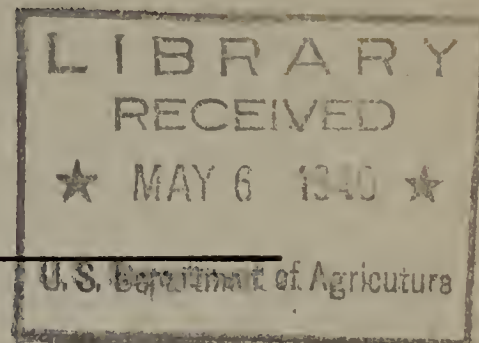


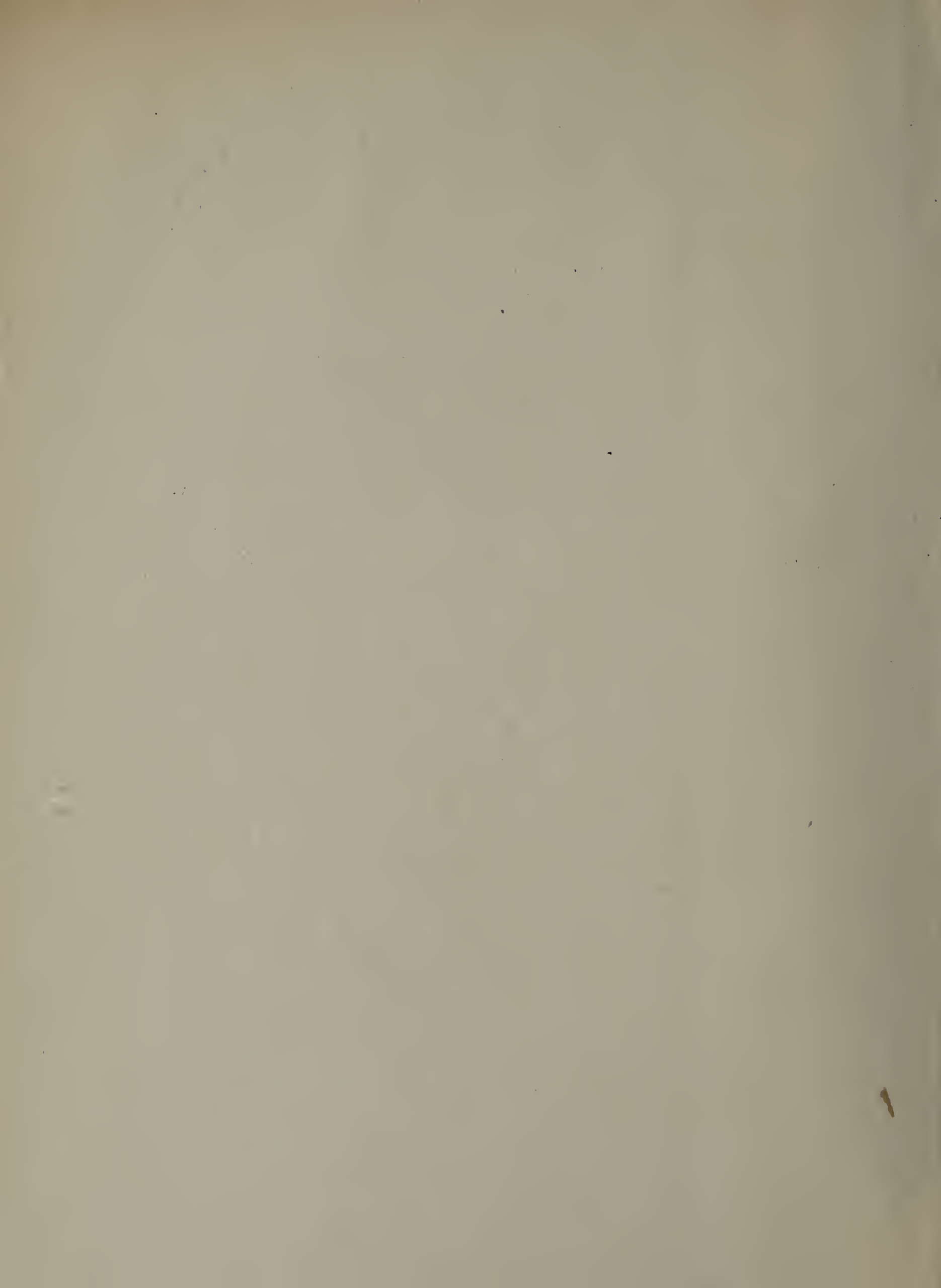
THE WHOLESALE FRUIT AND
VEGETABLE MARKETS OF
NEW YORK CITY



A Special Report

BY THE BUREAU OF AGRICULTURAL ECONOMICS AND
THE AGRICULTURAL MARKETING SERVICE
UNITED STATES DEPARTMENT OF AGRICULTURE





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THE WHOLESALE FRUIT AND
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NEW YORK CITY

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The Department wishes to express its appreciation to the trade organizations in the New York market, to representatives of the railroads and trucking companies, farm leaders, the auction companies, wholesalers, jobbers, and retailers, and to the chain stores for making available certain data and for giving valuable information and suggestions. All of these individuals and agencies have given excellent cooperation as have the trade press and many other interests that are concerned with the fruit and vegetable industry.

For collecting and summarizing information and making suggestions as to its interpretation, much credit is due the following people who were employed by the Bureau of Agricultural Economics for this work: Laurence A. Bevan, Geoffrey H. Moore, Walter Stolting, Kenneth Jenkins, and Robert Schaak. Many valuable suggestions have been made by Eric Englund, C. W. Kitchen, Frederick V. Waugh, William G. Meal, John R. Fleming, Caroline B. Sherman, and other persons in the Bureau of Agricultural Economics and the Agricultural Marketing Service.

Foreword

This report points out some ways to reduce the cost of distributing fresh fruits and vegetables in New York City. The present bill for getting fresh fruits and vegetables from the city limits to the retail stores in New York or to trucks of out-of-town buyers is about \$42,000,000 a year. This report submits ways of reducing that annual bill by about \$8,500,000.

Some of these savings would accrue to the consumers of Greater New York, some to the wholesale and retail trade, some to the transportation agencies, and some to the growers who supply that market from farms in more than 40 States.

The Department of Agriculture has made this study, as it has made similar studies in other important consuming centers, because it is necessarily concerned with the economical distribution of farm products. Efficient distribution is important to consumers who should be able to get these protective foods in the best possible condition, to dealers who are engaged in moving the products from producers to consumers, and to the growers. High distribution costs in any large city, and especially New York, press back upon the producing areas clear across the continent.

The man in the street often asks why he must pay a dollar for fruits and vegetables which brought only about 30 cents on the farm, and the farmer asks with equally good reason why he receives only 30 cents out of the consumer's dollar paid for these products. They are puzzled by the fact that the share of the consumer's dollar that goes to meet distribution charges has increased while the share that goes to the producer has declined.

One answer may be that we have not attacked distribution as intelligently as we have attacked production. For generations the Department of Agriculture and many other agencies, public and private, have been dissecting the production process and discovering where detailed improvements could be made, little by little. And for generations improvements have been made, item by item, until the total result is impressive.

It will not do much good merely to bemoan high distribution costs and then wait for panaceas. We shall have to attack distribution as scientifically and as persistently as we have attacked farm production for 75 years. We must dissect the distributive process, commodity by commodity, step by step, to find out what detailed improvements can be made. That is what this report attempts to do for the wholesale handling of fruits and vegetables in the Nation's largest consuming center. It is believed that its

conclusions and recommendations point the way toward a sane and reasonable attack on distribution costs in that part of the marketing channel with which this report deals.

