6, 338. 4
Loading out.....	817, 197	3. 56	2, 913. 6
Spoilage, theft, and deterioration ⁴	817, 197	7. 43	6, 075. 0
Rentals.....	817, 197	2. 37	1, 939. 7
Refrigeration.....	817, 197	. 97	792. 2
Intramarket handling ⁵	44, 875	18. 77	842. 2
Total.....	817, 197	25. 74	21, 030. 8
Movement from market ⁶			
Cartage.....	817, 197	6. 18	5, 048. 2
Avoidable delay.....	817, 197	4. 38	3, 584. 8
Total.....	817, 197	10. 56	8, 633. 0
Total			
Meat.....	701, 549	41. 53	29, 137. 2
Poultry.....	115, 648	21. 05	2, 433. 9
Grand total.....	817, 197	38. 63	31, 571. 1

¹ Excludes 645,674 tons of meat and poultry shipped direct to the operators' places of business f.o.b. New York City.

² Includes avoidable delay on receipts of meat and poultry that arrived in the market by truck.

³ Costs of icing cars held in railroad yards.

⁴ Based on 1 percent of wholesale value of meat and poultry.

⁵ Includes costs of handling, transportation, and avoidable delay in movements between operators in the market.

⁶ See footnote 2, table 8.

Unloading, handling, loading out, spoilage, theft, product deterioration, rentals, facility refrigeration, and intramarket transfers account for almost two-thirds of the cost of handling meat and poultry in the market. These costs were estimated at \$21,030,800, an average of \$25.74 per ton of product.

Intramarket handling cost, including the loading, unloading, handling within facilities, and transportation, amounted to \$842,200, an average of \$18.77 per ton for the 44,875 tons transferred.

The costs of cartage and the avoidable delay in moving the meat and poultry from the market were considerably more than in moving it to the market, because of the greater number of units of transportation equipment involved, the smaller shipments, and the time of day the movement occurred. The costs of movement from the market to outlets were \$8,633,000, an average of \$10.56 per ton. Table 9 gives a summary of the estimated costs of selected items for the market.

The estimated costs do not include buyers' time or service costs, such as those for telephone, light, heat, and water. Management and selling costs are not included. Some of these costs will remain almost as they are whether the operators do business in the 14th Street market or elsewhere in the

metropolitan area. Savings can be made in time required for buying and selling. Conservative estimates are used for spoilage, theft, and deterioration. No attempt was made to determine the amount and value of inedibles, such as bone, or edible items, such as fat, that sell at a reduced price. The estimated costs of theft, product deterioration, and spoilage are those attributable directly to inadequate refrigeration and facilities. Some shrinkage and waste are inherent in the handling of meat and would be practically impossible to eliminate, but they can be reduced and held to a minimum.

Nonmeasurable Costs

Poor sanitation, dirty facilities, poor working conditions, lack of adequate safety precautions, the effect of long operating hours on other costs, and the inconveniences caused by poor facilities and traffic congestion, for operators as well as buyers and other groups doing business, add to the total costs of distributing meat and poultry from the market. The costs of these items are hard to measure, and were not determined in this study. Nor were the costs to the city for traffic control, police, and fire protection considered.

Defects in the 14th Street Wholesale Market

Most of the defects in the 14th Street market contribute directly or indirectly to high costs of handling meat and poultry. In the preceding parts of this report, many of the defects have been mentioned directly and others only indirectly. A clear understanding of them is necessary to consideration of proposed means and methods for improving the marketing operation. Most of the defects in the market are related to inadequate facilities.

Inadequate Facilities

Excepting a few facilities renovated in the last 2 or 3 years, and the Gansevoort meat center, many of the facilities are not suitable for modern handling of meat and poultry. Most facilities are inadequate, not only from a cost standpoint, but from a sanitary standpoint as well.

Many of the facilities being used by operators in the market were not designed for modern handling methods for meat and poultry. Few can be economically adapted to modern methods.

Practically all meat and poultry moving both into and out of an operator's place of business must pass through the same doorway, the front entrance.

Many of the facilities do not have adequate meat rail systems, some are crowded, some rails are too high, others too low. Many do not have adequate meat-rail storage. Floors are poorly constructed, sometimes of materials not acceptable by sanitary

standards. Most of the buildings, except the Gansevoort center and a few others in the market, have their main floors at street level. Few have truckbed-level platforms, and this lack necessitates an upward or downward movement in loading and unloading. Meat rails must be inclined, or the transfer from truck to store and store to truck must be made manually or with some type of lift or elevator. The transfer must also be made across the sidewalk, as few facilities have sufficient standing space for loading and unloading that does not include most of the sidewalk area.

The electrical service, sewerage facilities, water, ventilation, and air circulation are not sufficient to meet the needs of the operators. In most cases, it is not economical to make adjustments necessary to meet these requirements in the present facilities.

Fresh meat should be stored under refrigeration at all times, and, if proper refrigeration facilities are available, it can be held for extended periods with little loss of quality. All units in the market have refrigerated coolers, but many of the refrigeration facilities are inadequate, poorly designed, old, or too limited to protect the load they often must carry. Coolers have been renovated or expanded without increasing the refrigeration. This has resulted in overloaded refrigeration equipment and inadequate temperature levels. The system used is a combination of individual units and a community brine supply which, because of age and method of installation, can supply brine at only about 24° F. Brine of low enough temperature for

freezers is not available except on an individual-system basis. Freezers in the market, except for public cold storage, are usually installed and owned by the individual operators.

Few units in the market have proper equipment for humidity control. Proper humidity controls in some facilities have more than offset their cost by reducing shrinkage, especially where considerable breaking and processing are done.

Inadequate facilities contribute more to costs of operation in the market than any other single factor, primarily because of the extra labor required for performing jobs that could be done much more easily, cheaply, and simply with adequate facilities. Both the shape and size of many facilities are inadequate for the operations being performed in them. Some operators do not use the space they have to the fullest, and that adds to costs. For many of them it is impossible to do so.

Poor Working Conditions

The 14th Street market is not a pleasant place to work. Manual labor still is used instead of modern handling equipment; it must be used, because few of the facilities were planned for modern mechanical handling methods.

Adequate and clean welfare facilities are not available for most employees in the market. Many of the welfare facilities are dark, dirty, and poorly

equipped (fig. 12). Few meet modern standards, nor is that possible for most of them because of their construction, size, and location within the facilities.

Many facilities have crowded work areas, lighting is bad in some, many are dirty, few have proper facilities for cleaning, and many have equipment that is impossible to clean even if proper cleaning facilities and equipment were available. Working hours are long, and lack of coordination causes the market to remain open many unnecessary hours. The market must remain open during the morning while shipping out takes place; in the afternoon, meat and poultry must be brought in, in preparation for the following day. Double shifts and staggered shifts are commonly used.

The environment, in and around the market, is far from pleasant and attractive. It is depressing not only to the employees but to visitors and others who frequent the market. Many of the buildings are old, weather-worn, and in poor repair. The entire area is poorly drained, and a sloppy condition prevails in rainy or snowy weather. In the winter, trash, garbage, and other refuse is often burned in the streets, not only to get rid of it but to provide heat for employees working outside.

Traffic Congestion

Vehicular congestion caused by an increasingly large number of semitrailers, vans, panel trucks, pickup trucks, station wagons, and cars, using a system of streets that was not designed to carry the load or number of vehicles, is a primary defect of the present market. Time loss due to traffic delay and lack of loading and unloading space in the market amounts to several million dollars annually. Incoming loaded trucks must wait to get into the market. Once in the market, they must wait to get to their unloading destination, and then must wait to leave the market. Waiting time is expensive, when it affects either incoming or outgoing shipments.

Efficient operation in the 14th Street market is impossible with the present traffic congestion. Trends indicate that this difficulty will grow. Streets designed for horses and wagons are totally inadequate for today's modern semitrailers, which are commonly used to transport meat and poultry to the market.

Parking for employees, for trucks waiting to load or unload, and for others who bring vehicles into the market area is insufficient, adding to congestion in streets that are overcrowded at their best.

Reduced Intramarket Movement

Efficient movement of meat and poultry within the market is discouraged primarily by inadequate facilities and congested streets. Only such transfers among operators as are extremely profitable or absolutely necessary are made. Many trans-



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FIGURE 12.—Typical welfare facility (dressing room) in the 14th Street wholesale meat market, New York City, 1960.

actions among operators that should be made to obtain the best alternative use of products are not made because of inconvenience and high cost. As a result, the full economic forces of the market are not allowed to operate freely. Increased movement of meat within the market is needed if the market is to function properly.

Inadequate Rail Facilities

Inadequacy of railroad facilities in the market helps to increase traffic congestion. A car of meat delivered to an operator who has no adjacent rail siding must be unloaded at a nearby team track and trucked to the market. Although 22 operators have rail sidings, the sidings are not efficient because the tracks are on an elevated line and meat must be lowered by elevator or other devices into first-floor coolers. Either unloading from the adjacent siding or trucking from a team track is an expensive and time-consuming operation.

Unnecessary Waste and Spoilage

Poor handling practices, necessitated by inadequate facilities, include dragging meat on the floor, letting it fall to the floor, and wearing of dirty clothing by meat handlers and others. Such practices result in deterioration, or loss from trimming away the damaged portions of meats.

It is impossible to measure the full damage to the product or the cost arising from improper facilities. Meat usually does not deteriorate enough to be a complete loss, but the quality is reduced. In many cases, the effects do not become apparent until the product reaches the retailer or even the consumer.

Rentals and Location

The 14th Street market is in an area where land values have increased, the streets are narrow, and

Improvements Within the Present Market

Two types of improvements in the handling of meat and poultry in the 14th Street market have been discussed frequently. One view is that some immediate but not extensive improvement can be made in the market at very little cost. Another is that the only real solution for the defects of the market is to build completely new facilities. In this report, both views will be examined.

Some improvements in the market can be made at a small cost. The most discussed proposals for improvement include additional parking for trucks on Pier 53 and the streets; increased police assistance to avoid frequent traffic tieups; regulation of the unloading of receipts; more assistance from local public service agencies such as the sanitation, police, and fire departments; construction of addi-

space is limited. Many of the operators now in the market are descendants of former operators, family ties are strong, and many of the techniques and methods used many years ago are still prevalent. Conditions have changed until the market is no longer adequate, and operators' costs of doing business are such that their competitive condition is being impaired.

Operators in the Gansevoort meat center pay, on the average, \$3.05 per square foot annually for the space they occupy, excluding refrigeration. Inefficient space utilization and lower quality facilities are reflected in lower rentals outside the Gansevoort center. The average total cost of all meat and poultry facilities and refrigeration in the market in 1960 was \$2.60 per square foot of space.

Results of the Defects

Due to many inadequacies of building design, lack of rail connections, narrow streets, lack of platforms, and limited entrances and exits, the handling costs within the 14th Street market are unusually high. Meat and poultry require facilities that can be kept sanitary. Normal handling costs for wholesale marketing of meat in many other cities in the United States are considerably less than those in the 14th Street market.

As technology advances, the present market will be in a less favorable competitive position, especially with advancements being made in nearby cities such as Philadelphia and Boston. The handling costs for wholesale meat, although higher than for most other foods because of product preparation, are much too high in the 14th Street market.

Insofar as possible, the remainder of this report will set forth ways and means of improving the marketing operation and of meeting future demands.

tional facilities on vacant property in the market; widening 14th Street from 9th Avenue to West Street; relocation of fruit and vegetable operators; and use of other vacant buildings.

Additional Parking for Trucks on Pier 53 and Streets

Additional parking on Pier 53 for trucks waiting to unload in the market has been discussed for some years. Work has now been completed to convert this pier to a parking facility for trucks.

Plans for converting the pier, which is 826 feet long on the north side, 344 feet long on the south side (land adjoins part of the south side), and 50 feet wide, were coordinated by the mayor's office

after a plea from the marketmen's association to reduce traffic congestion in the market. With the new facility, estimated to accommodate 45 trailer trucks, now in use, trucks waiting on the pier are called to unloading areas in the market by telephone. A contract for removal of existing structures on the pier was awarded in July 1961, with completion scheduled 60 days later at a cost of \$37,700. Removal of the structures was not completed until early in 1962.

This conversion provided additional parking which was seriously needed, and removed some of the standing vehicles which added to congestion in the market. Care must be exercised to prohibit parking by persons not utilizing the market. The facility is operated by the marketmen's association.

Additional usage of Ninth Avenue to establish space for trucks waiting to load and unload would also be beneficial to the market operators. Likewise, waiting areas could be established along West Street in the vicinity of the city's incinerator plant.

Estimated total cost of placing the pier in condition to use as a parking facility for trucks is \$56,946, or an annual cost, based on a 5-year period at 5 percent interest, of \$13,153.¹⁰ Annual operating costs for attendants, rent, insurance, and miscellaneous expenses are estimated at \$25,315. The total annual costs are estimated at \$38,468.

Annual revenues from parking are estimated at \$38,610. Revenues are based on use by 45 vehicles, each paying \$3 per day.

City policemen are responsible for managing the parking on the adjacent streets, especially in front of the city incinerator plant on West Street. No charges would be made for the approximately 20 parking spaces that are available, other than the parking meter charge.

Another alternative would be for the city to install parking meters on the pier and require the policemen working the area to enforce the parking regulations necessary to insure proper usage.

Estimated annual savings resulting from use of Pier 53 for parking would be partially offset by increased use by a steamship company of Pier 54. This pier was being rehabilitated for use by ships. On the basis of the average number of vehicles in the market, the number of parking spaces available, the increased traffic due to the pier usage, and the additional parking spaces that are possible on Pier 53, it was estimated that a 2-percent saving in the total avoidable delay in the market could be obtained. This would result in a saving of \$82,338 annually to the entire market.

It was estimated that the additional parking spaces provided by use of Pier 53 would reduce the avoidable-delay costs proportionately to the number of spaces used. As the number of parking spaces increased, the avoidable delay that might be eliminated would decrease to a point

¹⁰ Five-year period used because the pier may be recon-
verted to use by steamship companies, especially in view
of the use of Pier 54.

where additional parking areas would no longer cause a reduction in the avoidable delay. Other factors, such as the amount of truck loading and unloading space and street widths, also affect the avoidable delay. With the additional parking spaces, the major savings come from elimination of avoidable delay in movements from the market rather than to the market.

Increased Traffic Assistance To Avoid Frequent Tieups

Delays caused by traffic congestion are expensive and may be partially alleviated by better traffic management. Tieups occur between 5 a.m. and 10 a.m., Monday and Tuesday being the most troublesome days. Progress toward improving the flow of traffic has been made by assignment of policemen to the area during rush periods. The periods of additional police assistance should be extended to noon on Monday and Tuesday, and until 10 a.m. on Wednesday, Thursday, and Friday.

As a result of talks between the members of the marketmen's association and members of the police force, the following recommendations were sent to the Traffic Department in late December 1960: (1) 13th Street traffic should move only one way, east; and (2) waiting lines for trucks should be established on the east side of Hudson Street from 14th Street to Gansevoort Street, and on the west side of Hudson Street from 13th Street to Gansevoort.

An attempt was made as a result of this recommendation to change the direction of traffic on West 13th Street, but operators along the street complained and the old pattern was resumed. The major complaint was based on difficulty with house meat rails which joined the street unloading areas at angles greater or less than 90°. With such rails, it was impossible to join meat rail systems of trucks and facilities for direct unloading. Observations of traffic indicate that more of the present streets in the market should be directed eastward, as there is only one street leading directly from the market in this direction.

It is estimated that, under present circumstances, four more policemen would be required to assist the current force in the market to obtain the maximum improvement in the traffic movement. The services of four policemen are estimated to cost \$43,200 annually. Savings would accrue to all operators in the market, because the additional assistance would facilitate movement into and out of the market and reduce the avoidable delay. Savings that might be possible are not estimated, because of the lack of adequate data on which to base an estimate.

Additional studies by traffic engineers should be made in order to improve the flow. No estimates of the costs of this or the savings that might be possible are made in this report.

Regulation of Unloading of Truck Receipts

Suggestions concerning the regulation of hours for unloading trucks, although feasible for some operators, would require certain major changes in the marketing of meats. There is not enough cooler space to permit regulated hours of unloading. Supplies of meat must be received throughout the day, as some firms turn their stocks several times daily.

Limited regulation of hours appears to be desirable. Meat should not be unloaded on Monday and Tuesday between 7 a.m. and 10 a.m. Such a limit on time would not inconvenience any operator too greatly, and would eliminate some traffic during the peak period. This could be accomplished through a general agreement among operators. Operators would have to hold trucks in waiting areas on the periphery of the market.

The limited regulation of hours for unloading receipts in the market would not require an outlay of capital. The regulation could be enforced by the traffic policemen working the area, with no additional cost. Limited savings in avoidable delay would be the primary benefit.

Coordinated Efforts of Service Agencies

Improved traffic movement would increase the effectiveness of fire prevention and protection in the market. It would be extremely difficult now for the fire department to service a call from the market center during the morning rush periods.