A report like this, however, can only suggest necessary changes. It cannot accomplish them. That is the hardest job of all. The economic interests of scores of agencies are involved. The interests of growers, railroad companies, truckers, labor organizations, wholesalers, jobbers, retailers, property owners, and consumers do not automatically coincide. For this reason real effort will be required to reconcile these interests to the end that a sound market-improvement program can be put into effect.

Nevertheless, it remains true that in a few cities the attack on costs of distribution has been made, and is succeeding. The first essential, in New York as elsewhere, is that the economic groups most involved agree upon a practicable plan and program, and enlist for the duration.

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FIGURE 1.—WASHINGTON STREET FRUIT AND VEGETABLE MARKET, NEW YORK CITY.

In 12 blocks along this narrow canyon, and on the piers along the river to the right, is handled three-fourths of the fruit and vegetable supply of New York City. Since most of the business is transacted at night, this daylight picture does not show the congestion caused by thousands of trucks crowding into the area. Fruits and vegetables are handled mostly at street level, so the upper floors of these buildings are little used.

The Present Marketing System of New York

Importance of the New York Market

NEARLY 1 out of every 8 carloads of fruits and vegetables produced in the United States for sale in unprocessed form finds its way to the markets of New York City to meet the needs of its millions of consumers. Receipts in this market amount to an average of a carload a minute for the daylight time of every working day in the year. During the 12-month period which ended on April 30, 1939, the equivalent of 201,790 carloads (excluding bananas) was brought in from 42 States and 18 foreign countries.

When the Washington Street market in Lower Manhattan (fig. 1) began to operate more than a century ago, the volume it handled was relatively small. Supplies came from a rather restricted territory, and not so many commodities were available. Since then has come the city's tremendous growth. Its population has grown so large that it has spread over the hundreds of square miles in the five counties, or boroughs, of the city proper, into other parts of New York State, and into parts of New Jersey and Connecticut. The population within the metropolitan area is now as large as that of the entire United States when the Washington Street market was started.

To meet this huge growth in the city's population, extensive subway systems have been provided for the rapid handling of millions of passengers. Huge skyscrapers have been erected to house office workers. Many bridges and tunnels have been built to accommodate business and passenger

traffic. A marvelous water-supply system has been constructed. Untold development has been made to care for the needs of the millions of people in this great metropolis. Changes and improvements have been brought about in almost everything in the city—with the exception of the system of getting fresh fruits and vegetables to its consumers. The same old markets continue to be used and the actual marketing methods have undergone relatively slight change.

Since the present Washington Street market was established, railroads have opened up large producing areas in the West. Highways have been built into every part of the land, and supplies have poured in from all sections of the country. Products are available in varieties and quantities that were unthinkable a hundred years ago. The growth of the city has made New York the most important market in the country, not only to farmers in the surrounding States but to growers from coast to coast. One-fifth of its supplies come from California, another fifth from Florida. These supplies pour into the antiquated market facilities of New York City, where the cost of distribution after the products reach the city limits amounts to nearly half their final selling price.

SEVERAL GROUPS CONCERNED

The New York market is important to growers far and wide, not only because of the volume of their products that it actually handles but also because of its influence on

prices elsewhere. It has often been called the price-making market of the country, for prices established there have an important bearing on the value of products sold in many other markets and in producing areas. It is no exaggeration to say that thousands of growers who never ship a package to New York City are vitally concerned with conditions there, and that the prices of thousands of carloads that never reach that city are influenced by what happens there.

Then the New York market is no less important to the millions of consumers who obtain their food from it. Inhabitants of the city receive nearly all their supplies through it, and in addition about 60,000 carloads of the market's receipts move right out again to places beyond the city limits. Large cities, small towns, and rural stores, from Pennsylvania to Vermont, receive at least a part of their fruit and vegetable supply from New York City.

Present conditions in the primary fruit and vegetable market of New York City are very unsatisfactory. They lead to high costs of distribution and cause excessive deterioration of produce. They are, therefore, of vital concern to many more groups than the dealers who actually carry on business in the market area. Individuals operating in the market have a large responsibility for its successful and efficient operation, but the responsibility cannot be theirs alone when the interests of millions of people throughout the country are affected. Most of the serious problems in a market of this size are too large for any small group to handle. Even if the group could undertake their solution, can it be depended upon to look after the interests of growers, consumers, and others in the distribution channel through which the food supply is moved?

As the market is an important outlet for growers in more than 40 States, and as nearly one-third of its receipts move outside the city limits to consumers scattered over several States, the situation cannot be handled merely by placing the entire responsi-

bility on the city and the city officials. It is their responsibility, but not theirs alone. The problem is larger than that. Perhaps it might then be suggested that responsibility should rest jointly with the city and State of New York. This would be more nearly commensurate with the interests involved; but consumers, growers, and dealers in New Jersey are immensely concerned with the New York market, as are those in Connecticut and many other States. Therefore, it is hardly fair to expect the city or the State of New York to bear the entire brunt of criticism for present conditions, or the entire responsibility for correcting them. The stock exchange, banks, and insurance companies are just as much a part of New York City as the wholesale fruit and vegetable market, but nobody expects the city or the individual members of these agencies to bear the sole responsibility for all their operations, methods, defects, and improvement.

Furthermore, the situation in the market is important to transportation agencies. If the railroads cannot have ready access to the market, unloading their supplies directly from the car to the sales floors just as motor-trucks do, they will be at a competitive disadvantage with the trucking companies. In many cities railroads have lost tonnage because of the kind of marketing system that exists. Also, if the operations of truckers are hampered by unnecessary traffic congestion or by other delays in the market, their costs are increased and their efficiency is reduced.

No groups have any more vital interest in a market than the wholesalers and jobbers who sell there, or the retailers who visit it to obtain their supplies. These agencies are working for the producers and the consumers, assisting in the movement of supplies from the farms to the kitchens, and making their livelihood out of these operations. If they operate under handicaps that raise their costs, lengthen their hours, or otherwise make their tasks more difficult, they are the first to feel the effects. If they cannot adapt

themselves to the existing conditions, they may in the long run pass out of the system. The real job in the New York market, or in any other market, is to get an economical movement of food from the producers to the consumers. Any agency or condition that helps to perform this task efficiently is needed. No others are.

The task in New York is too big to be handled by any one grower or group of growers; by the receivers, the jobbers, or any other middlemen; by any one railroad or other auxiliary agency; or by the consumers of metropolitan New York. The day when this market may have been a matter of concern solely to any one particular group is long past. Improvement of conditions in it is a public problem, and the public must accept responsibility for it if food supplies are to move efficiently. The public will not perform the actual marketing operations, but it can and should perform a task that has grown beyond the reach of any one group—to plan and obtain a satisfactory marketing system under which the various groups may operate.

The study here reported is an effort to analyze one part of the marketing problem in New York City. The total costs of distribution of fruits and vegetables after they reach the city are almost as much as the costs of producing them and transporting them to the city. These costs of city distribution, of course, include the handling through both wholesale and retail channels, until the products are purchased by the final consumers. The scope of this study is limited to the wholesale distributive channels, from the time the commodities reach the first unloading point until they are delivered at the retail store. Every operation between these two points has been analyzed, its cost determined, and consideration given as to whether it can be wholly or partially eliminated. Every possible and reasonable improvement in efficiency has been sought. The interests and viewpoints of all groups involved in handling the

city's huge fruit and vegetable supply have been considered.

In the pages that follow an effort has been made to present an accurate picture of conditions and a satisfactory plan for their improvement. The plan presented, if adopted, will reduce the costs of distributing these food items, but such reduction can be brought about only by cutting out certain operations and charges. The elimination of these charges, if effected, would reduce or eliminate the incomes of certain groups of people who are receiving revenue from the present inefficient set-up. Such persons as these will object to the conclusions of this report and will perhaps exert every effort to prevent their being carried out. Such action is only natural and may be expected. But the opposition of such groups should not remain forever as an immovable obstacle to progress. The interest of the general public should prevail by having food supplies distributed through the marketing system in the most efficient manner possible.

VOLUME, SOURCES, AND TRANSPORTATION OF SUPPLIES

The markets of New York City during the year ended April 30, 1939, received a total of 201,790 carloads of more than 100 different kinds of fruits and vegetables (excluding bananas). Potatoes were received in the largest quantity; they accounted for about 24,000 carloads. Next in importance came oranges with more than 21,000 carloads. Other important commodities with about 10,000 carloads each were tomatoes, apples, and lettuce.

This huge supply of fruits and vegetables was sold by the original receivers in New York for about \$162,000,000 and brought about \$285,000,000 at the retail stores. Figure 2 shows the volume received from each of the States during the calendar year 1938, although the importance of some of the nearby States is slightly minimized by the fact that truck-receipt records for this

period were incomplete. From this chart it is evident that California, Florida, and New York each supplied about one-fifth of the total. These three States and New Jersey furnished two out of every three carloads that entered the city.

Railroads were the most important method of transporting these products to the city—they brought in 94,729 carloads, or 47 percent of the total. Motortrucks brought in

from 22 States. Boat receipts were most important for supplies grown in Florida and Texas, and for imports.

All types of commodities were transported to the market by railroad and motortruck, but boat transportation was important only for citrus fruits, pineapples, potatoes, tomatoes, onions, peppers, and eggplant. Transportation of supplies away from the market was almost exclusively by motortruck, in-

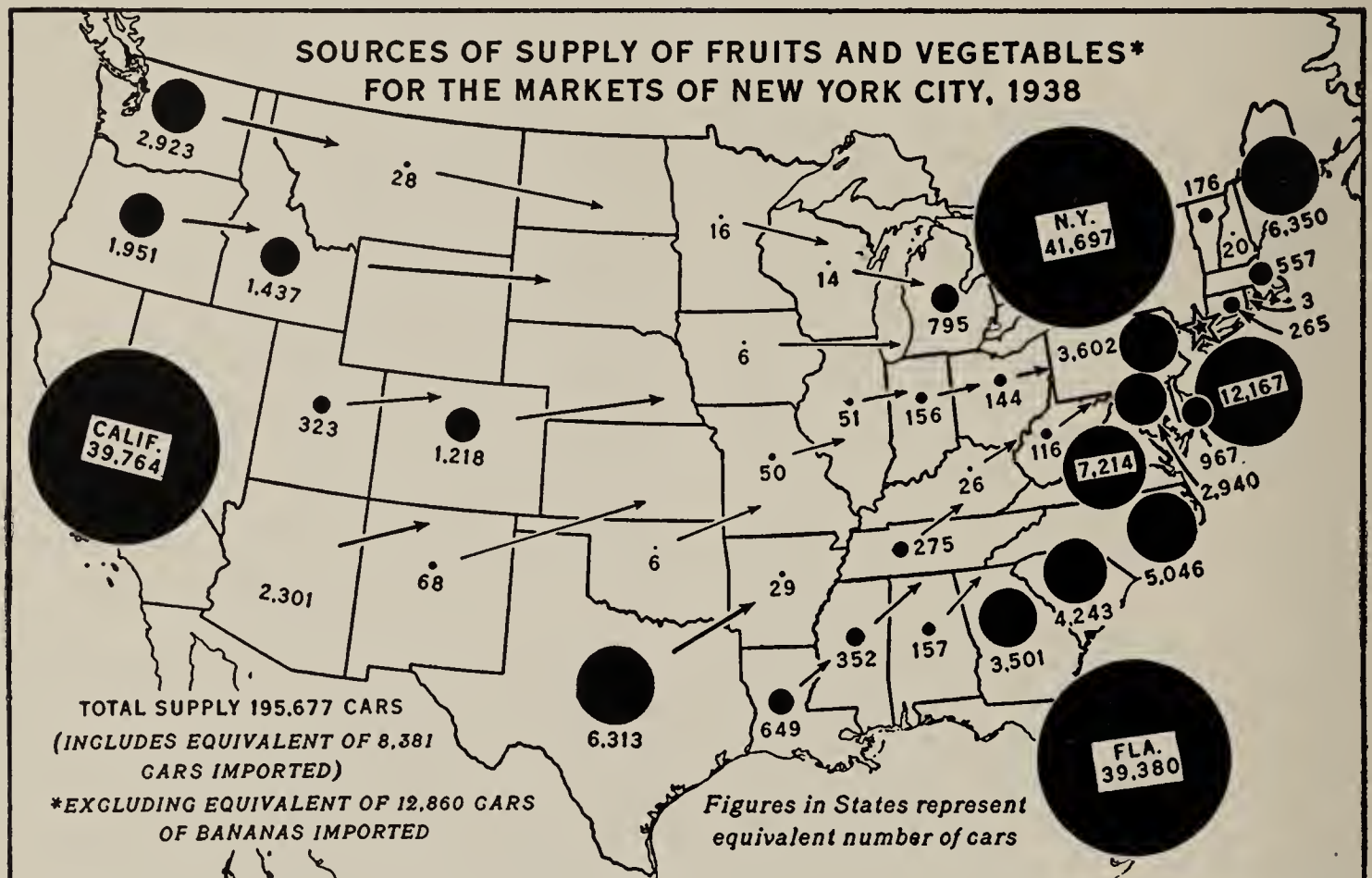


FIGURE 2.

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the equivalent of 75,083 carloads, or 37 percent. The equivalent of 31,978 carloads, or 16 percent, arrived by boat. For the various shipping areas the relative importance of the different methods of transportation showed great variation. Practically all receipts from the West Coast came by rail, and 5 western States—California, Washington, Oregon, Idaho, and Arizona—sent about half of all the rail receipts. On the other hand, most supplies from nearby States were brought in by motortruck—altogether, motortrucks brought supplies

cluding the distribution of the equivalent of more than 60,000 carloads that moved out of the city to the cities and towns in the surrounding States.

Marked changes have taken place in the methods of transporting fruits and vegetables to the market. In early years the movement was by horse cart and boat. Then came the railroads, and rail receipts mounted to more than 172,000 carloads in 1927. Since that year receipts by rail have shown an almost steady decline, their total volume falling about 45 percent; but during this same period

receipts by motortruck have increased enormously, rising in recent years to the point where they are becoming almost as important as rail receipts. Boat receipts have gained about 25 percent during this period.

The present market is not at all suited to the handling of these increasing supplies which are arriving by motortruck, nor is it equipped to handle adequately the supplies that come by rail. This is one of its principal defects. Any new market that is built should be so designed that it can handle both truck arrivals and rail receipts efficiently and quickly. Any plan for a market

reorganization should likewise correct other weaknesses of the present system and make such adaptations as are necessitated by the changes that have occurred, so that New York's system of handling fresh fruits and vegetables will be on a par with the vast improvements that have been made along other lines.

In the pages that follow, the existing markets and methods of handling are described, costs of operation are summarized, weaknesses of the existing system are pointed out, and possibilities of making needed improvements are evaluated.