Sanitary services in the market, not only by the city but by the many private firms collecting inedibles in the market, should be coordinated and improved. Sanitation of streets, sidewalks, and vacant property needs improvement. Snow removal is a prime example of poor service in the market. Removal of snow is largely left up to the tenants, and so lacks coordination.

No estimates of the costs or saving are made for coordination of the agencies serving the market. Such improvements require coordination by an industry committee or some other interested agency or individual.

Construction of Additional Facilities in the Market Area

Construction of additional facilities in the market on vacant properties would be unsatisfactory from the standpoint of providing modern facilities. To obtain rail sidings, new facilities would require at least two floors and possibly three in some areas. In some locations, rail sidings would be economically impossible.

Vacant space is available for construction of 60,000 square feet of first-floor space.

Estimated construction cost per square foot for 60,000 square feet, at \$13.00 for building, \$2.95 for

meat rails, \$3.50 for insulation, and \$4.80 for refrigeration equipment, on land assessed an average of \$10.18 per square foot, totals \$34.43 per square foot. Total cost of construction of these added facilities would be \$2,065,800. On the basis of the rental formula of the Department of Markets, New York City, this cost would require an annual rental of \$227,233, or \$3.80 per square foot. This rental would cover insurance, maintenance, repairs, management, payments in lieu of taxes, and repayment of principal and interest for the added facilities.

Construction of new facilities in the market without provisions for parking and adequate rail sidings would add to traffic congestion. None of the sites studied in the present market have adequate areas for parking. As a result, cost reductions that are possible in the present market by construction of additional facilities would be partially offset by increased costs caused by the additional congestion, which would increase the avoidable delay in movements to and from the market.

Widening of 14th Street

Fourteenth Street provides the major access to the market from the east. It is also one of the widest and busiest streets in the area. Operators along 14th Street between Ninth Avenue and West Street were interviewed to determine their views on widening this street. They were asked if they would be agreeable to the removal of protruding overhead and underground devices, owned or leased by them, to permit the city to widen the street. Only 8 of the 22 operators who supplied information were agreeable to the project. Eleven were not agreeable and three were noncommittal or had alternate solutions.

The majority opinion of the 14th Street operators was that widening the street would not be in their best interest, as it is doubtful that the widening would alleviate present difficulties. Widening the street would only slightly reduce the congestion on nearby streets. This street provides an unloading area for many operators whose businesses face it. As a result, unloading trucks tie up the busiest street in the market. Many of the trucks use the sidewalk for parking during loading and unloading. Without extensive building alterations, little space could be gained by widening the street, because maximum use is already being made of most of the area.

Relocation of Fruit and Vegetable Operators and Use of Other Vacant Buildings

Additional space for meat and poultry operators will become available when new fruit and vegetable marketing facilities are completed. It is estimated that 30,000 square feet more of first-floor area will be available. The facilities that will be vacated would require extensive renovation

to make them acceptable for handling meat and poultry.

Other buildings in the area that are currently available include about 60,000 feet of first-floor space. However, like the space that will become available through relocation of fruit and vegetable operators, these buildings would need extensive renovation. Many of the buildings have 8-foot ceilings, wooden floors at street level in some cases, and little or no insulation. Refrigeration would require extensive alterations to meet minimum standards for meat and poultry.

Estimated cost of renovating the 90,000 square feet of usable space for meat and poultry operations is \$1,642,500, or \$18.25 per square foot. In addition, the land is assessed at an average of \$10.18 per square foot and the improvements at \$10.31 per square foot. The renovation costs and the assessed value of land and improvements total \$38.74, or more than the cost of new facilities. These costs would require rentals of about \$4.25 per square foot.

Possible savings would be derived primarily from a more efficient design of facilities. Such savings would be partly offset by increased traffic congestion, because of increased traffic and loss of parking space (some of the vacant areas are currently used for parking). As a consequence, there would be little or no savings in getting meat into and out of the market. In some facilities that are in use, some improvement could be made in handling operations, but determination of the costs and savings possible would require intensive study of individual facilities.

Although some savings are possible from renovated or new facilities in the present market, the full benefit cannot be realized because of the offsetting effects of such factors as increased traffic and resultant increases in avoidable delay.

Summary of Estimated Costs and Savings From Improvements in the Present Market

Although it is possible to estimate the costs of making various improvements in the market, the complex results make it extremely difficult to ar-

rive at the estimated savings that might be obtained. For example, if new facilities were constructed or if certain facilities in the market were renovated, the costs of these could be estimated; but the savings in handling costs and the costs of getting meat and poultry to and from the market would be affected by other factors besides the actual facilities. If new firms began operation in the facilities, there would be additional traffic in the area, adding to an already congested condition. If an established large-volume operator in the center moved to facilities near the periphery of the market, the avoidable delay might be reduced. To determine the net benefits, each operation affected, each change in tenure, and each relocation would need to be evaluated separately. Therefore, this report does not attempt to place a dollar value on savings that might be obtained from all the improvements discussed.

It is estimated that 45 additional parking spaces have been obtained by using Pier 53. Estimated cost of this additional parking is \$38,464 annually. Revenues from parking would offset this cost, and, as a result, any improvement in traffic movement and reduction of delays would be net savings, which are estimated at \$82,338 annually. Four additional traffic policemen would cost \$43,200 annually. Regulation of unloading hours and better coordination between agencies serving the market should be accomplished through the joint efforts of the operators in the market. No attempt has been made to evaluate the benefits from these actions or the addition of extra traffic policemen.

Construction of new facilities on vacant property or remodeling of vacant facilities in the market would provide a few operators with facilities where their costs could be reduced. These could be made available at rentals fairly competitive with those presently paid by operators in the market. But savings from new or renovated facilities might be offset by increases in costs of getting meat and poultry to the market. Widening of 14th Street would not provide better access or more parking in the market except at a loss of facility space. Maximum use of the space along 14th Street is being made.

Building a New Market for Meat and Poultry

The only real solution to the defects of the present market is to build complete new facilities of the design, type, and arrangement required to meet present conditions and, insofar as possible, to anticipate future needs.

Two types of buildings are needed for operators in the market: Multiple-occupancy buildings, which would accommodate several operators; and single-occupancy buildings, each accommodating only one operator.

Studies have indicated that a standard unit of a multiple-occupancy building should be 25 feet

wide and 100 feet deep, including platforms 14 feet deep at both the front and rear; and should have 12-foot ceilings on the first floor, and a second floor 72 feet deep and 25 feet wide, with 8-foot ceilings.

Single-occupancy buildings are used when the needs of an operator exceed 15,000 square feet of first-floor space. Operators requiring 15,000 square feet or more do not require as much parking, railroad siding, or office or storage space as is required with this amount of floor space in the multiple-occupancy units. Operators performing

a highly specialized business or handling an extremely large volume usually require single-occupancy facilities.

On the basis of averages, a wholesaler was allotted one multiple-occupancy unit for each 100 tons of product handled weekly, a processor one unit for each 50 tons, and a purveyor one unit for each 25 tons. All meat and poultry operators in the market are provided space on that basis in the facilities proposed in this report. Supplementing this breakdown of the volume, the allocation of space in both single- and multiple-occupancy buildings was further determined from discussions with operators in the present market and with others associated with the market, as well as from experience and studies in other areas and with other products.

Facilities other than buildings for stores are required, because many of the problems of the present market result from other factors such as traffic congestion, inadequate parking, and insufficient loading and unloading space. The design, type, and arrangement of the proposed facilities provide for both buildings and other facilities necessary for the market to function properly.

A previous report issued by the U.S. Department of Agriculture, on a proposed market for fruits and vegetables in New York City, recommended 240 multiple-occupancy units, 25 feet by 100 feet, for handling approximately 780,000 tons of product. Current studies of the butter, egg, and cheese market indicate that 200 multiple-occupancy units are needed for 375,000 tons of product. This report recommends 192 multiple-occupancy units for 817,000 tons of meat and poultry.

The space required for the various commodity groups varies for three main reasons:

- (1) Density of product. Meat, because of its relatively high density per square foot, requires less space than many other products. Fruits and vegetables, being bulky, require more space.
- (2) Stock turnover or storage period. Meat stocks, except for that being aged, turn over very rapidly, often daily. Cheese and butter, on the other hand, are often stored for extended periods. Fruit and vegetable stocks move rapidly.
- (3) The amount of processing. The greater the amount of processing, the more space required to handle a product. In handling meat in some markets, more space would be required than in New York because of more processing; in others, less would be required.

Plans to replace the 14th Street wholesale meat market should include:

1. Building of 194 multiple-occupancy units 25 feet wide and 100 feet deep, in-

cluding platforms 14 feet deep, with a second floor 25 feet wide and 72 feet deep overall (2 units to be used for restaurants and public welfare facilities).

2. Two single-occupancy units, one 150 feet by 200 feet and the other 150 feet by 250 feet overall.
3. Two restaurants and at least two public welfare facilities, the restaurants to be on the first floors of two multiple-occupancy units with the public welfare facilities on the second floors of the units.
4. Railroad house tracks to accommodate at least 200 cars.
5. Paved streets, at least 200 feet wide where buildings face each other, and parking areas for 1,000 cars and station wagons and 200 trucks in addition to the tailboard space at the buildings.
6. Space for expansion, to permit construction of additional multiple- and single-occupancy facilities as needed.
7. An 8-foot fence and gates to enclose the market area.

Actual construction should be based upon the space needed by responsible tenants who will sign firm agreements to lease the facilities. Overbuilding at the start of the project should be avoided so that there will be no unoccupied space.

Multiple-Occupancy Buildings

The 192 multiple-occupancy units for meat and poultry operators could be placed in 7 buildings. These units are designed for use by operators who need 15,000 square feet of first-floor space or less. The 192 multiple units would provide facilities for 158 operators.

These multiple-occupancy stores should be designed on the basis of a standard width of 25 feet and depth of 100 feet. This does not mean that each firm would have only one such unit. It might occupy 1 unit, 1.5 units, 2 units, or some other multiple of the standard unit. Four sizes would meet the needs of these operators. The smaller stores, 25 feet wide by 100 feet deep, would be for poultry and small-volume meat operators. Two sizes, one 37.5 feet wide and 100 feet deep, and the other 50 feet wide and 100 feet deep, would service a wide range of operators in the market. The 37.5-foot-wide stores should be placed only in pairs. Stores 100 feet wide and 100 feet deep, consisting of four units, would meet the needs of the large-volume operators.

All of these should be in multiple-occupancy buildings. Each of these buildings should have a 14-foot platform, 55 inches above the top of the railroad rails, at the rear; and a 14-foot platform, 45 inches above the street, at the front. Platforms should be continuous at both the front and rear of

each building, and should slope slightly to the outside for drainage. The enclosed part of each building should be 72 feet deep.

Platforms at both front and rear should be covered, the roof over the front platform having sufficient overhang to protect loading and unloading operations in inclement weather. In addition, the front platform should have convenient steps to provide access for pedestrians to the store units. Wooden bumpers should be placed at the edge of both platforms to prevent damage by trucks as they park. Both front and rear platforms of all meat stores should be equipped with two continuous parallel meat rails, a minimum of 7.5 feet from the floor to the top of the rail, with switches at each store unit. This permits loading or unloading at any point along the platform, and provides an efficient method for intramarket transfers of meat.

Before construction, consideration might be given to the feasibility of enclosing both the front and rear platforms, to protect the workers and meat from inclement weather. The estimated cost to enclose the platforms of the 194 units and provide 20-foot rollup doors for each unit would be between \$150,000 and \$225,000 for each platform. This cost is not included in the overall costs presented later in this report.

Meat and poultry arriving by railroad would be delivered to the rear platform. That arriving by motortruck might be unloaded on either platform. Figure 13 gives possible layouts for a 50-foot unit in the market. The units are designed so they are easily adapted to the various types and sizes of operations on the present market. The final design of the building should incorporate a removable partition between each two units, so that 50-foot units could be divided if necessary, two 25-foot units combined, or two 37.5-foot units combined to make three 25-foot units or a combination of one 25-foot and one 50-foot unit. The partitions should be of materials that can easily be removed or replaced and that would provide insulation for refrigerated coolers. Multiple-occupancy units should face each other across a street 200 feet wide, insofar as practicable. The total interior height of all multiple-occupancy buildings should be at least 20 feet, including 12 feet for the first floor and 8 feet for second floor. No fresh meat should be handled on the second floor.

The second floors of the multiple-occupancy buildings are designed for maximum flexibility and use. Figure 14 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 a general access at each end of each building. Stairs at the ends of the corridor lead to the ground level. 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 the access stairs in each unit.

Operators leasing two or more units would be provided with only one set of stairs for each two standard units; however, provisions should be made to add a second stairway in case the 50-foot or larger units ever needed to be converted to 25-foot standard units. The space for the second stairway in the 50-foot units 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 space if he did not need the second-floor office. Likewise, the tenant could lease the storage area to someone else if he did not need it himself.

It is estimated that 20 operators would not want second-floor office space and 40 operators would not want second-floor storage space. This space might be subleased to meat and poultry operators or to allied interests such as operators of offices for telegraph, banks, transportation firms, packaging suppliers, or suppliers of seasonings. The sublease terms would be negotiated between the original lessor and anyone else who might desire to lease the space.

Corridors on the second floor would provide access to the refrigeration equipment rooms for maintenance and servicing.

Before actual construction, consideration should be given to the feasibility of placing one public elevator in the center of each multiple-occupancy building, for both freight and pedestrian uses. If an elevator were installed in each building, it should be placed so as to permit access from the front platform to the second floor by way of a connecting corridor to the main corridor on the second floor.

Buildings should be constructed so that the second floor could be removed if it ever became desirable to have a 20-foot-high ceiling. Meat-rail systems might be supported from the wall, or suspended from the ceiling of the coolers. Refrigeration distribution 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. Units for use by poultry operators initially would not have either meat rails or refrigeration equipment. Because of the wide range of refrigeration requirements, it is not feasible to supply this equipment for poultry operators. Provision should be made so that these units, initially designated for poultry, could be converted to use by meat operators. Each multiple-occupancy unit for meat should have sufficient refrigeration equipment, on an individual-controlled basis, to supply refrigeration for zero-degree freezers, for 32-34-degree coolers, and for 34-50-degree work areas. Office areas should have air-conditioner blocks and 220-volt 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.

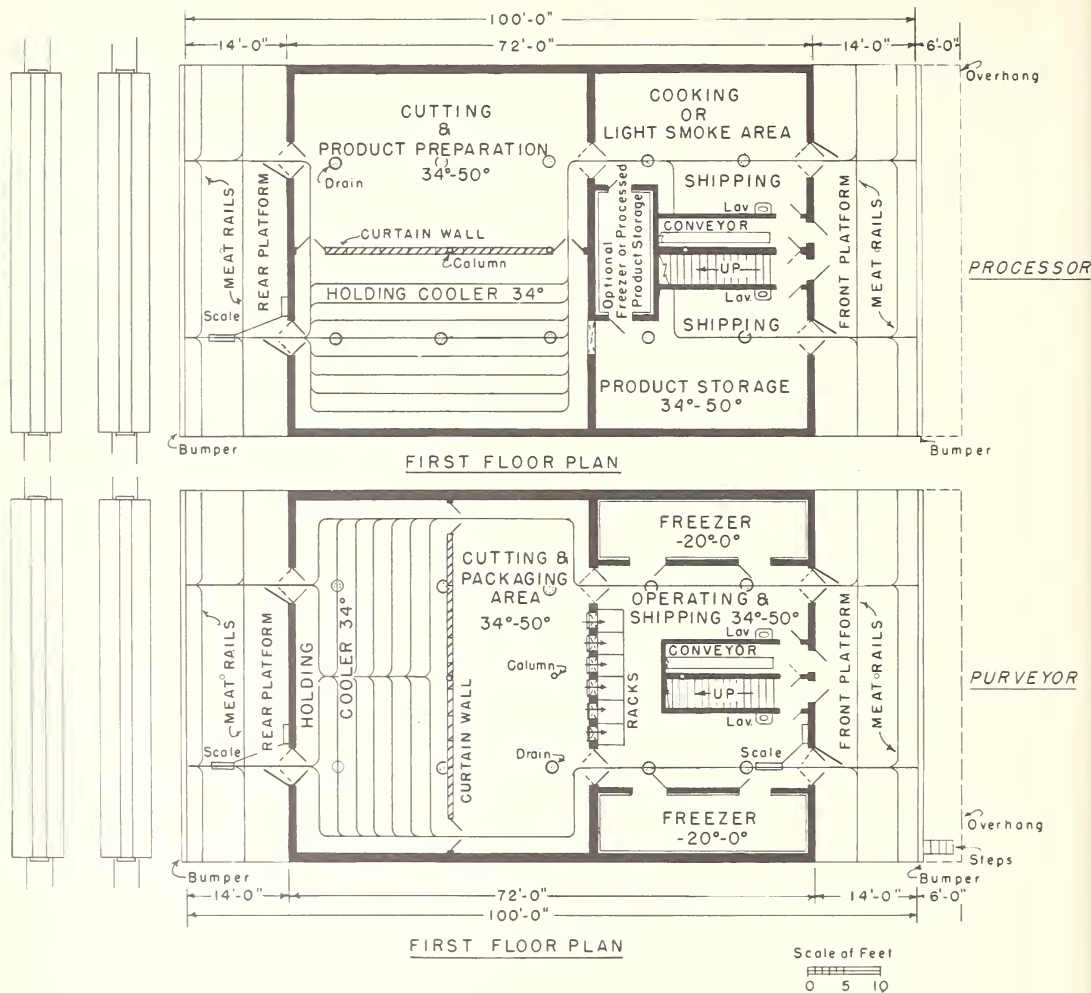


FIGURE 13.—Possible layouts for a 50-foot unit in the market, to be used by a wholesaler, purveyor, or processor, in New York City (diagram continued on next page).