THE PRESENT MARKETING SYSTEM OF NEW YORK

Description of the Markets

The wholesale marketing of fruits and vegetables in metropolitan New York centers about one general market area—Washington Street and the produce piers along the lower west side of the island of Manhattan. This market is made up of several widely scattered and uncorrelated parts, all of which are included under the general title of "Lower Manhattan market." Through the combined facilities of this market are handled about three-fourths of all the fresh fruits and vegetables received annually in New York City.

Supplies received elsewhere in the city are mostly of three classifications: (1) receipts at farmers' markets; (2) supplies of potatoes, watermelons, juice grapes, and a few other products, most of which are handled in separate, specialized markets; and (3) direct receipts at chain-store warehouses.

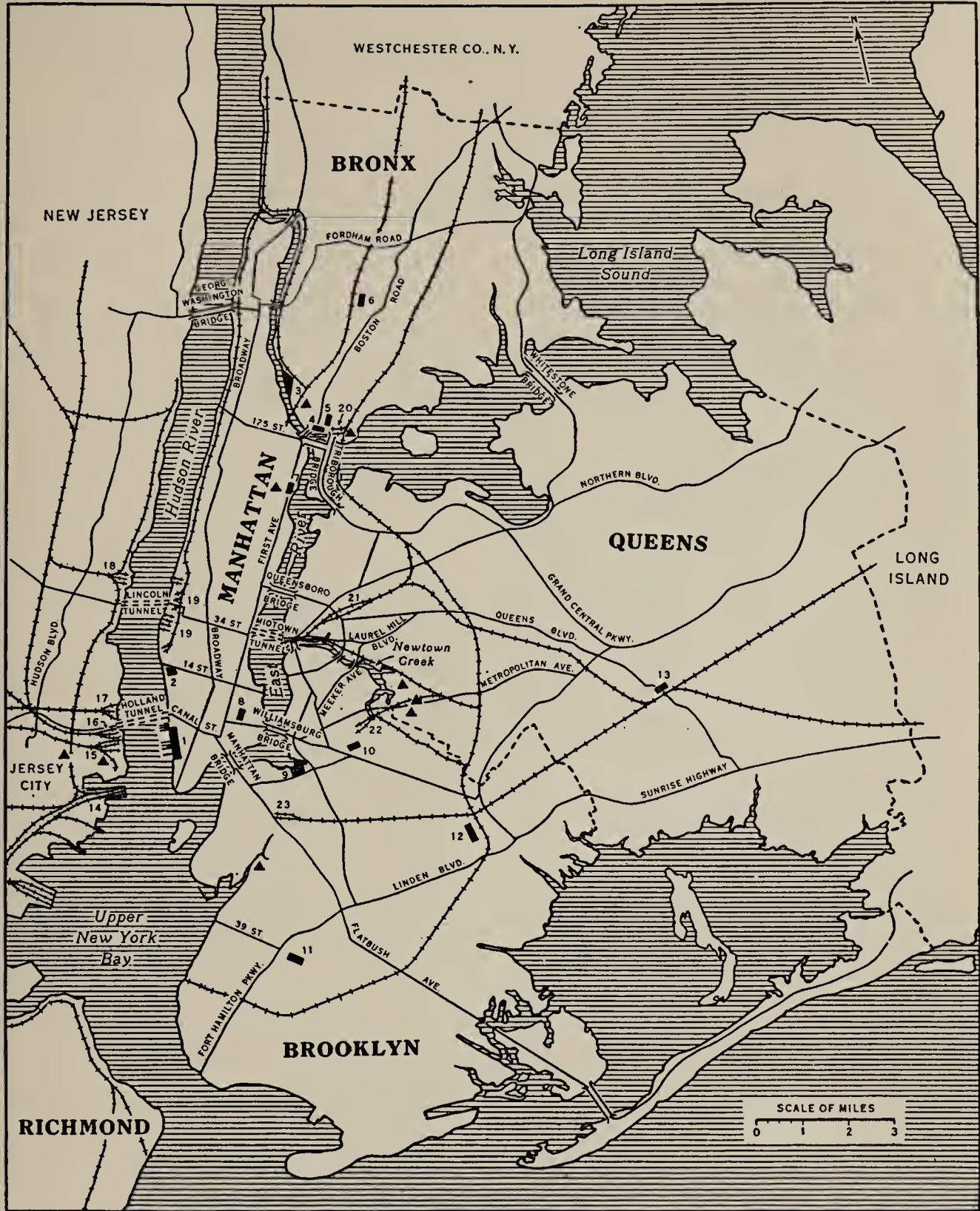
Numerous jobbing markets of varying size and importance are scattered over the city, located separately or in connection with the farmers' markets. Some of these obtain a part of their supplies directly from producing sections, but most of their business is in the distribution of supplies that have been purchased in Lower Manhattan. Figure 3 shows their locations and some of the principal railroad yards where fruits and vegetables are unloaded, both in New York City and on the New Jersey shore. The steamship piers, where cargoes of these products are discharged, are located along both sides of the Hudson and East Rivers.

THE LOWER MANHATTAN MARKET

Washington Street is the nerve center of the Lower Manhattan market and the place where most of the fruit and vegetable marketing activities are conducted. But Washington Street itself has no rail or boat connections, so all incoming supplies except those arriving by motortruck must be unloaded elsewhere. Furthermore, there is no one place at which such supplies are received. Instead, there are a great number of piers and railroad yards up and down the shores of Manhattan and New Jersey, each contributing a share. Each, therefore, is a part of the market when the market is considered as a whole. All of these widely scattered locations of arrival, handling, sales, and delivery of fruits and vegetables make up the sprawling Lower Manhattan market.

Washington Street is one of the deep and narrow canyons on this densely populated island. The section of the street that is used by the fruit and vegetable industry is in the very shadow of the giant skyscrapers of the financial district, as shown in figure 1. Not for any particular reason does it occupy this high-priced land of Manhattan, except that it has just continued in this location since the early days of the city's development. But there is no organized market, nor any definite market area. Neither have any structures been designed or built especially for the handling of fruits and vegetables. The dealers have simply taken over such buildings as had previously been erected in

WHOLESALE FRUIT AND VEGETABLE MARKETS, NEW YORK, N. Y., 1939



- | | | | |
|--|---------------------------|---------------------------------------|--------------------------|
| 1. Washington St. Market & R. R. piers | 7. Harlem Market | 14. B. & O. R. R. Jersey City Yards | 21. Sunnyside Yards |
| 2. Gansevoort Market | 8. Attorney Street Market | 15. Penna. R. R. Jersey City Yards | 22. Bushwick Yards |
| 3. Bronx Terminal Market | 9. Wallabout Market | 16. Erie R. R. Jersey City Yards | 23. Flatbush Yards |
| 4. Bronx Produce House | 10. Moore Street Market | 17. D. L. & W. R. R. Hoboken Yards | ▲ Chain-store warehouses |
| 5. Brook Avenue Market | 11. 39th Street Market | 18. N. Y. C. R. R. West Shore Yards | — Main thoroughfare |
| 6. Bathgate Avenue Market | 12. Osborne Street Market | 19. 17, 26, 28, 33, & 37 Street Yards | ◆◆◆ Railroad |
| | 13. Jamaica Market | 20. Hell Gate Yards | |

FIGURE 3.

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this century-old section of the city—ancient store buildings, tenements, and warehouses, located on narrow streets. These make up the Washington Street market.

Only one of the railroads serving New York City has a direct rail connection to Manhattan for freight shipments, and its nearest yards are a considerable distance from the Washington Street stores. All other rail lines from the West and South have freight terminals on the New Jersey side of the Hudson River. Some of the receipts at these New Jersey terminals are hauled by motortruck to Washington Street, but most of the incoming railroad cars are transferred by special ferries or “car floats” to the produce piers on the Manhattan river front, or to team tracks farther up town.

Each of four railroads rents and operates separate piers or sets of piers (seven piers in all) primarily for delivery of fruits and vegetables, although their entire capacity is not so used throughout the year. At the piers the cars remain on the floats while their contents are unloaded onto the pier floors by gangs of stevedores using two-wheeled hand trucks. Incoming ship cargoes are either unloaded at the individual piers of the various steamship lines, all along the Hudson or East Rivers, or are transferred by lighter or car float to the railroad piers.

Altogether, the various commodities arriving by rail and boat, and destined for sale through the Lower Manhattan market, are unloaded at more than 20 railroad piers and team tracks scattered along the west side of Manhattan Island and in New Jersey, and at as many as 40 different steamship piers. Motortruck receipts may not be displayed or sold at any of these places, but are unloaded at the Washington Street stores.

Through the various facilities of the Lower Manhattan market during the 12 months ended April 1939, a total of 154,367 carloads were handled; this represented 76 percent of the total receipts in New York City. According to the unload records of the Agricultural Marketing Service, supplemental

information obtained from railroad records and from the managers of farmers’ markets, and certain computations explained on page 18, the method and place of arrival of these 154,367 carloads were as follows:

Rail:	<i>Carloads</i>
Railroad piers.....	63, 850
Manhattan team tracks.....	10, 320
New Jersey team tracks.....	3, 649
	<hr/>
Total rail.....	77, 819
Boat.....	31, 978
	<hr/>
Total rail and boat.....	109, 797
	<hr/> <hr/>
Motortruck:	
Direct receipts.....	43, 570
Hauled from farmers’ markets.....	1, 000
	<hr/>
Total motortruck.....	44, 570
	<hr/> <hr/>
Total handled through the Lower Manhattan market.....	154, 367

Figure 4 shows the location and arrangement of the stores and railroad piers. The fruit and vegetable stores are located in 25 blocks, along either side of Washington Street. These blocks and intervening streets have a combined area of about 38 acres (including all of Greenwich St., and 30 feet of West St.). About half of this total area (19.3 acres) is within property lines, and the remainder is in streets and sidewalks (streets 12 acres, sidewalks 7 acres). Only about half of the store space is used for fruits and vegetables, but such stores have a combined area of 9.3 acres; in addition, fruit and vegetable dealers use about 4 acres of sidewalk space.

Within the 25 blocks there are altogether 487 stores, of which 267 are used for the handling of fruits and vegetables.¹ In addition, there are 46 fruit and vegetable basements of which 26 are for bananas only. Uses of the other 220 stores in the district are indicated as follows: 48 restaurants, 29 dealers in butter and eggs, 17 trucking concerns, 12 warehouses, 9 package stores, 5

¹ Separate buildings or store units occupied by one firm are counted as one store if adjoining, but separately if not adjoining.

telegraph offices, 69 for miscellaneous users, and 31 are vacant.

About 190 firms in or connected with the fruit and vegetable industry occupy 256 offices in 7 office buildings in the market area or in adjoining blocks. Fewer than 20 of these firms have stores in the market area; the remainder include brokers, auction firms, shipping organizations, representatives of transportation companies, etc.

The fruit and vegetable stores differ considerably in size, but the average of the entire group is about 25 feet in width and 60 feet in length. Sidewalks are mostly about 15 feet wide. Washington Street measures 30 feet in width between curbs. Greenwich Street is 35 feet wide and has an elevated-railway structure overhead. Cross streets are mostly 34 feet in width, and in addition to market vehicles many of them carry heavy cross-town traffic directly through this congested market area.

West Street, which separates the Washington Street district from the piers, is nearly 200 feet wide and is one unit of the city's great west-side arterial highway. The elevated section of this highway now terminates directly opposite the center of the market. Both the street level and the elevated highway carry a tremendously heavy volume of traffic throughout the day and night.

The backs of stores in the market are built solidly against the other buildings of each block, leaving no rear entrances or loading platforms (fig. 4). Store floors are all approximately at street level. Not designed or built for efficient and expeditious handling of heavy and bulky products, they are merely solid rows of the ordinary store type of structure, fronting only on one narrow street. Not one in five has cold-storage space.

Buildings in which these stores are located range from 1 to 10 stories in height, averaging about 4 stories. The marketing of fresh fruits and vegetables is, however, essentially a one-story industry. Immense volume and tonnage must be handled within a few hours

of time. Thousands of tons that arrive during the afternoon and night must be in the buyers' hands early the following morning; therefore, the display, sale, and interchange of these products must practically all be made at street level. Little use can be made by the fruit and vegetable industry of space above the ground floor, other than for offices and for miscellaneous storage.

Furthermore, with streets and sidewalks so heavily congested with market activities throughout most of the 24 hours, few other industries care to make use of the upper floors in these market buildings. On the average, only about half the second floor is used and that chiefly for office space by the produce firms. The floors above the second are three-fourths vacant, and such use as is made of them is of low value. Therefore, the rentals and other carrying charges on this property, in the shadow of Manhattan's skyscrapers, must nearly all be borne by the ground-floor stores and their sidewalks.

The assessed value of all the land and buildings in the 25 blocks of the market district is \$19,000,000.²

Figure 5 gives the average assessed value per square foot of all land and improvements in each block. It should be noted that the valuations shown do not apply to fruit and vegetable properties only, but represent the average of all property within each block.

The properties used by the fruit and vegetable industry—267 stores and 3 office buildings in the market—have an assessed value of \$9,700,000. These occupy 406,383 square feet, making an average assessed valuation of land and improvements of \$24 for each square foot. The land on which they are located is valued at \$7,700,000, and the buildings themselves at \$2,000,000. On a square-foot basis, this is approximately \$19 for land and \$5 for buildings. That is, nearly four-fifths of the total valuation of the fruit and vegetable properties is for the

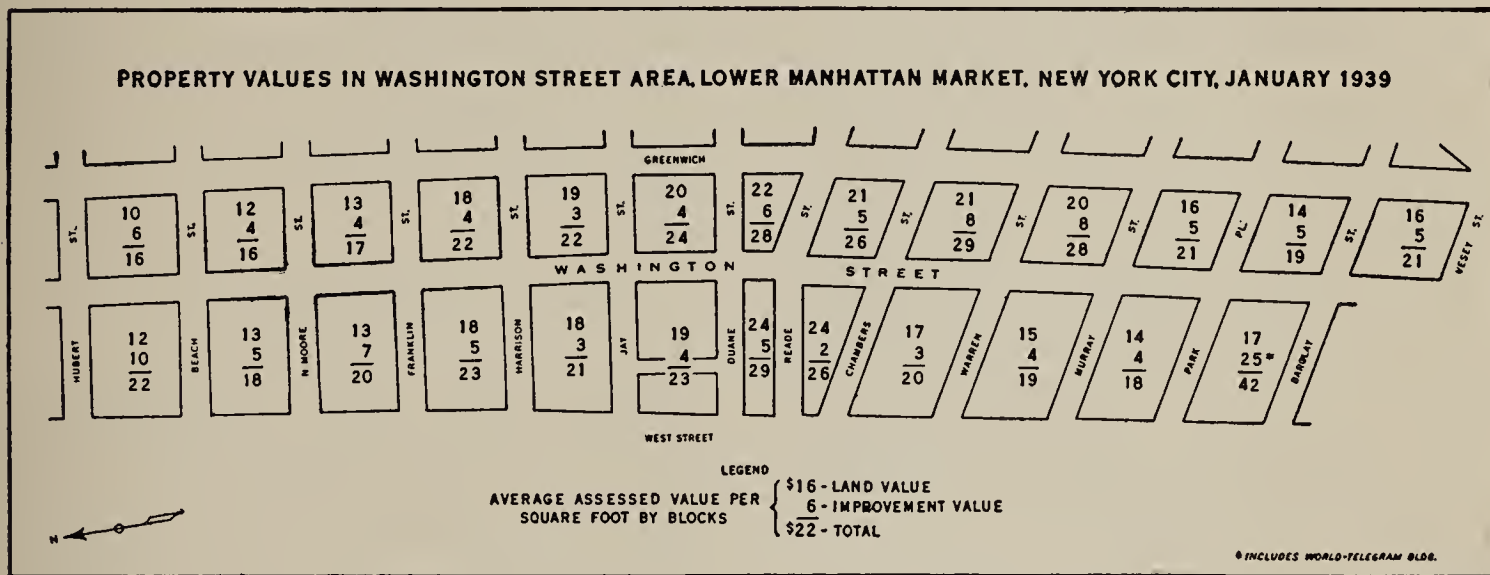
² All assessed-valuation figures are taken from The City Record: Assessed Valuation of Real Estate, 1938 and First Half of the Year 1939. Assessed value in New York is supposedly the full market value.