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 a dense, acid-resistant, water-

proof concrete. Excessively smooth floors should be avoided. Floors should be well drained, with at least one drainage inlet for each 400 square feet of enclosed space. Floors should slope $\frac{1}{8}$ inch per foot in coolers to as much as $\frac{1}{4}$ inch per foot 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 square foot, and preferably 400 pounds. Second floors should carry at least 200 pounds and pref-

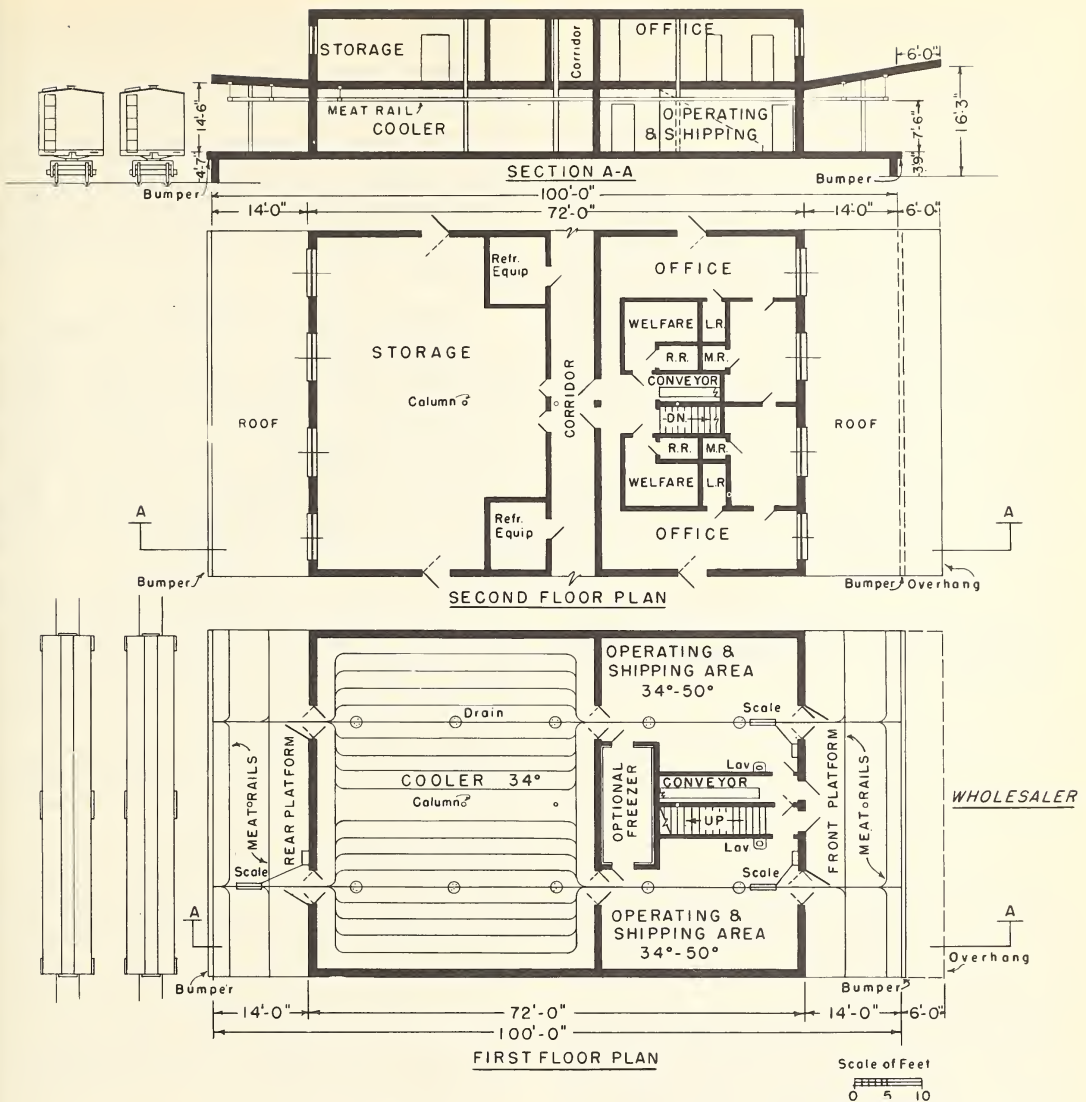


FIGURE 13.—(Continued from preceding page.)

erably 250 pounds per square foot.

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. Figure 15 shows a design for a multiple-occupancy building.

House meat-rail systems should be included in the plans for the market. These should be installed initially at a height of 7.5 feet as a minimum and 9.0 feet 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 feet and 9.0 feet, if the occupant changes. Rental charges to occupants reflect the costs of refrigeration, meat rails, insulation, and hot water.

Hot water should be supplied from a system in each unit and should be adequate for both welfare facilities and cleanup. Units should be capable of providing an adequate supply of water at a temperature of at least 180 degrees F. Units requiring steam would supply their own needs.

Construction of all meat facilities should follow the recommendations of the Meat Inspection Division of the U.S. Department of Agriculture. (5)

Single-Occupancy Buildings

Two single-occupancy buildings for two operators are suggested, one building 150 by 200 feet, and the other 150 by 250 feet. These should be served by railroad tracks, and should have both front and rear platforms; however, the platforms need not extend the entire length of these buildings as they do in the multiple-occupancy units. Refrigeration and the meat-rail system should be installed at the expense of the tenants, and long-term leases should be required, because of the highly specialized needs of these operators. Both the refrigeration and meat-rail systems should be included in the initial design. This report considers the construction cost of these two buildings without meat rails and refrigeration equipment. After firm leases have been signed, meat rails and refrigeration equipment may be installed and their cost reflected in the annual rentals required.

The final design for both single- and multiple-occupancy buildings should be approved by the Meat Inspection Division, Agricultural Research Service, U.S. Department of Agriculture, before construction is started.

Restaurants, Public Welfare Facilities, and Additional Office Space

Two restaurants are proposed for the market. These should be placed in two separate multiple-occupancy units. They should be so located as to accommodate conveniently the greatest possible number of employees and others in the market. Restaurant equipment should be furnished by the tenant.

Two public welfare facilities and restroom areas are proposed. They would be conveniently located on the ends of two buildings, on the second floor above the two restaurants. The equipment, plumbing, and servicing would be furnished by the market management.

Many firms and other interests allied to the meat and poultry wholesale operations would be provided with office space on the second floors of the multiple-occupancy buildings. Some meat and poultry operators would not need the second-floor offices or the storage areas provided in each unit. It is estimated that 40 storage areas and 20 office spaces would be available for allied interests. Tenants of the first floor would control the space above them and would sublease at their option. No firms or businesses obnoxious to the meat industry would be permitted on the second floor. Figure 14 shows a typical layout of a second floor in a multiple-occupancy building.

Railroad Facilities

Direct rail access should be provided to each building. In the proposed plan, two house tracks are provided, parallel to the rear platforms of all

buildings. Enough space is available for a third track if the need should arise. Trackage for 200 cars should be provided. To make the best use of rail facilities, the large meat receivers should be interspersed with small receivers throughout the market, to avoid overcrowding of some areas. All track areas near the stores should be paved level with the top of the rails, so that the platforms could be used for loading and unloading motor vehicles when the tracks are not being used. Paving in the track area also facilitates cleaning operations.

Streets and Parking Areas

All major streets of the proposed market area should be wide enough for present as well as anticipated use. They should be paved to carry heavy traffic and designed to promote adequate drainage. Some parking areas should be designed for parking trucks only; others, for only automobiles and station wagons; and other areas, for trucks, automobiles, and station wagons. All parking at the platforms of buildings should be at 90-degree angles.

When buildings face each other, streets should be 200 feet wide, to provide adequate driving space when trailer trucks are parked on each side. Other streets should be at least 50 feet wide, and wider where angle parking is permitted. On some streets, it might be necessary to allow parking, while on others only sufficient space for traffic movement would be necessary. Parking areas should be convenient to the buildings, but should not block the streets or loading and unloading areas.

Land for expansion of facilities should not be depended upon for parking. Parking areas should be as definite a part of the market as buildings, and should have their own expansion areas.

The number of employees, number of buyers, loads and unloads daily in the market, and the tailboard space available indicate that parking space for 1,000 cars and station wagons and 200 trucks would be needed in the market. This is in addition to the 500 spaces at the platforms for loading and unloading.

Expansion Area

In the selection of a market site, adequate land should be acquired for expansion of the facilities. In other cities where new wholesale facilities for meat and other commodities have been constructed, operators not included in the preliminary plans have gravitated to the new market, and original operators have needed more space. The plan suggested here includes approximately 8.2 acres, or 10 percent of the total area, for later expansion.

There are, however, an additional 34 acres adjacent, which could be designated for future development of single-occupancy or multiple-occupancy buildings.

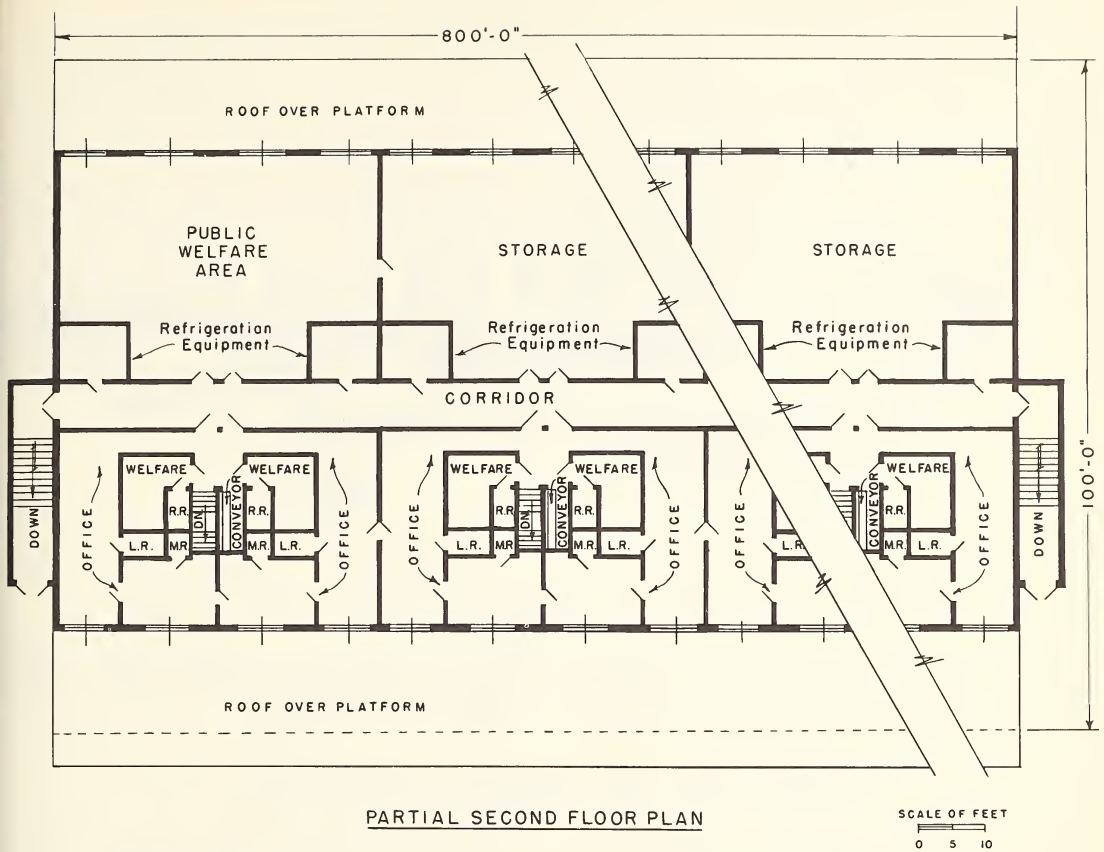


FIGURE 14.—A typical layout of a second floor in a multiple-occupancy building in the proposed meat and poultry market in New York City.

Fence

The market should be enclosed by a fence approximately 8 feet high, with gates at the entrances and exits. Estimates for its construction are included in this report.

Auxiliary Facilities and Considerations

If the wholesale meat market is a part of a food distribution center, construction of auxiliary facilities such as banks, motels, and service stations for motor vehicles probably would not be necessary. If wholesale meat and poultry facilities were on an independent site, several types of service facilities would be needed. This report excludes these service facilities; but if the new market for meat and poultry is to have an in-

dependent location, plans for such facilities should be formulated as needed. Since service facilities would be self-sustaining, their addition would not affect the costs included in this report.

Arrangement of the facilities on any site depends upon the shape and other physical characteristics of the area selected. Access streets, railroad locations, and access to utilities have a strong influence on the location of buildings. Buildings likewise have strong influence on the location of parking areas for motor vehicles, expansion areas, restaurants, public welfare facilities, and other service facilities. The arrangement might be different if the market were built independently rather than in connection with another food wholesaling center. If operational efficiency is to be obtained, the facilities must be arranged to obtain the maximum in coordination among all the functions to be performed. Future

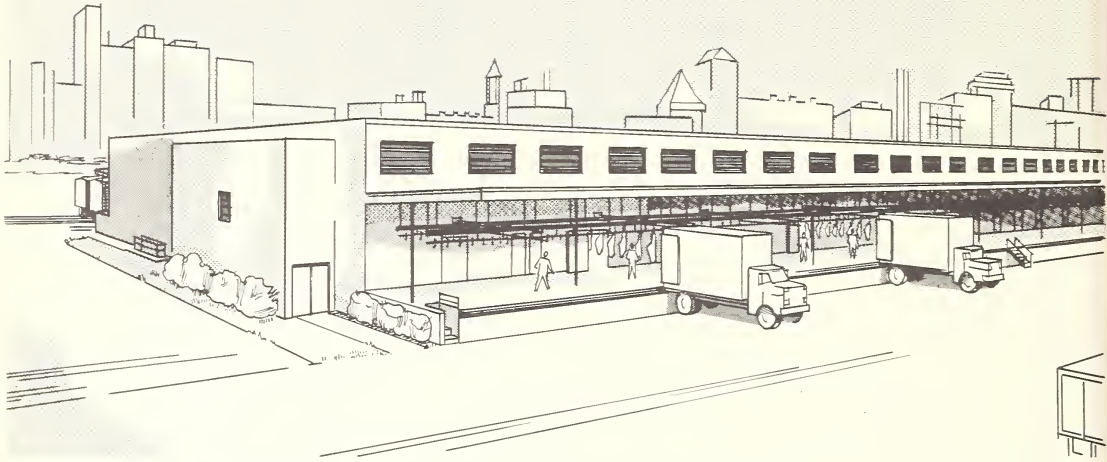


FIGURE 15.—A design for a multiple-occupancy building for wholesale meat operators in New York City.

expansion must be an integral part of the proposed market. Facilities must be arranged so that movement of meat to and away from the market can

be effected with a minimum of delay. Layouts showing proper arrangement of facilities are presented later in this report.

Sites for the Proposed Market

For the facilities proposed, a site of at least 80 acres would be needed for buildings, parking, streets, rail facilities, and expansion. This compares with about 35 acres in the present 14th Street market, not all of which is used for meat and poultry wholesaling. The main reasons why the land requirements are twice as great as the present acreage are: (1) Adequate provision is made for parking, (2) streets are designed to handle the vehicular traffic better, (3) adequate railroad facilities are provided, (4) buildings are designed to provide adequate loading and unloading space for each operator, and (5) sufficient area is provided for expansion.

The principal factors considered in the location of a wholesale market are: Distance to retail outlets, direction of population growth, availability of land needed, cost of land in condition to build, and accessibility to adequate railroads and through streets for transportation to and from the area. A detailed discussion of these factors and their effect on the selection of a site may be found in *New York City Wholesale Fresh Fruit and Vegetable Markets, Marketing Research Report No. 389, U.S. Department of Agriculture*. In that report, five sites were evaluated: Bronx Terminal

Market area, Hunts Point, Maspeth, Jersey Meadows, and the present market area in lower Manhattan. None of the sites was completely satisfactory from the standpoint of the requirements for a complete food distribution center.