high-priced land in this strip of Manhattan adjacent to the skyscraper district. The Washington Street market is high in value, but most of that value is in land on which the market is located. Only a relatively small part is in market buildings, and they are not suitably designed nor located for such use. This inadequacy of physical facilities results in a great amount of labor that would otherwise be unnecessary, and in lack of proper care for these perishable products.

Experience in the marketing of fruits and vegetables has shown that it is not practical

vestment, or must operate with inadequate space and facilities. In the present Washington Street market both these conditions exist; for although the land is assessed at \$7,700,000, the area is entirely too small to allow efficient marketing.

Annual rental for the 267 stores and additional fruit and vegetable offices is about \$1,400,000, which is nearly 15 percent of their assessed valuation. This figure represents the total rent paid by tenants plus the use value of property occupied by owners. Monthly rentals per store range mostly



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FIGURE 5.

to build for these products a market that goes high in the air. Therefore, high costs for land cannot be distributed over many floors as is the case with the great loft and office buildings now prevalent in this part of Lower Manhattan. Ground space must be provided not only for the display and handling of the bulky products themselves, but also for the thousands of transportation units that move the products into the market and out again within a few hours. Expansion cannot be made vertically, as shown by the unused upper floors of the present market buildings. As the market must spread out horizontally a relatively large tract of land is a fundamental requirement. If land values are high, the industry must pay rental charges to support a very large capital in-

vestment, or must operate with inadequate space and facilities. In the present Washington Street market both these conditions exist; for although the land is assessed at \$7,700,000, the area is entirely too small to allow efficient marketing.

Annual rental for the 267 stores and additional fruit and vegetable offices is about \$1,400,000, which is nearly 15 percent of their assessed valuation. This figure represents the total rent paid by tenants plus the use value of property occupied by owners. Monthly rentals per store range mostly between \$100 and \$500, although some rent for more than \$1,000 a month. The average rentals for the entire group of 267 stores is \$355 a month. Only 12 percent of the stores are occupied by their owners; 88 percent are occupied by tenants.

In addition to this annual rental of \$1,400,000 paid by the fruit and vegetable industry for the use of stores and offices, there is a rental of \$488,000 in the pier section of the market which is used by the railroads for unloading and delivery of rail receipts. The latter figure represents only that part of the pier rentals which can properly be charged against fruit and vegetable handling, and does not represent the entire rent for all seven railroad piers. Excluding any charges for boat piers, the

annual rental for the inadequate facilities of the Lower Manhattan market is \$1,888,000.

Why has the market remained in these old, cramped, and costly quarters? The Federal Trade Commission has this to say:

Excessive rentals for stores.—In spite of old and inadequate buildings, the dealers are compelled to pay very high rents for the privilege of remaining and doing business in these congested, uneconomic market districts. The individual wholesale dealer dares not by himself leave the district, where all retailers have been accustomed to come for their supplies, and seek another location with better accommodations and more equitable rents. It would indeed be business suicide in most cases to attempt it. Only by concerted action to move the entire wholesale produce market to another location can the dealers be freed from the necessity of paying whatever rents the owners demand, so long as such rents are advanced with a fair degree of equality as between the various dealers in the same market, and all are laboring under the same general expenses and lack of facilities, the incentive is not strong enough to bring the dealers together for concerted action, since they feel that to a large extent such additional costs, as well as losses and wastes which are proportionally equal, are passed on to the retailers, and by them to the consumers, in the cost of the goods. They know that all other dealers are under similar handicaps. Hence there are found dealers in these markets paying rent twice or three times the amount they paid a few years ago for the same building without any additional facilities and in bad repair. The owner has done nothing to improve the property, and the only added value to the premises is the increased value given to the site by the increase of the produce business and the development of other business areas around it, due to the growth in population.

Nevertheless, in several of the large market cities there have been attempts on the part of the dealers to get together and establish their markets at better locations, since they realized the great losses of the present system and the possibilities of more moderate prices to the consumers as well as increased profits for themselves under better conditions. The owners of real estate in the market districts oppose all such projects.³

The same principles and conditions apply today, although the above statement was written 20 years ago.

To summarize, rail and boat supplies of

³ [UNITED STATES] FEDERAL TRADE COMMISSION. REPORT ON THE WHOLESALE MARKETING OF FOOD. 1919. See p. 147.

fruits and vegetables which are handled through the Lower Manhattan market are unloaded at about 60 different places. Only the motortruck receipts, which amount to about 30 percent of the total, can be unloaded directly into the Washington Street market. All other unloads must be hauled to Washington Street, or sold and delivered at other places.

The Washington Street market is the most important source of supplies for retailers and out-of-town buyers, but it is definitely handicapped as a primary market. It has no rail or boat connections, and is not well suited even for handling motortruck arrivals. Therefore, much of the produce sold in this market must move through several locations, at considerable expense and delay.

SECONDARY MARKETS OF METROPOLITAN NEW YORK

In the several hundred square miles of territory which make up the metropolitan area of New York, there are more than a score of other wholesale and jobbing markets for fruits and vegetables. They vary greatly, in size and importance, from a small group of stores on a side street to large and well-developed market facilities. Some specialize in direct receipt and distribution of so-called hardware products—potatoes, cabbage, onions, and apples. A few are devoted exclusively to grapes and watermelons. Several have farmers' markets, where producers from nearby sections sell directly to all kinds of buyers. A few receive supplies direct from more distant producing areas, by rail or truck. But most of these markets deal principally in the products which have been bought in Lower Manhattan, passing them onward to the retailers in their journey to the final consumers. About half the fruits and vegetables handled through the Lower Manhattan market are sold to jobbers within the metropolitan area, of whom the greater number are located in these other jobbing centers. The three most important are

Bronx Terminal in the Bronx, Wallabout in Brooklyn, and Newark in New Jersey.

BRONX TERMINAL

The Bronx Terminal market (fig. 6), during the 12 months ended April 1939, handled about 25,000 carloads of fruits and vegetables. About 10,000 carloads were obtained from Lower Manhattan, another 10,000 moved through the farmers' market, and only about 5,000 carloads were received at dealers' stores directly from producing districts, by both rail and truck. (During later months of 1939 the receipts in the farmers' market increased sharply.)

The Bronx Terminal market, as it stands today, illustrates some of the worst and some of the best in market development and construction. Any consideration of the market must be divided into two distinct parts: (1) the original construction; and (2) that which has been added in recent years.

The original Bronx Terminal consisted principally of an immense six-story warehouse building with a few small stores, which were of neither the proper size nor design for the handling of fruits and vegetables. Efforts to improve the produce-marketing system of New York are frequently derided by pointing to the Bronx Terminal as "one of those new markets which was a complete failure." The original Bronx Terminal was little more than a storage warehouse—not really a market. There was no reason to expect it to become a market when it was built. The fact that it did nothing to improve the marketing situation in New York does not indicate what might have been accomplished by the right kind of market development.

The story of the other part of the present Bronx Terminal market is very different. This part consists of 66 store units designed for the handling of fruits and vegetables and a farmers' market that has covered stalls. About 50 of the stores are occupied by firms that handle fruits and vegetables; the remainder are used for other purposes, such as restaurants, wholesale groceries, and

the handling of poultry. The store units are two-story buildings, with office and storage space on the second floor. Stores have platforms at both front and rear for loading and unloading of merchandise. All stores have direct rail connections to the rear platforms, and are equipped with refrigerated storage rooms on the first floor. Wide streets expedite the traffic.

Most of the dealers in the Bronx Terminal market have moved there during the last few years from the old Harlem market in Manhattan. A few firms have used the facilities for direct carlot receipts at their stores, but most of the dealers have continued the jobbing business which they had formerly done in Harlem, making their purchases in Lower Manhattan. Recently a freight house has been completed in the Bronx Terminal, which is well designed for the unloading, display, sale, and delivery of fruits and vegetables. An organization of the dealers in the market has planned to develop this new building into a produce terminal and to receive a full assortment of fruits and vegetables directly from shipping sections.

NEWARK

Two important markets are in Newark; they are known as Miller Street and Chapel Street. A third and smaller jobbing market is known as Commerce Street. The Miller and Chapel Street markets, in each case, consist of dealers' stores and a farmers' market, but most of the carlot receivers are at Miller Street whereas Chapel Street has the larger farmers' market. Complete records of motortruck receipts are not available, but estimated total volume received in the three markets (by all means of transportation) is about 31,000 carloads annually. Direct receipts from producing areas amount to approximately 20,000 carloads, divided about equally between rail and truck, and some 11,000 carloads are obtained from the Lower Manhattan market. Newark formerly obtained a much larger proportion of supplies from Lower Manhattan; but both New York

dealers and Newark buyers agree that, with the exception of auction commodities, the volume purchased in Lower Manhattan has declined in recent years as the total of direct receipts in Newark by rail and truck has increased. Newark serves a wide area in northern New Jersey, and ranks among the 10 largest markets in the country with volume approximately equal to such cities as Baltimore, Pittsburgh, Cincinnati, and Cleveland.

WALLABOUT

The Wallabout market (fig. 7), during the 12 months ended April 1939, handled around 26,000 carloads of fruits and vegetables. About 12,000 carloads were obtained from Lower Manhattan, more than 10,000 moved through the farmers' market, and less than 4,000 carloads were received at dealers' stores directly from producing districts.

Wallabout consists of an open farmers' market and 14 groups of two-story buildings, comprising some 265 stores. Only 140 of these were in use for the handling of fruits and vegetables in June 1939. Some are used for other purposes and many are vacant. Many are in a poor state of repair. The market has no direct rail connections, but a few years ago a float bridge and team tracks were installed, so that cars can be delivered by car float. However, only a very small number of cars of fruits and vegetables have been received.

Wallabout is one of the oldest markets in the city, and formerly had a very much larger business than at present. Except for the farmers' square it has been principally a jobbing market, handling supplies obtained in Lower Manhattan; it formerly did most of the distribution in Brooklyn, Queens, and other parts of Long Island. Since the development of the motortruck many of the larger retailers and other former Wallabout customers have gone to the Lower Manhattan market to obtain supplies, for there they can

have the largest possible selection of daily offerings from which to make their purchases—selection not only of commodities, but of size, quality, condition, and price of each commodity. Other jobbing centers have developed in various parts of Brooklyn and Queens which obtain supplies directly from Lower Manhattan, and serve the smaller buyers in their localities. As a result of these and perhaps other factors, the importance of the Wallabout market has declined greatly within the last several years.

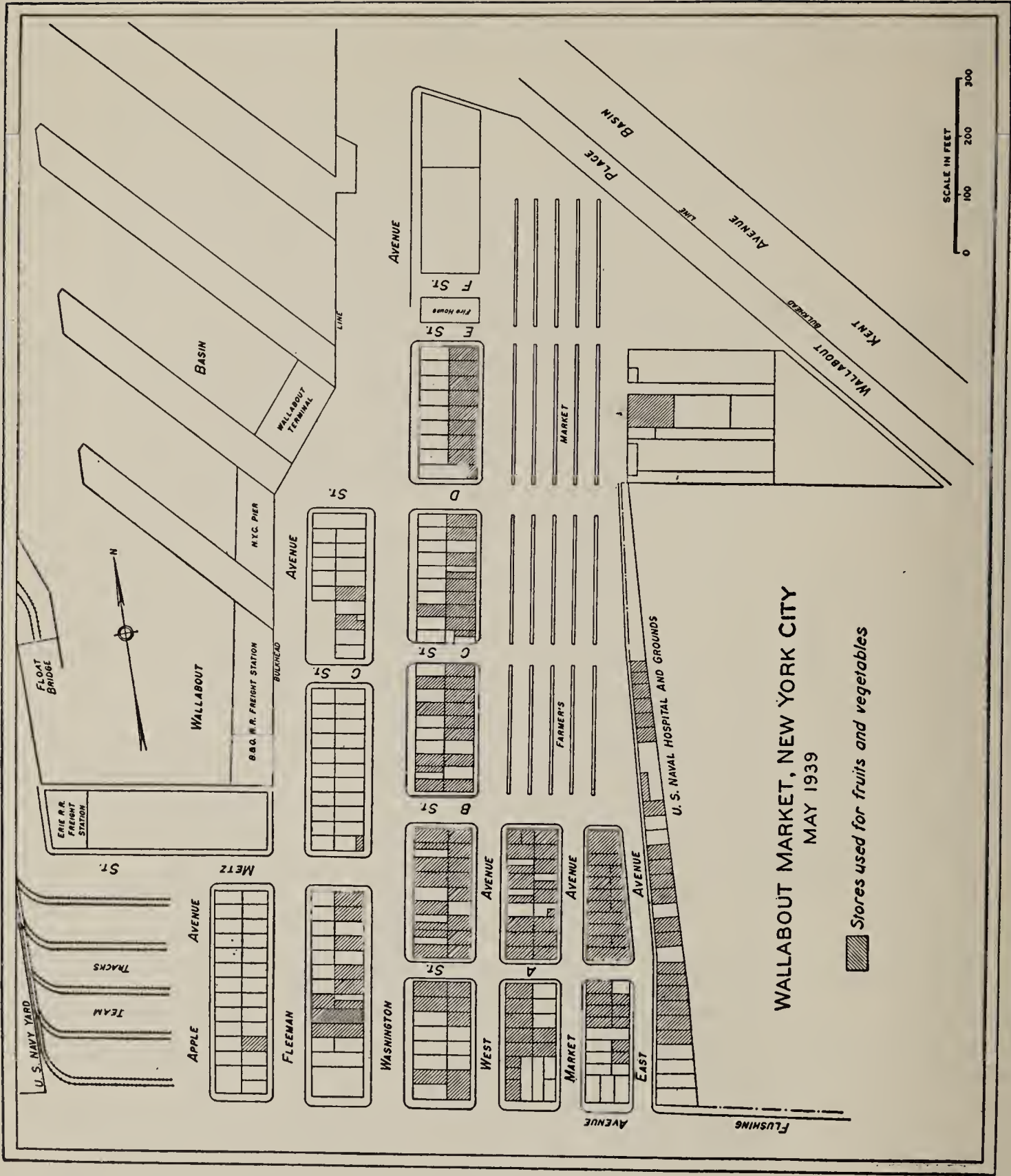
OTHER MARKETS IN NEW YORK CITY

Gansevoort, on the west side of Manhattan near Fourteenth Street, is another combination jobbing and farmers' market, handling an estimated volume of about 10,000 carloads per year. About 3,000 carloads move through the farmers' market, and about 7,000 carloads are handled through the stores of the dealers. A small percentage of these 7,000 carloads is received directly from producing areas by truck or by railroad cars that are delivered at Manhattan team tracks. The remainder is obtained from the Lower Manhattan market.