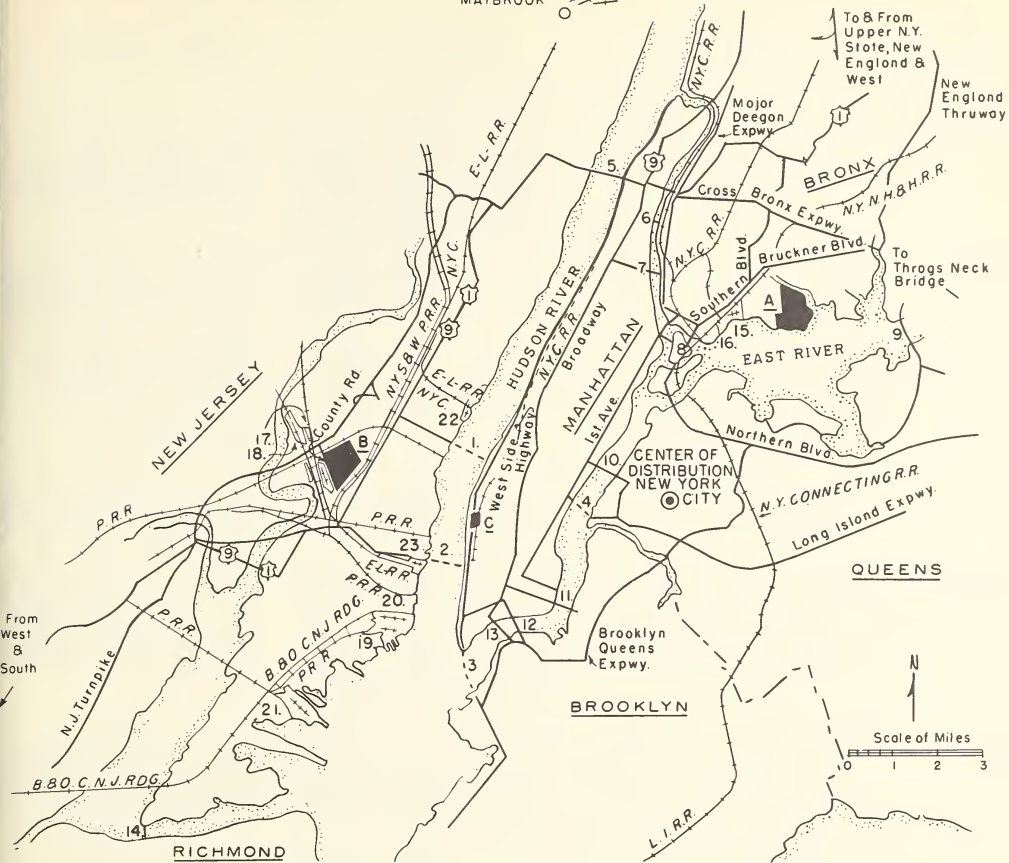
In three of the five sites, Hunts Point, Jersey Meadows, and Maspeth, sufficient land was available for the development of a complete food distribution center. However, since that study was completed, the Maspeth site has become unavailable.

Therefore, this report considers only (1) Hunts Point, (2) Jersey Meadows, and (3) the 14th Street market area. Figure 16 shows the location of each of these sites, as well as the highways and railroads that provide the major access ways to them. Table 10 presents the principal facts about the three sites.

Hunts Point

The Hunts Point site is about 5.25 miles from the center of distribution, as shown in figure 16, and is well located in relation to railroads and highways.

E-L.R.R. N.Y.N.H.&H. INTERCHANGE MAYBROOK
 NYC.R.R. NYNH&HRR INTERCHANGE STATE LINE, MASS.



LEGEND

TUNNELS

- 1. Lincoln
- 2. Holland
- 3. Brooklyn Battery
- 4. Queens Midtown

BRIDGES

- 5. George Washington
- 6. High
- 7. 149th Street
- 8. Triborough
- 9. Whitestone
- 10. Queensboro
- 11. Williamsburg
- 12. Manhattan
- 13. Brooklyn
- 14. Boyonne

R.R. FREIGHT TERMINAL YARDS

- 15. Oak Point
- 16. Port Morris
- 17. Croton
- 18. Secaucus
- 19. Communipaw
- 20. Jersey City
- 21. Greenville
- 22. Weehawken
- 23. Pavonia

SITES

- A Hunt's Point
- B Jersey City
- C Present 14th Street Wholesale Market

FIGURE 16.—Location of the Hunts Point, Jersey Meadows, and present market sites, showing the major highway and railroad connections that would service each.

The site is in the borough of the Bronx. The specific site for meat and poultry is bounded by Lafayette, Rayawa, Halleck, and Bryant Streets, and is within the area bounded by the Bronx and East Rivers and Lafayette and Coster Streets.

The proposed market area for meat and poultry includes 80 acres, of which approximately 10 per-

cent is for expansion purposes. In addition to this 80 acres, there are 34 acres that adjoin the proposed site and that would be available for meat and poultry usage or allied industries. Costs of this additional property are not included in the estimated costs in this report. The estimated cost of the 80 acres of land in condition to build is

TABLE 10.—Appraisal of sites at Hunts Point, Jersey Meadows, and the present market for a proposed wholesale meat market for New York City

Item	Hunts Point	Jersey Meadows ¹	Present market area
Location and boundaries.	Bounded by: Bronx River, East River, Lafayette and Coster Streets; located in borough of Bronx.	Bounded by: Pennsylvania RR. on west, Secaueus Road on north, county road south, and New York, Susquehanna & Western RR. on east; located in Hudson county, New Jersey.	Bounded by: 15th, Horatio, West, and Hudson Streets and Ninth and Eleventh Avenues; located in borough of Manhattan, New York.
Land available.....	80 acres, with more available.	80 acres immediately, with as much as 600 additional acres available.	60 acres total, 35 acres in present plus 25 additional acres for minimum requirements.
Estimated land cost...	\$4,880,000 for 80 acres at \$61,000 per acre. ²	\$4,880,000 for 80 acres at \$61,000 per acre. ²	\$46,020,300 for 60 acres at \$767,005 per acre. ³
Present land use.....	Small warehouses, junk yards, lumber yards, miscellaneous other uses.	Vacant.	Present wholesale meat market facilities.
Topography.....	Flat, mostly filled land, piling necessary.	Flat marshland, relocation of utilities necessary, piling necessary, waterway relocation.	Large percentage of present structures would need to be demolished to construct suitable facilities.
Rail transportation....	Direct access by the New York, New Haven & Hartford RR. Other railroads by the use of interchanges and connecting lines.	Direct access by Erie & Lackawanna RR. and Pennsylvania RR. by use of New York, Susquehanna & Western RR. tracks. Other railroads by the use of interchanges and connecting lines.	Elevated line of New York Central RR. direct to market. Does not permit street-level operation, must use elevators for unloading.
Truck transportation..	N.Y. State Thruway to Major Deegan Expressway to Bruckner Blvd. N.J. Turnpike, U.S. 1 and U.S. 9 to Geo. Wash. Bridge to Major Deegan Expressway to Bruckner Blvd. or Cross-Bronx to Bruckner Blvd. Long Island—Triborough Bridge to Bruckner Blvd. Manhattan—149th St. Bridge to Major Deegan Expressway to Bruckner Blvd.	Adjacent to U.S. 1 and U.S. 9 (Tonnele Ave.). Easy access to Lincoln Tunnel or Holland Tunnel and N.J. Turnpike.	Located between Lincoln and Holland Tunnels. Served by West Street and 9th Avenue, north and south, and 14th Street from east.
Convenience to other food wholesalers.	Adjacent to new wholesale fruit and vegetable market as well as several new large dry-grocery warehouses. Three miles to Bronx Terminal Market. Additional meat-packing facilities being constructed nearby.	Near new wholesale food warehouse district on N.J. Turnpike.	Some fruit, vegetable, butter, egg, and cheese operations are within the market, other major markets nearby.
Convenience to retail outlets.	5.25 miles to center of distribution.	7.0 miles to center of distribution.	5.0 miles to center of distribution.

¹ Site being evaluated is one proposed by the New Jersey Public Market Commission.

² Costs are for land piled and in condition to build.

³ It is estimated that the costs to acquire the real

estate, condemnation, acquisition, and placing in condition to build are 135 percent of the assessed value of the property. The assessed value of the property was \$34,118,000 in 1960.

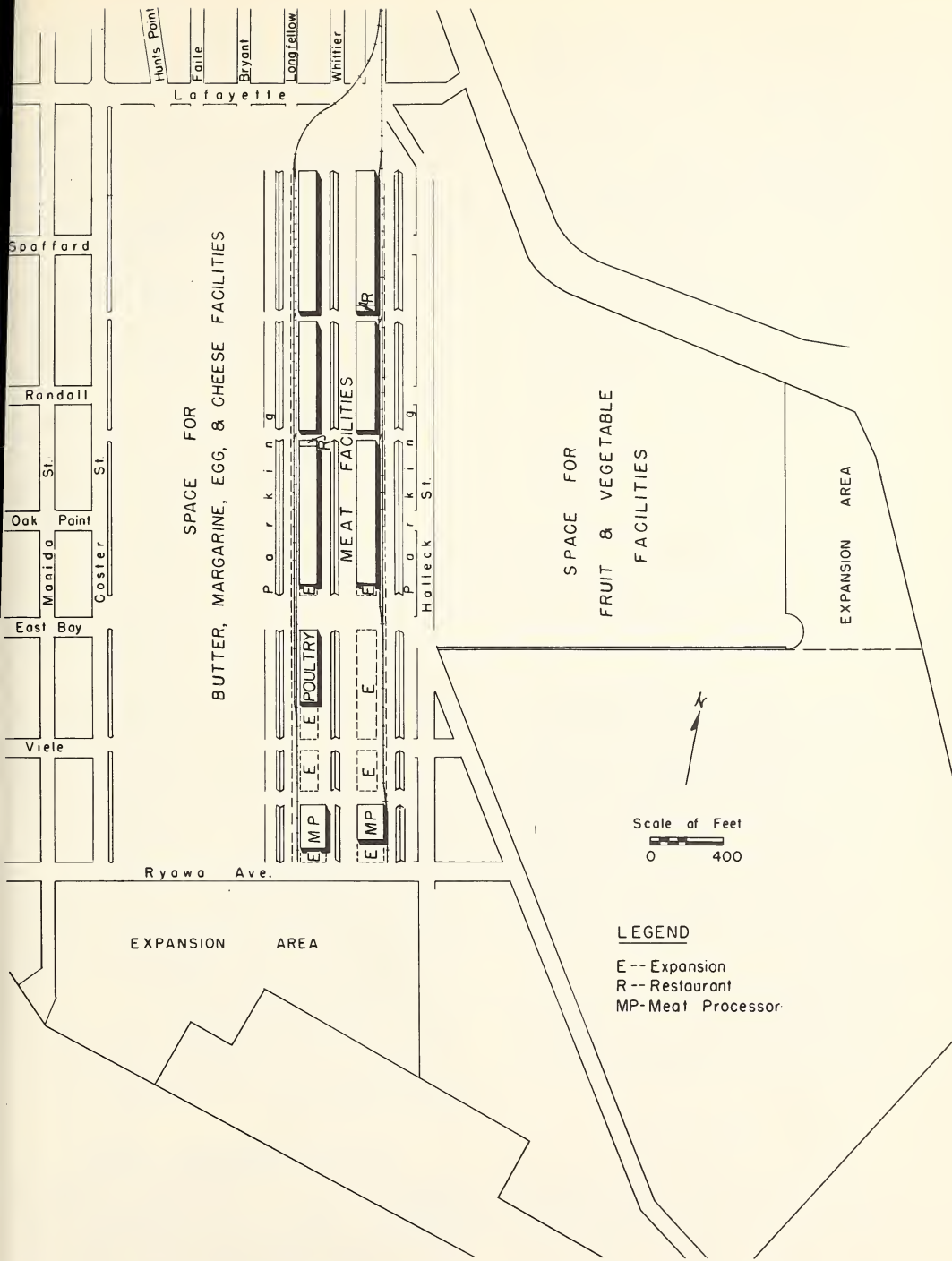


FIGURE 17.—A possible layout of facilities for a wholesale meat and poultry market at Hunts Point, New York City.

\$4,880,000, or \$61,000 per acre. The area is devoted to small warehouses, small factories, junkyards, lumberyards, and similar uses. The land is flat, mostly filled, and requires piling for buildings of the type proposed.

This site would be served by the New York, New Haven & Hartford Railroad, which is not a major originating line for meat and poultry shipments. This railroad now accepts from other lines many thousands of cars for delivery into parts of New York and the New England States. Meat and poultry could be picked up from the Pennsylvania Railroad at the Greenville, N.J., terminal; from the Erie & Lackawanna Railroad at the Maybrook, N.Y., or Jersey City receiving points; from the Baltimore & Ohio Railroad at Jersey City; and from the New York Central Railroad at the Port Morris interchange, which is adjacent to the Oak Point yard of the New York, New Haven & Hartford Railroad.

Excellent limited-access and through highways are available to handle both inbound and outbound truck shipments. The site is adjacent to Bruckner Boulevard, which makes direct connections to Long Island via Triborough, Whitestone, and Throgs Neck bridges; to Manhattan and Bronx via the 149th Street bridge; and to the west and south across the George Washington bridge, which can be reached by a number of expressways from the market. Also, a number of convenient ways are available to and from upstate New York and New England.

Construction of a modern wholesale fruit and vegetable market at Hunts Point is underway, and enough land at a reasonable cost is available to relocate the wholesale meat and poultry market in the area. A meat and poultry wholesale market in the vicinity of a modern wholesale fruit and vegetable market would help develop a complete wholesale and processing center for food. Markets for additional commodities, such as butter, eggs, and cheese, are being studied and might also be relocated in this area. Many of the service institutions are capable of common usage; facilities used for truck servicing, restaurants, motels, and banks are examples.

A possible arrangement of facilities for a wholesale meat market on the Hunts Point site is shown in figure 17. Locations of the fruit and vegetable markets and a proposed butter, egg, and cheese market are shown, to give a general view of the possible overall facility.

Jersey Meadows

Locating the New York meat and poultry market in the Jersey Meadows area would place the primary market for meat about 7 miles from its center of distribution. Sufficient acreage of low-cost land is available. Problems might be encountered in this location, some officials have indicated, from the standpoint of city health

inspection, from State and Federal laws governing sanitation and interstate movement, and reluctance on the part of New York City to locate the primary meat market outside the city and State.

The site is in Hudson County, New Jersey. The specific site for meat and poultry is bounded by the Pennsylvania Railroad on the west, Secaucus Road on the north, the New York, Susquehanna & Western Railroad on the east, and County Road on the south. The proposed market area for meat and poultry includes 80 acres, of which about 10 percent is for future expansion. Additional acreage is available for expansion and for allied industries. The estimated cost of the land in condition to build is \$4,880,000, or \$61,000 per acre. The area is vacant. The land is flat marshland and requires filling and piling for buildings of the type proposed.

A market on the Jersey Meadows site would be easily accessible for incoming shipments either by rail or by truck. Rail yards of several important railroads are located in this and the adjoining area. Trucks could reach the site by the New Jersey Turnpike, highways U.S. 1 and U.S. 9, and a number of State highways. If the meat and poultry market were located on this site, savings would accrue to railroads, and truck shipments would arrive at the market with savings in tunnel tolls. Figure 16 shows the rail and highway access routes to the Jersey Meadows site.

A large percentage of the shipments from a market at Jersey Meadows would go to outlets in New York City. Excellent access to the Holland and Lincoln tunnels and the George Washington bridge is available. There would be some delay in moving products through the tunnels, especially during rush periods in the morning and afternoon. Outlets to the north, west, and south of the site could be serviced easily from the market.

Adequate land is available for expansion of meat and poultry handling facilities and for allied industries. Location of the primary market for meat in New Jersey would cause additional cross-town traffic and increased costs of tunnel tolls between the market and retail outlets.

Existing high-tension power lines would need to be relocated, and redevelopment of the Penhorn Creek channel would be required. A possible arrangement of facilities on the Jersey Meadows site is shown in figure 18.

Present Market Area

This site is about 5 miles from the center of distribution. There is only limited rail access; however, rail traffic arrives at the 30th Street yards of the New York Central Railroad, about 1 mile away. Railroad tracks and their estimated construction cost have been excluded because of the

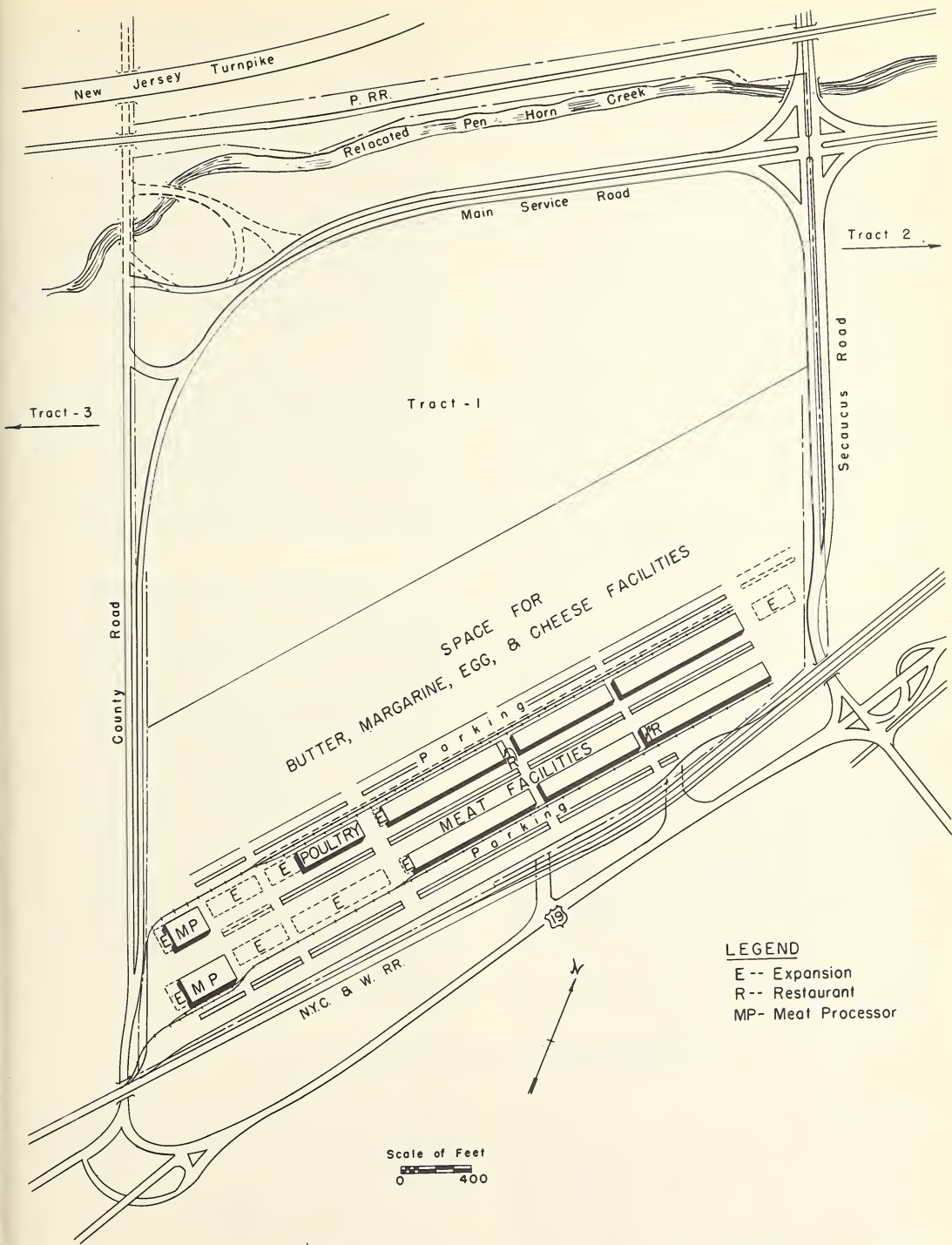


FIGURE 18.—A possible layout of facilities for a wholesale meat and poultry market at Jersey Meadows, New Jersey, to serve New York City.

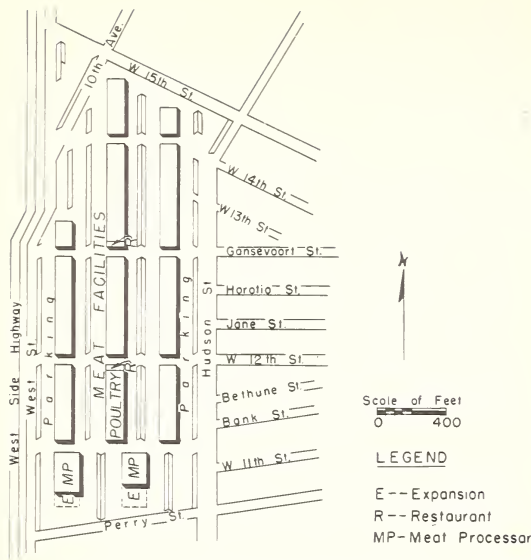


FIGURE 19.—A possible layout of facilities for a reconstructed wholesale meat and poultry market at the present market location, New York City.

high cost of land and the difficulty of obtaining tracks at street level. The area is serviced by an elevated line of the New York Central Railroad, which requires unloading on a second or third floor. If house tracks were made available at street level to all units, they would have to cross streets that are heavily traveled by trucks, and would further complicate an already congested traffic pattern. Furthermore, traffic congestion would continue on the narrow approach highways and streets, causing delays and increasing costs of delivery to and from the market. Motor-vehicle access to the site is limited, as it is midway between the Holland and Lincoln tunnels, on the lower west side of Manhattan. West Street, 9th Avenue, and 14th Street are the major access routes for motor vehicles.

Some of the operators and some others favor building the new facilities in the present 14th

Street area. Most of the land now in use as a meat market is available. But the high cost of land and the limited access by both rail and truck place the area at a disadvantage, especially if the cost of modernization must be amortized without a large subsidy.

A minimum of 60 acres would be required for the present operators if complete new facilities were constructed at the present market site. The present market covers about 35 acres, of which not all is devoted to use by meat and poultry operators. The 25 additional acres adjoining the 35 would be very costly to obtain. Cost of the 60 acres, based on the assessed value of the property and the cost of placing it in condition to build, is estimated at \$46,020,300, an average of \$767,005 per acre.

Only 60 acres is proposed for this site because no land is set aside for expansion and no land is provided for railroad tracks. The layout for this site includes the same facilities as were proposed for Hunts Point and Jersey Meadows, exclusive of railroad house tracks and expansion. Adequate parking, loading and unloading space, and streets 200 feet wide have been proposed. Figure 19 shows a layout for the proposed facilities on this site.

Splitting the Market

Discussions by some who are interested in various segments of the meat and poultry market indicate that the 14th Street market might divide into two or more smaller markets.

Meat is generally received in carcass or boxed form. Most of it is in carcass form, and must be broken into cuts and again distributed to other operators in the market. Many operators depend on this service for specialized cuts and portions of the carcass. This function is necessary if the best alternative uses of the meats are to be realized. If the present market divides between two or more sites, it is important that each segment contain adequate numbers and types of operators to meet the complete requirements of the outlets it would serve. No layouts are presented for a divided market, because no estimate or definite information is available to indicate the nature or type of division that might occur.

Estimated Investment Costs

Estimated investment costs for a wholesale meat market at the Hunts Point and Jersey Meadows locations involve two primary components—land and facilities. Costs of acquiring the land and constructing buildings at both locations are approximately the same. The principal differences between the two sites are location, financing, and taxation. Plans are well underway for establishment of a fruit and vegetable market at Hunts

Point by the city of New York. Likewise, planning by the New Jersey Public Market Commission is proceeding for a food distribution center for Jersey Meadows.

Land

On March 21, 1961, a letter from the Bureau of the Budget to the Board of Estimate of New

Facilities

Costs of facilities are estimated on the basis of construction indexes for July 1961, and of costs of constructing similar facilities in other areas, estimates made by local engineers, and estimated costs of constructing similar facilities in New York City. Cost estimates are for structures previously described.

The multiple-occupancy units do not have furnished offices, but the estimates include stairways, toilet facilities, lighting fixtures, gas space heaters, electrical outlets, and platform lighting. The estimates for the multiple-occupancy units also include coolers equipped with meat rails and refrigeration equipment.

Single-occupancy units would be completed in the same manner except for the omission of coolers, meat rails, and refrigeration equipment. Estimated costs are presented for facilities at Hunts Point, Jersey Meadows, and the present market site.

Construction costs shown in this section should be used only as a guide in estimating the total costs of the market. They are not intended to replace firm estimates made by local architects and contractors at the time of construction.

Detailed building costs for multiple-occupancy meat units are presented for the shell building, insulation of first floor, refrigeration equipment, and meat-rail systems. Building costs are presented in this manner because each item is necessary, and the combined costs show the total estimate. Final plans may omit a portion of the insulation, refrigeration, or meat-rail systems. If any of these features is eliminated, costs would be reduced, but flexibility in changing tenants would be somewhat less. Further, if these features were omitted and it became necessary to install them on an individual basis, costs would be somewhat greater. Single-occupancy buildings for meat, multiple-occupancy buildings for poultry, and the restaurants are not furnished with refrigeration equipment, insulated coolers, or meat rails. Cost estimates are based upon a brick-and-concrete "light mill" type of construction.

Estimates for paved surfaces include market streets, the rail track area, and parking and loading and unloading space within the market. Paving costs assume a 7-inch gravel foundation, a 4-inch macadam base, and a 2-inch asphaltic concrete surface. Before construction, consideration should be given to constructing a 40-foot-wide reinforced concrete apron adjacent to the loading platforms.

Space proposed for the initial facilities depends on both present and anticipated needs. Actual space needed may differ from the estimates when final plans for construction are completed.

All utility connections are assumed to be underground. Other construction costs include architects' fees at 6 percent, construction loan at 5

York City indicated an estimated land cost for the fruit and vegetable market at Hunts Point at \$49,393 per acre. Land costs in the area proposed for the meat market are assumed to be identical. Piling costs for buildings are estimated at \$8,812 per acre, making a total estimated land cost of \$58,205 per acre in condition to build, including pilings for buildings.

The assessed valuations for the 160 acres proposed at Hunts Point for the meat and poultry section of the market and the butter, margarine, egg, and cheese section are slightly more than the costs of real estate used herein. A slight shifting of the facilities proposed could eliminate a three-block area which is presently occupied by apartments, avoiding the area of highest valuations, and thus could lower the total cost of real estate. Shifting of the facilities proposed for fruits and vegetables occurred, and facilities are currently under construction on adjacent property. Officials of the Housing and Redevelopment Board indicated that if the entire site were used and the acreage were assembled under urban renewal processes, the land costs could be lower than the costs used in this report. The assessed valuation in 1960 for the area proposed for the meat and poultry market is about one-third of the total for the 160 acres.

Recent estimates of costs by Barnett and Herenchak, consulting engineers, for the Jersey Meadows project, indicated a cost of \$56,678 per acre in condition to build. (4) This cost is used as the basic land cost for the Jersey Meadows site because it is based on recent and detailed engineering studies of the existing soil conditions and on the value of recent exchanges of property in the area. Costs of putting the land in condition to build were found to be much higher than previously thought. Slightly different techniques for stabilizing the areas have been used for the two sites, but they are not sufficiently different in costs to materially affect a comparison between the two sites. The estimated time required to acquire land and place it in condition to build at Hunts Point is 1 year and at Jersey Meadows 1½ years.

The costs of holding the land, once it has been acquired, until construction starts at Hunts Point are estimated at \$2,910 per acre, or a total estimated land cost, piled and in condition to build, of \$61,115 per acre. The costs of holding the land acquired, until construction starts at Jersey Meadows, are estimated at \$4,251 per acre, or a total estimated land cost in condition to build, including the holding costs, of \$60,929 per acre.

Because of the lack of exactness in time periods, lack of complete data, and the similarity between the estimated costs of land at the two sites, costs of land in condition to build are assumed to be \$61,000 per acre for 80 acres at both Hunts Point and Jersey Meadows. It is estimated that 60 acres at the present market site, in condition to build, would cost \$767,005 per acre.

percent, and a contingency fund at 10 percent, which are standard rates charged or included as part of construction costs. The cost of the construction loan represents the total cost of the loan, and is not considered an interest rate.

The following tabulation shows the estimated costs of facilities for meat and poultry as of July 1961 for sites at Hunts Point and Jersey Meadows:

A. COSTS OF MULTIPLE-OCCUPANCY BUILDINGS FOR MEAT¹

1. 176 multiple-occupancy store units (2,500 square feet of 1st-floor and 1,800 square feet of 2nd-floor space in 6 buildings) @ \$37,250 per unit, or \$8.66 per square foot of space-----	\$6,556,000
2. Two restaurants and public welfare facilities @ \$37,250 plus \$9,000 for additional finishing and equipment-----	92,500
3. Insulation, 1,098,500 square feet, 4-inch base, @ \$3.00 per square foot-----	3,295,500
4. Meat rails @ \$7,500 per unit-----	1,320,000
5. Refrigeration equipment and distribution systems, 1,180 tons @ \$1,200 per ton-----	1,416,000
6. 22 floodlights @ \$150-----	3,300
Costs of buildings for meat-----	<u>12,683,300</u>

B. COSTS OF MULTIPLE-OCCUPANCY BUILDINGS FOR POULTRY¹

1. 16 multiple-occupancy store units (2,500 square feet of 1st-floor and 1,800 square feet of 2nd-floor space in 1 building) @ \$37,250, or \$8.66 per square foot of space-----	596,000
2. Floodlights, 2 @ \$150-----	300
Costs of buildings for poultry-----	<u>596,300</u>

C. COSTS OF SINGLE-OCCUPANCY BUILDINGS FOR MEAT

1. 1 building 30,000 square feet @ \$12.00 per square foot-----	360,000
2. 1 building 37,500 square feet @ \$12.00 per square foot-----	450,000
Costs of separate buildings for meat---	<u>810,000</u>

Total costs of buildings for meat and poultry ----- 14,089,600

D. OTHER CONSTRUCTION COSTS FOR MEAT AND POULTRY

1. Paving, blacktop, 286,123 square yards at \$4.40 per square yard-----	1,258,900
2. Rail trackage, house rail and lead-in trackage, 16,350 linear feet at \$14.00 per linear foot and 11 switches @ \$3,600-----	268,500
3. Storm sewers, 6,950 linear feet @ \$15.00 per foot, 2,050 linear feet @ \$5.00 per foot-----	114,500
4. Sanitary sewers and grease traps, 4,300 linear feet at \$15.00 per foot, 7,000 linear feet at \$5.00 per foot, 140 grease traps @ \$300 each-----	141,500

5. Fence, chain link, 8 feet high, 3,950 linear feet @ \$3.50 per foot, 4 gates @ \$300 each-----	\$15,025
6. Utility distribution systems, gas \$60,675, electrical \$230,000, and water \$110,000--	400,675
Total other construction costs-----	<u>2,199,100</u>

<i>Total costs of buildings and other construction costs-----</i>	16,288,700
Architect's fee—6 percent of construction costs-----	977,300

Costs of construction including architect's fee-----	17,266,000
Construction loan—5 percent of construction costs and architect's fee-----	863,300

Costs of construction, architect's fee, and construction loan-----	18,129,300
Contingency—10 percent of costs of construction, architect's fee, and construction loan-----	1,812,900

<i>Total costs of buildings and associated costs-----</i>	19,942,200
Costs of 80 acres of land at Hunts Point or Jersey Meadows, piled and in condition to build, at \$61,000 per acre-----	4,880,000

Total estimated investment cost at Hunts Point or Jersey Meadows----- 24,822,200

The following tabulation shows the estimated costs of facilities for meat and poultry as of July 1961 for a market modified to fit the present market site:

A. COSTS OF MULTIPLE-OCCUPANCY BUILDINGS FOR MEAT

(Same number of units as other sites but placed in 10 buildings)----- \$12,683,300

B. COSTS OF MULTIPLE-OCCUPANCY BUILDINGS FOR POULTRY

(Same as for other sites)----- 596,300

C. COSTS OF SINGLE-OCCUPANCY BUILDINGS FOR MEAT

(Same as for the other sites)----- 810,000

Total costs of buildings for meat and poultry ----- 14,089,600

D. OTHER CONSTRUCTION COSTS FOR MEAT AND POULTRY

1. Paving, blacktop, 225,677 square yards @ \$4.40 per square yard-----	993,000
2. Storm sewers, 4,000 linear feet @ \$15.00 per foot, 2,400 @ \$5.00 per foot-----	72,000
3. Sanitary sewers and grease traps, 2,400 linear feet at \$15.00 per foot, 7,000 feet at \$5.00 per foot, and 140 grease traps at \$300 each-----	113,000
4. Fence, chain link, 8-foot, 6,320 linear feet @ \$3.50 per linear foot, 4 gates @ \$300 each-----	24,000
5. Utility distribution systems, gas \$45,600, electrical \$178,000, water \$81,500-----	305,100

Total other construction costs----- 1,507,100

¹These costs are based on brick-and-concrete construction costs as of July 1961.

<i>Total costs of buildings and other construction cost</i> -----	\$15, 596, 700
Architect's fee—6 percent of construction costs -----	935, 800
Costs of construction including architect's fee -----	16, 532, 500
Construction loan—5 percent of construction costs and architect's fee-----	826, 600
Costs of construction, architect's fee, and construction loan-----	17, 359, 100
Contingency—10 percent of costs of construction, architect's fee, and construction loan-----	1, 735, 900

<i>Total costs of buildings and associated costs</i> -----	\$19, 095, 000
Costs of 60 acres of land at the present market site in condition to build, excluding railroad tracks and expansion areas-----	46, 020, 300
<i>Total estimated investment costs for a modified market at the present market site</i> -----	65, 115, 300

Total estimated investment costs for land and facilities at either Hunts Point or Jersey Meadows are \$24,822,200 and for a modified market at the present site, \$65,115,300.

Methods of Financing and Operation

The success of a new wholesale meat and poultry market depends to a large extent upon the type of ownership and management, regardless of how well the market may have been designed and built.

A large complex of interests and groups are concerned with the type of management of a wholesale food distribution center or wholesale market. Producers, processors, transportation companies, market operators, retailers, and consumers have an interest in the management of the market. Investors, insurance companies, and city officials are vitally concerned with its successful operation because of the investment and the public interest. The investors, whether private or public funds are used, have a right to expect a reasonable return and assurance that their interests will be protected. It is desirable, therefore, that the board of directors, or other management board, include representation from all the interested groups most concerned with the successful operation of the market.

If a new wholesale meat market is established that will replace the present 14th Street market, it is important that the ownership be prevented from exploiting the industry. Certain safeguards should be provided, because the market should function as a public service facility. As the market becomes established as a going concern, and as its income becomes dependable and reasonable and returns to the investors are being made, the reasons for precautions will become even more apparent.

Regardless of what agency constructs and finances the market, there should be definite assurance that: (1) It will be properly located, designed, and equipped; (2) construction of excess facilities will be prevented; (3) funds will be invested wisely to provide for real needs, so that increased efficiency will not be offset by high rents; (4) the facilities will be used in the best interest of the industry and the public which it serves; and (5) it should be operated without discrimination

against any buyer, seller, any form of transportation, or the origin of any shipment.

This report deals with facilities for meat and poultry only, and as a result the estimated costs and revenue required are only for that section of a food distribution center, plus a proportion of the costs for management. If these facilities were built independently of a food distribution center, an increase in some cost items would result, because of loss of some economies inherent in a complete center.

The method selected to finance and operate the proposed market could materially affect the rents necessary to make the market self sustaining. Many methods are available for financing such a project. Some of the forms are:¹¹ (1) By a private corporation, (2) a New York State Regional Market Authority, (3) a City of New York Authority, and (4) the New Jersey Public Market Commission. Some of these are clearly applicable to specific sites and as a consequence will be discussed further only in relation to that particular site. For instance, neither the city nor State of New York could be expected to assist in financing a food distribution center in New Jersey, nor could the New Jersey Public Market Commission be expected to assist in financing a food distribution center in New York.

Financing and Operation by a Private Corporation

A private company could finance, construct, and operate a food distribution center on any site considered. The principles used by this method, and several of the complications that would be encountered, are similar to those of other methods.

¹¹ For more information, see Clowes, Harry G., Elliott, William H., and Crow, William C., "Wholesale Food Market Facilities—Types of Ownership and Methods of Financing," Mktg. Res. Rpt. No. 160, U.S. Dept. Agr., April 1957.

The revenue requirements for a privately developed wholesale meat and poultry market will be considered under four categories: (1) Costs of management, (2) insurance, maintenance, and repairs, (3) taxes on real estate, and (4) debt services. These requirements will be considered for each location previously described.

Costs of Management

The day-to-day operation of a wholesale meat market requires highly competent management. Certain other administrative costs inherent in successful operation must be included and are listed in the tabulation that follows. However, no allowances have been made for removal of trash and garbage, because this is a responsibility of each tenant. In markets now being operated by the city of New York, each tenant must arrange for the removal of these products and the charges are assessed on the amount collected.

The management expenses for the proposed wholesale meat and poultry market in a food distribution center are estimated as follows:

Manager (may be assistant manager of a food distribution center)-----	\$12,000
Assistant manager-----	8,000
Share of food distribution center management---	5,000
Watchman, 2 @ \$6,000-----	12,000
Secretary-bookkeeper, 2 @ \$5,000-----	10,000
Auditing and legal assistance-----	5,000
Office rental-----	3,000
Travel-----	1,500
Advertising and promotion-----	2,400
Office supplies and equipment-----	2,200
Communications—telephone, telegraph-----	1,800
Utilities, public areas, market management offices-----	3,000
General market sanitation-----	20,000
Snow removal-----	4,000
Contingency-----	9,000
Total costs of management-----	\$98,900

Insurance, Maintenance, and Repairs

A private company would need to insure the buildings for fire and extended coverages, and would need liability insurance. Rates supplied by the Insurance Rating Organizations of New York are \$1.15 per \$1,000 for sites considered in New York for the type of construction proposed. It was assumed that the structures would be insured for 80 percent of their value. Cost of public liability insurance for any one occurrence was \$875 annually in New York for a maximum of \$500,000. These rates are not applied to nor do they include any property of tenants. Similar rates are assumed to be applicable for the Jersey Meadows site.

Maintenance and repairs were assumed to be .75 percent of the facility cost. This figure is used primarily because of the large investment in refrigeration, insulation, and meat-rail systems.

The rate was applied to all buildings and facilities, but does not include land owned by the company. To provide a reserve for increases in those costs, a 10 percent contingency is included to give the complete estimated cost of insurance, maintenance, and repairs. A summary of annual costs of insurance, maintenance, and repairs appears in table 11.

Real Estate Taxes

The third major expense in operation of the proposed market by a private concern would be taxes on real property and improvements. The tax rate for 1960 was \$42.40 per \$1,000 in New York City, and \$86.68 per \$1,000 in New Jersey for the assessed valuation; the assessed valuation in both cases being 100 percent of the "fair market value." At all sites, the "fair market value" is assumed to be the total investment costs of land and improvements. A contingency fund of 10 percent is included to provide for increased tax rates and assessments. After a sizable reserve is accumulated, this might be discontinued. The estimated amounts of taxes to be paid on real property and improvements annually by a private corporation operating the market at the three sites are given in table 12.

Debt Service

The fourth major segment of costs that must be paid by the proposed wholesale meat market is debt service. If the market is to be self-liquidating, the investment must be repaid from market revenue, and certain standards for payment must be adhered to. Facilities of the type proposed should not become obsolete in less than 25 years, and likely would be useful for a much longer period. The facilities proposed are of durable construction and, with only minor alterations, could be expanded or converted to use by several types of occupants.

A private corporation financing, constructing, and operating the market would probably obtain its capital from three sources: (1) First mortgage, (2) second mortgage, and (3) equity capital. Since the money market fluctuates, various amounts at various rates of interest might be obtained from each source. It is assumed that 65 percent might be obtained on a first mortgage, 25 percent on a second mortgage, and the remaining 10 percent might be equity capital. Under various conditions at the time of financing, the percentages supplied by the various sources could change materially.

For purposes of this report, a cost rate of 6 percent, amortized over a 25-year period, was assumed. If a first mortgage for 65 percent of the needed capital could be obtained for 5.5 percent,

TABLE 11.—Estimated annual costs of insurance, maintenance, and repairs at Hunts Point, Jersey Meadows, and the present market area for a wholesale meat and poultry market if operated and financed by a private corporation, 1960

Item	Value upon which item is based	Location of site		
		Hunts Point	Jersey Meadows	Present market area
Insurance:	<i>Dollars</i>	<i>Dollars</i>	<i>Dollars</i>	<i>Dollars</i>
Fire and extended coverage ¹	² 15,953,800	18,347	18,347	17,567
Liability ³	500,000	875	875	875
Maintenance and repairs ⁴	19,942,200	149,567	149,567	143,213
Contingency or reserve ⁵	19,942,200	16,879	16,879	16,166
Total costs.....		185,668	185,668	177,821

¹ Insurance value based on 80 percent of building costs at \$1.15 per \$1,000 at all sites.

² Insurance value of buildings at both Hunts Point and Jersey Meadows; value at present market is estimated at \$15,276,000.

³ Based on a rate of \$1.75 per \$1,000 for a maximum insurance of \$500,000.

⁴ Based on .75 percent of the estimated costs of improvements at Hunts Point and Jersey Meadows; improvements at the present market site are estimated on the basis of a cost of \$19,095,000.

⁵ Based on 10 percent of the annual costs of insurance, maintenance, and repairs.

a second mortgage for 25 percent obtained for 6.5 percent, and the equity capital supplied at 7 percent, an average interest rate of slightly less than 6.0 percent would result. The rates suggested are for purposes of estimating the revenue required to finance the proposed market under a private corporation. If the equity capital were supplied by the tenants in proportion to relative costs of the facility, there would probably be no payment of dividends to stockholders, because of the tax situation. Under this assumption, the private company would be acting as a cooperative and the 6 percent rate might be higher than the actual cost of obtaining the money.

If stocks or bonds were issued, purchasers might demand that annual income exceed annual expenses by some stipulated amount and that this amount remain as a reserve fund. The amount

required would vary according to money-market conditions, financial rating of the bond or stock issues, and the nature of the collateral offered. Collections for this reserve fund should usually amount to about 20 percent of the annual debt service costs. Such a fund might not be required to be more than one full year's amortization payment. After one year's debt service payment has been accumulated, it might be possible to discontinue the allowance. In the following computations, a 20 percent reserve or contingency allowance was included.

The exact terms of obtaining financing could not be known until a financial plan had been completed. In order to determine the amount of annual rental necessary, 6 percent interest has been used for a 25-year period. Table 13 shows the estimated annual income required for debt service

TABLE 12.—Estimated annual costs of taxes at Hunts Point, Jersey Meadows, and the present market area for a wholesale meat and poultry market if operated and financed by a private corporation, 1960

Item	Location of site		
	Hunts Point	Jersey Meadows	Present market area
Assessed value ¹	<i>Dollars</i> 24,822,200	<i>Dollars</i> 24,822,200	<i>Dollars</i> 65,115,300
Tax rate ²	42.40	86.68	42.40
Taxes.....	1,052,461	2,151,588	2,760,889
Contingency—10 percent of tax.....	105,246	215,159	276,089
Total taxes.....	1,157,707	2,366,747	3,036,978

¹ Total investment assumed to be tax base.

² 1960 tax rate per \$1,000 valuation.

TABLE 13.—*Estimated annual costs of debt service at Hunts Point, Jersey Meadows, and the present market area for a wholesale meat and poultry market if operated and financed by a private corporation, 1960*

Item	Location of site		
	Hunts Point	Jersey Meadows	Present market area
	<i>Dollars</i>	<i>Dollars</i>	<i>Dollars</i>
Total investment costs.....	24, 822, 200	24, 822, 200	65, 115, 300
Annual payments, including principal and interest ¹	1, 941, 841	1, 941, 841	5, 093, 970
Reserve or contingency ²	388, 368	383, 368	1, 018, 794
Total costs.....	2, 330, 209	2, 330, 209	6, 112, 764

¹ Based on a rate of 6 percent over a 25-year period or a cost of \$78.23 per thousand.

² Based on a rate of 20 percent of the above amortization costs.

TABLE 14.—*Estimated total annual revenue, including reserves and contingency, necessary for a private corporation to finance and operate the proposed wholesale meat and poultry market at Hunts Point, Jersey Meadows, and the present market area, 1960*

Item	Location of site		
	Hunts Point	Jersey Meadows	Present market area
	<i>Dollars</i>	<i>Dollars</i>	<i>Dollars</i>
Management.....	98, 900	98, 900	98, 900
Insurance, maintenance, and repairs.....	185, 668	185, 668	177, 821
Real estate taxes.....	1, 157, 707	2, 366, 747	3, 036, 978
Debt service.....	2, 330, 209	2, 330, 209	6, 112, 767
Total.....	3, 772, 484	4, 981, 524	9, 426, 463

to amortize the costs of the proposed wholesale meat and poultry facilities at each location.

Total Annual Revenue Required by a Private Corporation

The amount of revenue necessary for a private corporation to manage a wholesale meat and poultry market would be similar at Hunts Point and Jersey Meadows. Real estate taxes would be about twice as much at the Jersey Meadows site, but debt service, insurance, repairs, and maintenance would be similar. The estimated total annual revenue required at Hunts Point is \$3,772,484 and at Jersey Meadows \$4,981,524. Cost of financing and operating the proposed market at the present market site would be greater than at either Hunts Point or Jersey Meadows. Estimated total annual revenue requirements at the present market site are \$9,426,463. The higher requirement at the present market site is due to higher land cost and a greater tax base. Table 14 gives a summary of the estimated costs of operation for the market if operated and financed by a private corporation.

Financing and Operation by a New York State Regional Market Authority

If the wholesale meat market facilities were financed under the provisions of the State of New York Regional Market Authority, the costs of management, insurance, maintenance and repairs would be identical with those estimated for a private corporation.¹² Market facilities constructed under this plan would be exempt from real estate taxes, but a payment would probably be made to the local government in lieu of these taxes. In estimating this payment, it is assumed that it would be identical to the taxes paid by a private corporation as previously discussed.

Under the laws of the State of New York, the State legislature, on the recommendation of the

¹² For a more detailed discussion of this method of financing, see Clowes, Harry G., "New York City Wholesale Fresh Fruit and Vegetable Markets," Mktg. Res. Rpt. No. 389, p. 84, U.S. Dept. Agr., June 1960.

State Commissioner of Agriculture and Markets, can appropriate and lend to a regional market authority up to 50 percent of the cost of constructing approved new market facilities. The remaining 50 percent may be financed by the issue of a 3 percent, 30-year, State revenue bond. The State loan is without interest and due in 30 annual installments.

The estimated total revenue required, including reserves and contingency fund, for a proposed market financed and operated by a New York State Regional Market Authority is less than if the market were financed and operated by a private corporation. Table 15 shows the amounts necessary and method of computing the revenue required for debt service under a regional market authority. Although discounting may occur, no allowance is made for it in this study. To sell the revenue bonds on the open market, it is assumed that it would be necessary for the meat market to set aside a reserve over and above the required debt service payment. The reserve may not be required if the bonds are sold to a public agency using its own funds for investments. However, for this study, a debt reserve of 20 percent is included. After a full year's reserve is obtained, as under a private corporation, this might be discontinued.

The estimated total revenue required annually to finance and operate the proposed market in this way is shown in table 16.

Financing and Operation by a New York City Authority

Plans for the site development at Hunts Point indicate that the city of New York might acquire the land, construct the buildings, and manage the property. This power to acquire, construct, and operate a market will be referred to as an "authority of the city of New York," or as the "authority" for simplicity. The authority may issue revenue bonds, backed by the credit of New York City. However, as the project would be undertaken by the authority, the bonds issued would be outside the legal debt limit of the city.

The New York City Commissioner of Markets is authorized to construct and operate food markets, both wholesale and retail. If it is decided that the city should build and operate the proposed wholesale meat market, it is assumed that the policy of basing annual rentals on a formula which approximates 11 percent of the investment cost of land and facilities will continue.¹³ This formula takes into account debt service charges,

¹³ Based on a formula for computing rents of new municipal properties, as furnished by the New York City Department of Markets in 1959.

TABLE 15.—Estimated annual requirements for debt service and reserve for the proposed wholesale meat and poultry market at Hunts Point and the present market area if financed by a New York State Regional Market Authority, 1960

Item	Location	
	Hunts Point	Present market area
Source of funds:	<i>Dollars</i>	<i>Dollars</i>
Interest-free State loan	12, 411, 100	32, 557, 650
Revenue bonds	12, 411, 100	32, 557, 650
Annual repayment of interest-free State loan ¹	413, 703	1, 085, 255
Annual payment for bonds ²	633, 214	1, 661, 091
Contingency ³	126, 643	332, 218
Total amount required	1, 173, 560	3, 078, 564

¹ Annual repayment over a 30-year period.

² Based on a 30-year period at 3.0 percent interest, annual payments for principal and interest are \$51.02 per \$1,000 annually.

³ Based on 20 percent of annual debt service for bonds.

payments in lieu of real estate taxes, maintenance and repair costs, operating expenses, administrative charges to defray costs of supervising the market property, and a charge to offset losses from vacancies. Management, office expenses, and travel allowances for the supervising staff are included in the administrative expense. The operating expense items include personnel service, operation of the market, and general maintenance. Police protection and general street cleaning are provided by the city.

In addition to the 11-percent rental charge, the tenant is responsible for the cost of refuse collec-

TABLE 16.—Estimated total annual revenue, including reserves and contingency fund, necessary for a proposed wholesale meat and poultry market at Hunts Point and the present market, if financed and operated by a New York Regional Market Authority, 1960

Item	Location	
	Hunts Point	Present market area
	<i>Dollars</i>	<i>Dollars</i>
Management	98, 900	98, 900
Insurance, maintenance, and repairs	185, 668	177, 821
Real estate taxes	1, 157, 707	3, 036, 978
Debt service	1, 173, 560	3, 078, 564
Total	\$2, 615, 835	\$6, 392, 263

tion, insurance for personal property, repairs except structural repairs, personal liability and property insurance, and all charges for water, gas, and electricity consumed on the premises. There is no contingency fund provided in these operating charges. The estimated annual revenue necessary to finance and operate the proposed wholesale meat and poultry market, based on 11 percent of a total investment cost at Hunts Point of \$24,822,200, would be \$2,730,442; in the present 14th Street area, on a total investment cost of \$65,115,300, it would be \$7,162,683.

A letter from the Bureau of the Budget, New York City, to the Board of Estimate, New York City, dated March 21, 1961, indicated that a reduction of approximately 50 percent in the payment in lieu of taxes is possible under existing statutes. A full payment at Hunts Point would be \$1,157,707 annually, and a 50 percent payment \$578,854, a reduction in the total annual amount of revenue required for this site to \$2,151,588. A full payment at the present market area would be \$3,036,978 and a 50 percent payment would be \$1,528,489, a reduction in revenue required from \$7,162,683 to \$5,634,194.

Financing and Operation by a New Jersey Public Market Commission

The New Jersey Public Market Commission has been planning to acquire the land at the Jersey Meadows site, construct meat and poultry market facilities, and manage the property in a manner similar to that described for New York. The Market Commission, under powers delegated to it by the State of New Jersey, has the power to issue revenue bonds which are not a debt or liability of the State or any county or municipality. The county or municipality in which a particular market is located may unconditionally guarantee the punctual payment of principal or interest on any bonds issued. (4) Bonds issued by such a political subdivision are tax exempt. The property of the Commission is similarly tax exempt, except that the Commission may agree to pay sums in lieu of taxes on such property in an amount not greater than the taxes previously paid on the value of the property prior to development.

Financing and operation of the proposed wholesale market at the Jersey Meadows site would be similar to financing and operation by the State of New York for Hunts Point, as previously discussed.

Management, insurance, maintenance, and repairs are assumed to be the same as under other methods of financing and operation.

The major differences include a considerable change in the tax structure; also, the interest-free State loan would probably not be available, although certain political subdivisions have been granted the power to appropriate and contribute, with or without consideration, funds in support of the market project. The Commission is further given the power to enter into agreements with any municipality in which property of the Commission is located. Annual payments may be made by the Commission to the municipality in lieu of taxes on such property in an amount not greater than the taxes previously paid or due on the property before its development as a public market by the Commission. To compute the payments in lieu of taxes, the full tax rate is applied to the value of the land before development. Payments therefore are assumed to be based on an undeveloped land value of \$3,889 per acre, or a total of \$311,120 for 80 acres, at a tax rate of \$86.68 per \$1,000 valuation. Total taxes are estimated at \$26,968 annually.

In estimating the costs of financing the proposed market under this method, it is assumed that financing would be based on municipal and State tax-exempt 25-year bonds at an interest rate of 3.5 percent annually. It is assumed that the municipalities involved would guarantee the payment of principal and interest. A reserve or contingency fund of 20 percent of the annual debt service costs is assumed, but might be discontinued after one full year's payments were accumulated. Table 17 shows the amount of revenue required annually for debt service.

The estimated total annual revenue required for management, insurance, maintenance, repairs, taxes, and debt services for the proposed wholesale meat market, if financed and operated by the New Jersey Public Market Commission, is \$2,118,692. Table 18 shows the breakdown of costs by item.

TABLE 17.—*Estimated total annual revenue necessary for debt service for a proposed wholesale meat market at Jersey Meadows if financed and operated by the New Jersey Public Market Commission, 1960*

Item	Amount
Source of funds: Bonds, 25-year, tax-exempt.	<i>Dollars</i> 24, 822, 200
Annual bond cost ¹	1, 505, 963
Reserve or contingency ²	301, 193
Total amount needed.....	1, 807, 156

¹ Based on a municipal bond guaranteed at 3.5 percent for a 25-year period at an annual cost of \$60.67 per \$1,000.

² Based on 20 percent of annual cost of debt service.

TABLE 18.—*Estimated total annual revenue required for management, insurance, maintenance and repairs, taxes, and debt service for a proposed wholesale meat market at Jersey Meadows if financed and operated by the New Jersey Public Market Commission, 1960*

Item	Amount
	<i>Dollars</i>
Management	98, 900
Insurance, maintenance, and repairs.....	185, 668
Real estate taxes.....	26, 968
Debt service.....	1, 807, 156
Total amount needed.....	2, 118, 692

Estimated Annual Revenue Necessary for Various Financing and Operating Plans

Table 19 shows the estimated annual revenue required to finance and operate the proposed wholesale meat and poultry facilities under the various financial plans at three locations. Obviously, not all plans apply to all sites, because the State of New York or the city of New York would not be expected to finance and operate facilities outside the State of New York. Likewise, the New Jersey Public Market Commission would not be expected to finance and operate a market outside New Jersey. For these reasons, only certain financial plans are presented for various sites.

Estimated Rental Charges

The estimated average annual rentals required to pay for management, insurance, maintenance and repairs, taxes on real estate, and debt service, including reserves and contingencies at the three locations, range from a low of \$2.36 to a high of \$10.50 per square foot of floor area. Table 20 shows the estimated annual rentals required to finance and operate the proposed market at Hunts Point, in the 14th Street area, and at Jersey Meadows under the various financial plans.

On the basis of rentals in table 20, a meat operator renting a 25-foot unit with meat rails, refrigeration, insulated cooler, and work area, and with offices and storage on the second floor, would pay \$10,675 annually at Jersey Meadows under the New Jersey Public Market Commission; \$10,765 annually at Hunts Point under a New York City authority with reduced payments in lieu of taxes; and \$28,535 annually at the present site under a New York City authority with reduced payments in lieu of taxes. A poultry operator

renting a 25-foot unit with no refrigeration, meat rail, or insulated cooler and work area, but with second-floor offices and storage, would pay \$6,800 annually at Jersey Meadows under the New Jersey Public Market Commission, \$7,015 annually at Hunts Point under a New York City authority with reduced payments in lieu of taxes, and \$16,410 annually in the present market area under a New York City authority with reduced payments in lieu of taxes. Higher rentals would be required under private financing at all locations.

Annual rates for the choice locations in the Gansevoort Meat Center in the 14th Street market range from \$6.48 annually per square foot for a cooler to \$0.50 annually for second-floor space. Annual rates for receiving areas are \$3.00 per square foot. Less desirable locations in the market cost \$4.86 per square foot for cooler space, \$2.00 per square foot for receiving space, and \$0.50 for second-floor space.

TABLE 19.—*Estimated total annual revenue necessary for the various financing and operating plans for the proposed wholesale meat and poultry market at different sites, New York City, 1960*

Item	Location and method of financing and operation							
	Hunts Point			Jersey Meadows		Present market area		
	Private	New York State Regional Authority	New York City Authority	Private	New Jersey Public Market Commission	Private	New York State Regional Authority	New York City Authority
Management, insurance, maintenance, and repairs	Dollars 98,900	Dollars 98,900	Dollars 98,900	Dollars 98,900	Dollars 98,900	Dollars 98,900	Dollars 98,900	Dollars 98,900
Real estate taxes	185,668	185,668	50 percent payment for taxes	185,668	185,668	177,821	177,821	50 percent payment for taxes
Debt service	1,157,707	1,157,707	Full payment for taxes	2,366,747	26,968	3,036,978	3,036,978	
	2,330,209	1,173,560		2,330,209	1,807,156	6,112,764	3,078,564	
Total	3,772,484	2,615,835	12,730,442	4,981,524	2,118,692	9,426,463	6,392,263	17,162,683
			2,151,588					2 5,634,194

¹ Based on 11 percent of a total investment cost, \$24,822,200 at Hunts Point and \$65,115,300 at the present market site.

² Based on a 50-percent reduction in the payments in lieu of taxes.

TABLE 20.—*Estimated annual rentals necessary per square foot of floor space to finance and operate the proposed wholesale meat and poultry market at the different sites, by various financing and operating plans, 1960*

Item	Location and type of financing and operation								
	Hunts Point		Jersey Meadows		Present market area				
	New York State Regional Authority	New York City Authority	Private	New Jersey Public Market Commission	Private	New York State Regional Authority	New York City Authority	New York City Authority	
Meat ¹ Multiple-occupancy buildings First floor ² ----- Second floor----- Single-occupancy buildings----- Poultry ¹ Multiple-occupancy buildings First floor ² ----- Second floor-----	Private								
	Dollars	Dollars	Dollars	Dollars	Dollars	Dollars	Dollars	Dollars	
	6.40 1.80 3.00	4.45 1.20 2.25	3.55 1.05 2.05	8.70 2.00 4.25	3.55 1.00 2.00	16.00 4.25 8.00	10.95 2.75 5.45	12.25 3.10 6.15	50 percent payment for taxes 9.65 2.45 4.80
Average annual rental required ³ -----	4.20	2.91	3.04	5.55	2.36	10.50	7.12	8.00	6.29
Revenue yield of above rates-----	3,792,580	2,636,845	2,743,530	5,019,575	2,140,350	9,448,800	6,409,025	7,183,735	5,656,970
Total revenue required-----	3,772,484	2,615,835	2,730,442	4,981,524	2,118,692	9,426,463	6,392,263	7,162,683	5,634,194
Excess revenue ⁴ -----	20,096	21,010	13,088	38,051	21,658	22,337	16,762	21,052	22,776

¹ Based on 445,000 square feet of first-floor area, 316,800 square feet of second-floor area in multiple-occupancy buildings, and 67,500 square feet in single-occupancy buildings for meat, and 40,000 square feet of first-floor space and 28,800 square feet of second-floor space in multiple-occupancy buildings for poultry. 5,000 square feet of first-floor meat area, which is proposed for restaurants, is included in first floor of multiple-occupancy meat building.

² Includes both front and rear platforms.

³ Based on an average revenue required and the total 898,100 square feet of floor space.

⁴ Excess revenue is the amount of revenue resulting from the proposed rate above the amount required.

Estimated Cost Reductions

Table 21 shows the estimated annual costs and savings in selected cost items in marketing meat and poultry through the present and proposed facilities for Hunts Point, Jersey Meadows, and the 14th Street area, using the most economical method of financing and operation at all locations. Estimated costs and savings for each site are presented in the same sequence as the movement into, through, and out of the market. These handling and operating costs are based on the types and arrangements of facilities as previously discussed, and the assumption is made that the proper kinds and amounts of handling equipment will be used.

The estimated total annual net savings, compared to present market costs, at Hunts Point are \$12,101,500, at Jersey Meadows are \$11,767,600, and at the present market area, \$6,549,700. The major differences between the sites are attributed primarily to the costs of moving the product greater distances, and to tunnel costs, rentals, and tax bases and rates.

Movement to the Market

With proper facilities, estimated costs of moving 817,197 tons of meat and poultry from the first point of arrival in the city to the wholesale market may be reduced from \$1,907,300 to \$247,000 annually at both Hunts Point and Jersey Meadows. The major part of the \$1,660,300 cost reduction or saving is derived from the elimination of the cartage to the market by providing direct rail unloading facilities and elimination of delays involved in getting the meat to the market once it has arrived in the city. Estimated icing costs should be reduced materially because of better designed facilities for holding the meat and poultry. At the present market site, costs of movement to the market from the first point of arrival would increase from \$1,907,300 to \$2,063,500, an increase of \$156,200 annually, because no direct rail access is provided. Savings from reduced avoidable delay would be more than offset by increased cartage for the meat and poultry that arrive in the market by rail.

Handling Within the Market

Estimated costs of handling meat and poultry in the market include those for unloading, handling in the facility, loading out for delivery, spoilage, waste, and deterioration, rentals, refrigeration, and intramarket handling. In present facilities, these costs are estimated at \$21,030,800 annually. In the proposed facilities at Hunts Point or Jersey Meadows, an estimated reduction in cost, or saving, of \$6.6 million annually is possible. In the proposed facilities, loading and unloading costs are reduced primarily by the use of

platforms and meat-rail systems that correspond to the height of trucks and railroad cars. The costs of handling meat and poultry within the facilities are reduced by better product flow, organization, and space allocation. At the present market area, estimated savings are \$3,121,100 annually, or approximately one-half of those that might be obtained at either of the other two sites, primarily because of higher rent.

The costs of spoilage, theft, and product deterioration are estimated at 1 percent of the wholesale value under present conditions, and in the proposed facilities at 0.5 percent of the wholesale value. A 50-percent reduction should be possible, as indicated by research in other cities and with other commodities. Thefts would be reduced because the facilities are designed for adequate supervision. With proper refrigeration, proper spacing of meat rails, and use of other handling equipment to prevent meat from dragging on the floors and against walls and to keep falling meat to a minimum, spoilage and deterioration can be reduced. Often this loss is not apparent to the wholesale operator or retailer, but shows up when the meat reaches the consumer in the form of an inferior product. It is estimated that these losses would be reduced from \$6,075,500 to \$3,037,500 annually at either site. Proper refrigeration, handling, flow, and stock control would all contribute to making these savings possible.

Rentals (which include market management, insurance, maintenance and repairs, and debt service) and refrigeration (see footnote 7 and table 21) were estimated at \$2,731,900 in the present market. The combined costs of rentals and refrigeration were estimated at \$2,614,800, or \$117,100 less annually, at Hunts Point, and at \$2,592,200, or \$139,700 less annually, at Jersey Meadows than they are in the present market. Slightly higher rentals are required for the Hunts Point site because of the differences in the tax base and tax rates. Rental and refrigeration costs for the new facilities in the present market area are estimated at \$6,108,800 annually, or \$3,376,900 more than the present rentals. Higher rentals in this location are due to the higher land costs.

Refrigeration equipment costs for the poultry operators and operators in the single-occupancy buildings are not included in the estimates. The estimated costs of operating refrigeration equipment are included. Refrigeration equipment in both cases would be furnished by the operators. Rentals for both the poultry operators and tenants of the single-occupancy buildings for meat are lower than those for buildings with refrigeration equipment and meat rails.

Intramarket handling costs for 44,875 tons of meat and poultry were estimated at \$842,200 annually in present marketing facilities. Estimated

intramarket handling costs for meat and poultry in the proposed facilities were estimated at \$526,000, a saving of \$316,200 annually. Savings in intramarket handling costs are possible because the transfer of meat can be made by use of connecting meat rails and truckbed-level platforms, and because of improved traffic conditions in and around the market. Although no increase in the volume of intramarket transfers has been estimated, an increase probably would occur.

Movement From the Market

With streets and parking areas capable of handling the traffic loads, avoidable delay due to market congestion would be avoided. Vehicles would be able to enter, load, and leave the market without such delays. There would be no more than a negligible amount of avoidable delay cost in the movement of meat and poultry from any of the three market sites proposed.

Total estimated costs of moving 817,197 tons of meat and poultry from the market were \$8.6 million in 1960. Estimated annual costs of moving this same volume from a market at Hunts Point are \$4.8 million, Jersey Meadows \$5.2 million, and from a market rebuilt at the present market site, \$5.0 million. Total annual savings in moving meat and poultry from Hunts Points are \$3.8 million, Jersey Meadows \$3.4 million, and from a rebuilt market at the present site \$3.6 million. Savings in the costs of movement from the Jersey Meadows site are less than at Hunts Point or from a rebuilt market at the present site because of toll costs and because of a greater distance to the center of distribution. A detailed breakdown of the estimated costs of movement from the market of meat and poultry from the three proposed sites is shown in table 22.

The major portion of the savings that are possible in the movement of meat and poultry from a market at either of the three sites is a result of the elimination of the avoidable delay in this movement.

Nonmeasurable Savings

Many of the possible savings of a modern wholesale meat market cannot be measured accurately in dollars. Such savings would be shared by producers, market operators, buyers, market employees, transportation agencies, consumers, and the municipality involved.

Producers

The producer, whether he be a farmer, a slaughterer, a processor, or any one of a great number who assist in supplying meat and poultry products to consumers, would benefit in many ways from an efficient wholesale meat market. Improvements

in the operation of the various price-reflecting and price-making forces would result. In the elimination of many inefficient features of the present market, there would be a tendency to pass some of the savings back to the producer in the form of higher prices. If the savings were transferred to the consumer in the form of lower prices, consumers would tend to use more meat and meat products and, as a consequence, increase the overall demand.

Market Operators

In addition to specific savings enumerated previously, individual operators would be able to operate their businesses for fewer hours each day. Products could be loaded at any time during the day, which would help regulate the hours of market operation. Market operators would also benefit from improved parking, improved working conditions, and improvement of the general environment.

Market Employees

Working conditions for employees in handling operations would be improved materially in a new market. Since the buildings are designed for efficient handling, the worker's job would be less arduous, his productivity should be increased, and over a period of time his hourly earnings might be expected to increase. Regular hours of work could be arranged, and large amounts of overtime or irregular employment should not be necessary. With the building of a completely new market, the general environment for work would be improved considerably, and many conveniences not now available could be provided.

Buyers

In the proposed market, buyers would be able to arrive at the market, make their selections, load their trucks, and leave without undue delay or difficulty. Examination of meat and meat products would be much easier for the buyer, because the proposed facilities are designed for ease in inspection and, once the selection has been completed, the order can be assembled quickly.

Transportation Agencies

Railroads have long been at a disadvantage in the present market because they cannot place cars where meat can be transferred directly into the operators' places of business. Many cars shipped by rail are not received in the market, but at a team-track yard 15 to 20 blocks away. The costs of transporting meat and poultry from the team tracks to the operators' places of business are paid by the operators, whereas truck shipments arrive in the market f.o.b. Furthermore, the extra handling involved in movement from team tracks to operators' places of business increases the time required to receive rail shipments.

TABLE 21.—Estimated annual costs and savings for selected cost items in marketing 817,197 tons of meat and poultry through the present and proposed wholesale facilities at Hunts Point, Jersey Meadows, and the 14th Street market area, 1960

Item	Present market ¹			Hunts Point ²			Jersey Meadows ³			14th Street area ⁴		
	Volume	Average cost per ton	Total cost	Average cost per ton	Total cost	Savings	Average cost per ton	Total cost	Savings	Average cost per ton	Total cost	Savings
Movement to market from first point of arrival:												
Cartage												
Meat.....	Tons	Dollars	1,000 dollars	Dollars	1,000 dollars	1,000 dollars	Dollars	1,000 dollars	1,000 dollars	Dollars	1,000 dollars	1,000 dollars
Poultry.....	106,660	7.20	1,199.9	7.20	180.0	1,019.9	7.20	180.0	1,019.9	7.20	1,940.5	-740.6
Avoidable delay	4,863	7.20	35.0	7.20	(^b)	35.0	7.20	(^b)	35.0	7.20	56.0	-21.0
Meat.....	598,693	.75	446.6	(^b)	(^b)	446.6	(^b)	(^b)	446.6	(^b)	(^b)	446.6
Poultry.....	112,773	.76	85.5	(^b)	(^b)	85.5	(^b)	(^b)	85.5	(^b)	(^b)	85.5
Iceing	210,464	.67	140.3	.67	67.0	73.3	.67	67.0	73.3	.67	67.0	73.3
Total or average.....	817,197	2.33	1,907.3	.30	247.0	1,660.3	.30	247.0	1,660.3	2.53	2,063.5	-156.2
Handling costs within the market:												
Unloading at facility												
Meat.....	701,549	2.80	1,964.3	1.50	1,052.3	912.0	1.50	1,032.3	912.0	1.50	1,052.3	912.0
Poultry.....	115,648	1.43	165.4	1.00	115.6	49.8	1.00	115.6	49.8	1.00	115.6	49.8
Handling in facility												
Meat.....	701,549	8.73	6,124.5	6.50	4,560.1	1,564.4	6.50	4,560.1	1,564.4	6.50	4,560.1	1,564.4
Poultry.....	115,648	1.85	213.9	1.75	202.4	11.5	1.75	202.4	11.5	1.75	202.4	11.5
Loading out of facility												
Meat.....	701,549	3.83	2,626.9	3.00	2,104.6	582.3	3.00	2,104.6	582.3	3.00	2,104.6	582.3
Poultry.....	115,648	1.96	226.7	1.75	202.4	24.3	1.75	202.4	24.3	1.75	202.4	24.3
Spoilage, theft, and deterioration ^e												
Meat.....	701,549	8.00	5,612.4	4.00	2,806.2	2,806.2	4.00	2,806.2	2,806.2	4.00	2,806.2	2,806.2
Poultry.....	115,648	4.00	462.6	2.00	231.3	231.3	2.00	231.3	231.3	2.00	231.3	231.3
Rentals ^f												
Meat.....	701,549	2.41	1,694.3	2.92	2,050.8	-356.5	2.90	2,031.6	-337.3	2.90	2,031.6	-337.3
Poultry.....	115,648	2.12	245.4	.99	112.2	133.2	.94	108.8	136.6	2.29	262.6	-17.2
Refrigeration ^g												
Meat.....	701,549	.99	693.2	.59	417.2	276.0	.59	417.2	276.0	.59	417.2	276.0
Poultry.....	115,648	.86	99.0	.29	34.6	64.4	.29	34.6	64.4	.29	34.6	64.4
Intramarket handling												
Meat.....	42,794	19.01	813.5	12.00	513.5	300.0	12.00	513.5	300.0	12.00	513.5	300.0
Poultry.....	2,081	13.79	28.7	6.00	12.5	16.2	6.00	12.5	16.2	6.00	12.5	16.2
Total or average.....	817,197	25.74	21,030.8	17.64	14,415.7	6,615.1	17.61	14,393.1	6,637.7	21.92	17,909.7	3,121.1

(Continued)

Movement from the market:

Meat.....	701, 549	6. 41	4, 503. 5	6. 06	4, 256. 8	246. 7	6. 51	4, 569. 1	- 65. 6	6. 41	4, 503. 5
Poultry.....	115, 648	4. 71	544. 7	4. 76	550. 1	- 5. 4	5. 13	5, 594. 3	- 49. 6	4. 71	544. 7
Avoidable delay											
Meat.....	701, 549	4. 64	3, 257. 8	(⁶)	(⁶)	3, 257. 8	(⁶)	(⁶)	3, 257. 8	(⁶)	3, 257. 8
Poultry.....	115, 648	2. 82	327. 0	(⁶)	(⁶)	327. 0	(⁶)	(⁶)	327. 0	(⁶)	327. 0
Total or average.....	817, 197	10. 56	8, 633. 0	5. 88	4, 806. 9	3, 826. 1	6. 31	5, 163. 4	3, 469. 6	6. 18	5, 048. 2
Grand total:											
Meat.....	701, 549	41. 53	29, 137. 2	25. 66	18, 008. 5	11, 128. 7	26. 09	18, 611. 1	10, 526. 1	33. 30	23, 359. 3
Poultry.....	115, 648	21. 05	2, 433. 9	12. 63	1, 461. 1	972. 8	12. 99	1, 501. 9	932. 0	14. 12	1, 662. 1
Total or average.....	817, 197	38. 63	31, 571. 1	23. 82	19, 469. 6	12, 101. 5	24. 23	19, 803. 5	11, 767. 6	30. 62	25, 021. 4

¹ Volumes in the present market would be identical with those in the proposed markets except as follows: (1) In movement to the market, volume that would require cartage at the present market area would increase to 277,294 tons because no railroad tracks are provided in the market area. The volume of meat that arrives in refrigerator cars that require re-icing would be reduced to an estimated 100,000 tons annually at all three proposed sites. (2) In handling costs within the market, volumes would remain the same at all three proposed sites as in the present market. (3) In movement from the market, total volumes remain the same at all three proposed sites but the volumes that would be required to move through toll tunnels or across toll bridges would change in distributing meat and poultry from the market. For proposed market sites in New York, it is estimated that the volumes of meat and poultry going to outlets in New Jersey would remain the same. For the Jersey Meadows site, it is estimated that 564,045 tons of meat and 92,980 tons of poultry would go to outlets that would require movement through the tunnels or over the George Washington bridge. For a more detailed breakdown of distribution costs, see table 22.

² Based on financing and operation by a New York City Authority with a 50-percent payment in lieu of taxes.

³ Based on financing and operation by a New Jersey Public Market Commission.

⁴ See footnote 2.

⁵ Negligible.

⁶ Based on 1.0 percent of the wholesale value in the present market and 0.5 percent in the proposed markets. A 50-percent reduction in waste, spoilage, theft, and deterioration should be possible, based on research in other cities and with other commodities. Thefts would be reduced because the facilities are designed for adequate supervision, with proper refrigeration and proper spacings of meat rails and other handling equipment to prevent meat from dragging on the floors and against walls and to keep falling meat to a minimum.

⁷ Rentals in the present market do not include the costs of refrigeration equipment. This cost is reflected in refrigeration in the present market. Rentals in the proposed markets include refrigeration equipment for multiple-occupancy meat buildings. Refrigeration equipment costs were not included in multiple-occupancy poultry buildings or in single-occupancy meat buildings because of the lack of uniformity in the requirements and because of specialized needs of operators in the single-occupancy meat buildings.

⁸ Includes only the costs of operation and not the costs of equipment in the proposed market. In the present market, some of the refrigeration costs are reflected in rentals. Poultry operators use about the same equipment and it costs about the same as that used by meat operators, when actually their requirements are for lighter equipment which would result in lower operating costs per ton for poultry operators.

⁹ For a more detailed breakdown of the costs of movement from the market see table 22.

TABLE 22.—Estimated costs of cartage of meat and poultry from three locations to various points serviced by the 14th Street wholesale market, New York City, 1960

Destination	Volume ¹		Average elapsed time per trip ²		Average volume per load ³		Total number of loads		Average cost per load ⁴		Total costs	
	Meat	Poultry	Hours	Poultry	Tons	Poultry	Meat	Poultry	Dollars	Poultry	Meat	Poultry
Present market area to:												
New York City												
Bronx	71,558	11,796	1.9	1.9	3.0	3.0	23,852	3,932	13.92	11.60	332.0	45.6
Brooklyn	124,875	20,585	1.6	1.6	3.0	3.0	41,625	6,861	13.02	11.10	542.0	76.2
Queens	82,783	13,646	2.1	2.1	3.0	3.0	27,594	4,548	16.32	13.80	450.3	62.8
Manhattan	180,298	29,722	1.3	1.3	1.5	2.0	120,198	14,861	7.80	7.80	937.5	115.9
Richmond	25,256	4,163	2.8	2.8	2.5	3.0	10,102	1,387	21.90	18.50	221.2	25.7
Metropolitan New York area:												
Long Island	33,954	5,593	4.0	4.0	3.5	5.0	9,701	1,118	39.60	30.00	381.2	33.5
New Jersey	112,248	18,505	3.7	3.7	3.5	4.0	32,070	4,626	37.20	28.40	1,193.0	131.4
Other ⁵	1,825	305	1.7	1.7	2.5	3.0	730	102	16.00	14.00	11.6	1.5
Outside metropolitan area												
Upstate	9,120	1,503	8.0	8.0	7.5	7.5	1,216	200	98.00	69.20	119.2	13.9
Northeast	4,911	809	8.0	8.0	7.5	7.5	654	107	98.00	69.20	64.1	7.4
Other ⁶	54,721	9,021	1.4	1.4	3.0	3.5	18,240	2,577	13.62	11.96	248.4	30.8
Total or average	701,549	115,648	-----	-----	2.5	2.9	255,982	40,319	15.75	13.50	4,503.5	544.7
Hunts Point to:												
New York City												
Bronx	71,558	11,796	1.2	1.2	2.0	2.5	35,779	4,718	8.40	7.00	300.5	33.0
Brooklyn	124,875	20,585	2.3	2.3	3.0	3.0	41,625	6,861	18.00	15.20	749.3	104.3
Queens	82,783	13,646	1.8	1.8	3.0	3.0	27,594	4,548	14.40	12.20	397.3	55.5
Manhattan	180,298	29,722	2.3	2.3	3.0	3.0	60,099	9,907	16.20	13.50	973.6	133.7
Richmond	25,256	4,163	4.3	4.3	3.0	3.0	8,418	1,387	33.70	28.50	283.7	39.5
Metropolitan New York area												
Long Island	33,954	5,593	4.0	4.0	3.5	5.0	9,701	1,118	34.80	30.00	337.6	33.5
New Jersey	112,248	18,505	2.5	2.5	4.0	4.0	32,070	4,626	23.50	20.50	753.6	94.8
Other ⁵	1,825	305	1.7	1.7	2.5	3.0	730	102	16.00	14.00	11.6	1.5
Outside metropolitan area												
Upstate	9,120	1,503	8.0	8.0	7.5	7.5	1,216	200	98.00	69.20	119.2	13.9
Northeast	4,911	809	8.0	8.0	7.5	7.5	654	107	98.00	69.20	64.1	7.4
Other ⁶	54,721	9,021	1.5	1.5	3.0	3.5	18,240	2,577	14.60	12.80	266.3	33.0
Total or average	701,549	115,648	-----	-----	2.9	3.2	236,126	36,151	18.02	15.21	4,256.8	550.1

(Continued)

Jersey Meadows to:
New York City

Bronx-----	71,558	11,796	2.3	2.3	3.0	3.0	23,852	3,932	19.30	16.50	460.3	64.9
Brooklyn-----	124,875	20,585	2.5	2.5	3.0	3.0	41,625	6,861	19.95	16.95	830.4	116.3
Queens-----	82,773	13,646	2.8	2.8	3.0	3.0	27,594	4,548	22.11	18.75	610.1	85.3
Manhattan-----	180,298	29,722	2.2	2.2	3.0	3.0	60,099	9,907	17.20	14.50	1,033.7	143.6
Richmond-----	25,256	4,163	2.0	2.0	2.5	3.0	10,102	1,387	15.90	13.50	160.6	18.7
Metropolitan New York area												
Long Island-----	33,954	5,593	4.3	4.3	3.5	5.0	9,701	1,118	43.55	33.15	422.5	37.1
New Jersey-----	112,248	18,505	1.2	1.2	1.5	2.0	74,832	9,252	8.40	8.40	628.6	77.7
Other ⁵ -----	1,825	305	1.7	1.7	2.5	3.0	730	102	16.00	14.00	11.6	1.5
Outside metropolitan area												
Upstate-----	9,120	1,503	8.0	8.0	7.5	7.5	1,216	200	98.00	69.20	119.2	13.9
Northeast-----	4,911	809	8.0	8.0	7.5	7.5	654	107	98.00	69.20	64.1	7.4
Other ⁶ -----	54,721	9,021	1.3	1.3	3.0	3.5	18,240	2,577	12.50	17.00	228.0	28.3
Total or average-----	701,549	115,648	-----	-----	2.6	2.9	268,645	39,991	17.00	14.86	4,569.1	594.3

¹ It is assumed that the same volume will move to the same areas as from the present market.

² Average elapsed time is the time required for a truck to make a delivery trip and return to the market. No avoidable delay in the market is included. All times are rounded to the tenth of an hour.

³ Rounded to the half ton.

⁴ Costs of truck and driver and tolls involved in delivery operations in the market. Truck and driver costs are based on rates of \$6.00, \$7.20, \$8.40, \$9.60, and \$12.00 per hour. Tolls included are those incurred by using the most convenient route and include the George Washington, Bayonne, and Goethals bridges, Holland and Lincoln tunnels, and the Brooklyn-Battery tunnel at \$.75 each way; the Triborough, Bronx-Whitestone, and Throgs Neck bridges and Queens-Midtown tunnel at \$.60 each way. Turnpike tolls of an average

\$1.50 each way are included on shipments that might use toll roads. 50 percent of the shipments from the Jersey Meadows to Brooklyn, Queens, and Long Island are estimated to cross the East River bridges rather than using toll tunnels.

⁵ Estimates of movements to "other" areas within the metropolitan area are minimum times for movement and are included at all three locations and reflect only the time required to reach and return from the edge of New York City.

⁶ Estimates include costs of moving the product from the market to air terminals, docks, and other points of departure for shipments destined for such places as Florida and California, and that portion which is loaded aboard the primary carrier at the market and destined for areas outside the metropolitan area other than upstate or the Northeast area.

If the facilities suggested in this report were constructed at Hunts Point or Jersey Meadows, the railroads would be able to place their cars at the stores and thus be more competitive with trucks. If the market were rebuilt at the present site, cartage costs of getting meat and poultry to the market would increase because of the impracticability of having any railroad tracks in the area, especially at street level.

Truckers would benefit from the construction of the proposed market at all sites because of the reduction of traffic congestion and the ready availability of parking areas. The time required to deliver a load of meat or poultry to an operator in the market would be reduced considerably.

The Municipality

The construction of a new wholesale meat market would benefit the municipality involved in several ways: (1) The market would bring an increased volume of business to the city; (2) the acute traffic problem in the present market area would be alleviated; (3) the transfer of the mar-

ket to modern facilities would assist the city in enforcing sanitary, fire, and police regulations; (4) if the market were rebuilt at the present market area, an increased tax base would result; if at Hunts Point, the present market area could be developed into higher tax-yielding properties and the tax base would be broadened also at the Hunts Point site; (5) if the market were built at the Jersey Meadows site, a relatively undeveloped area would be brought into use.

Consumers

Consumers of meat and poultry in the New York metropolitan area would benefit as much from improved wholesale meat and poultry marketing facilities as would any other group. From improved facilities, they should be able to obtain fresh meat and poultry in the best possible condition. Many of the present unsanitary facilities that result in inferior products would be eliminated. Some of the savings that are possible could be reflected in the prices consumers pay for their meat.

Literature Cited

- (1) CLOWES, H. G.
1960. NEW YORK CITY WHOLESALE FRESH FRUIT AND VEGETABLE MARKETS. Mktg. Res. Rpt. No. 389. U.S. Dept. Agr.
- (2) CLOWES, H. G., ELLIOTT, W. H., CROW, W. C.
1957. WHOLESALE FOOD MARKET FACILITIES—TYPES OF OWNERSHIP AND METHODS OF FINANCING. Mktg. Res. Rpt. No. 160. U.S. Dept. Agr.
- (3) LEONARD S. WEGMAN CO.
1961. NEW MEAT CENTER AT BROOKLYN TERMINAL MARKET FOR THE CITY OF NEW YORK. Report of Leonard S. Wegman Co., engineers, New York, N.Y.
- (4) BARNETT & HERENCHAK
1961. PROPOSED FOOD DISTRIBUTION CENTER IN HUDSON CO., NEW JERSEY. Engineering Rpts. of Barnett & Herenchak, consulting engineers, Newark, N.J.
- (5) U. S. DEPARTMENT OF AGRICULTURE
1960. U.S. INSPECTED MEAT PACKING PLANTS, A GUIDE TO CONSTRUCTION, EQUIPMENT, AND LAYOUT. Handb. No. 191. U.S. Dept. Agr.
- (6) ———
1961. U.S. INSPECTED MEAT PROCESSING PLANTS, A GUIDE TO CONSTRUCTION, EQUIPMENT, AND LAYOUT. U.S. Dept. Agr., Agr. Res. Serv., Meat Inspection Div.
- (7) WILLIAMS, WILLARD F.
1958. STRUCTURAL CHANGES IN THE MEAT WHOLESALING INDUSTRY. JOUR. FARM Econ., pp. 315-329.