The Harlem market, on the upper east side of Manhattan, was formerly an important jobbing and farmers' market, but nearly all of the dealers and farmers who formerly did business at that location have now transferred to the Bronx Terminal. The Harlem market is now estimated to handle less than 1,000 cars a year.

There are seven other small jobbing markets in various parts of the city. The dealers in each obtain most of their supplies from Lower Manhattan, or partly from one of the farmers' markets during the summer. Nearly all of these jobbing markets are in close proximity to one or more pushcart markets, and some of their business is with the pushcart operators as well as with the smaller retailers in their sections of the city.

These markets, the borough in which located, and the estimated volume of fruits



WALLABOUT MARKET, NEW YORK CITY
MAY 1939

Stores used for fruits and vegetables

FIGURE 7.

and vegetables handled in a year, are as follows:

Market and borough:	<i>Carloads</i>
Attorney Street, Manhattan.....	1, 000
Moore Street, Brooklyn.....	4, 000
Thirty-ninth Street, Brooklyn.....	2, 000
Osborne Street, Brooklyn.....	5, 000
Jamaica, Queens.....	500
Brook Avenue, Bronx.....	1, 000
Bathgate Avenue, Bronx.....	1, 500

In addition to all of these groups of dealers, there are, of course, a considerable number of jobbers and combination jobber-retailers located singly in all parts of the city.

Then there is a rather distinct group of markets located at railroad yards throughout New York, which specialize in direct receipt and distribution of so-called hardware products—late-crop potatoes, onions, cabbage, turnips, and apples—or are devoted exclusively to watermelons or juice grapes.

As the hardware products are less perishable in nature than most of the other fruits and vegetables and can be held for considerably longer periods, they need not be distributed with the rush that characterizes the general-produce markets. Supplies for a

week or more can be bought at one time. They are bulky and heavy, and this gives added incentive to make direct deliveries without intermediate handling. As they are customarily packed and graded with considerable uniformity, it is possible for a large proportion of sales to be made without the buyer's personal inspection of each lot. These products are handled to some extent by dealers in the regular markets, but a large proportion is handled by receivers at the Bronx produce house, at Bushwick and Flatbush yards in Brooklyn, and at the midtown team tracks in Manhattan.

Watermelons and juice grapes are largely distributed, in New York as in most other cities, by groups of dealers who specialize in these particular products. Carlots are mostly received and sold at certain railroad yards in New Jersey where special facilities are provided. Many of the sales in these yards are in straight carlots; some of these are diverted to team tracks and sidings throughout the New York area for further distribution, but the primary market for these two commodities is established at these New Jersey yards.

THE PRESENT MARKETING SYSTEM OF NEW YORK

Movement Through the Markets

The city of New York has a land area of 309 square miles, on which lives a population now estimated at nearly 8 million. In the metropolitan district around the city live another 5 million.⁴

The marketing of fruits and vegetables in New York is the process of distributing each year more than 200,000 carloads of highly perishable food products to these 13,000,000 people.⁵ The cost of this distribution, after these products arrive in the city, amounts to about one-half of their final selling price. The main purpose of studying the city's marketing system is to analyze these costs, to find where they can be reduced and how possible savings can be effected. A measurement of costs through the present marketing system has been made by learning the volume of supplies that moves through each of the several channels of distribution, the methods of handling, and the costs of each operation through these channels.

TOTAL VOLUME MOVED

The unload reports of the Agricultural Marketing Service, United States Department of Agriculture, list the unloads in New

⁴ REGIONAL PLAN ASSOCIATION, INC., NEW YORK. POPULATION ESTIMATES FOR THE NEW YORK REGION BY COUNTIES AND GROUPS OF COUNTIES. Regional Plan Assoc., Inc. Inform. Bul. 40. January 1938. Estimated population in 1940, total New York City, 7,887,000; total for environs, 5,539,000; total for New York City and environs 13,426,000.

⁵ In addition to that distributed from New York City, considerable quantities are received directly at other points in the metropolitan area, particularly at Newark and Paterson, N. J.

York City⁶ by rail, boat, and truck at a total of 208,912 carloads for the 12-month period May 1938 through April 1939. These were made up of 96,069 carload equivalents by rail, 44,543 by boat, and 68,300 by motortruck. (Motortruck receipts were listed as 45,219 at wholesale markets and 23,081 at farmers' markets.)

For the purposes of this study the following changes in the figures have been made: From the rail unload figures, 944 cars of "relief shipments" (for distribution by welfare agencies) have been omitted, as well as 396 carloads reported from New Jersey team tracks which were found not to be destined to New York City. From the boat receipts 12,565 carloads of bananas sold in New York have been excluded, for bananas are mostly received and sold through different facilities than other fruits and vegetables, and have not been included in this market study. The record of motortruck receipts at wholesale markets (including chain-store warehouses) was known to be somewhat incomplete, and therefore has been increased here by 15 percent.

The resulting figures indicate a total of 201,790 carloads that were considered in this study to have been received in New York City during the 12-month period. The volume and percentage by each type of incoming transportation are indicated in table 1.

⁶ Including unloads at Jersey City team tracks and piers destined to New York City markets.

TABLE 1.—*Supplies which in this study were considered to have moved through the various marketing channels of New York City during the 12-month period ended April 1939*¹

Method of transportation	Volume	Percentage of total carloads
	<i>Carloads</i>	<i>Percent</i>
Rail.....	94,729	47
Boat.....	31,978	16
Motortruck to—		
Wholesale markets.....	52,002	26
Farmers' markets.....	23,081	11
Total.....	201,790	100

¹ Bananas excluded.

The movement of these 201,790 carloads of fruits and vegetables through the marketing channels of New York City is portrayed in figure 8, which is based upon the unload reports of the Agricultural Marketing Service, records of dealers and auction companies for sample periods, and information obtained from dealers, chain stores, railroads, truckmen, managers of farmers' markets, and others. A consideration of this movement and handling may be divided in two parts—(1) the 154,367 carloads, 76 percent of the total, that were handled through the Lower Manhattan market, and (2) the 47,423 carloads, 24 percent, that moved through other locations in the city without going through Lower Manhattan.

HOW SUPPLIES ARE HANDLED THROUGH THE LOWER MANHATTAN MARKET

The Lower Manhattan market handles an average of more than 500 carloads of fresh fruits and vegetables every working day. Most of each day's supply is received in the market during the night and delivered to the buyers by the following forenoon. Just how is this immense tonnage handled in such a short time? Through what locations and by what methods does it pass from the incoming carriers to the outgoing motortrucks?

WHERE SALES ARE MADE

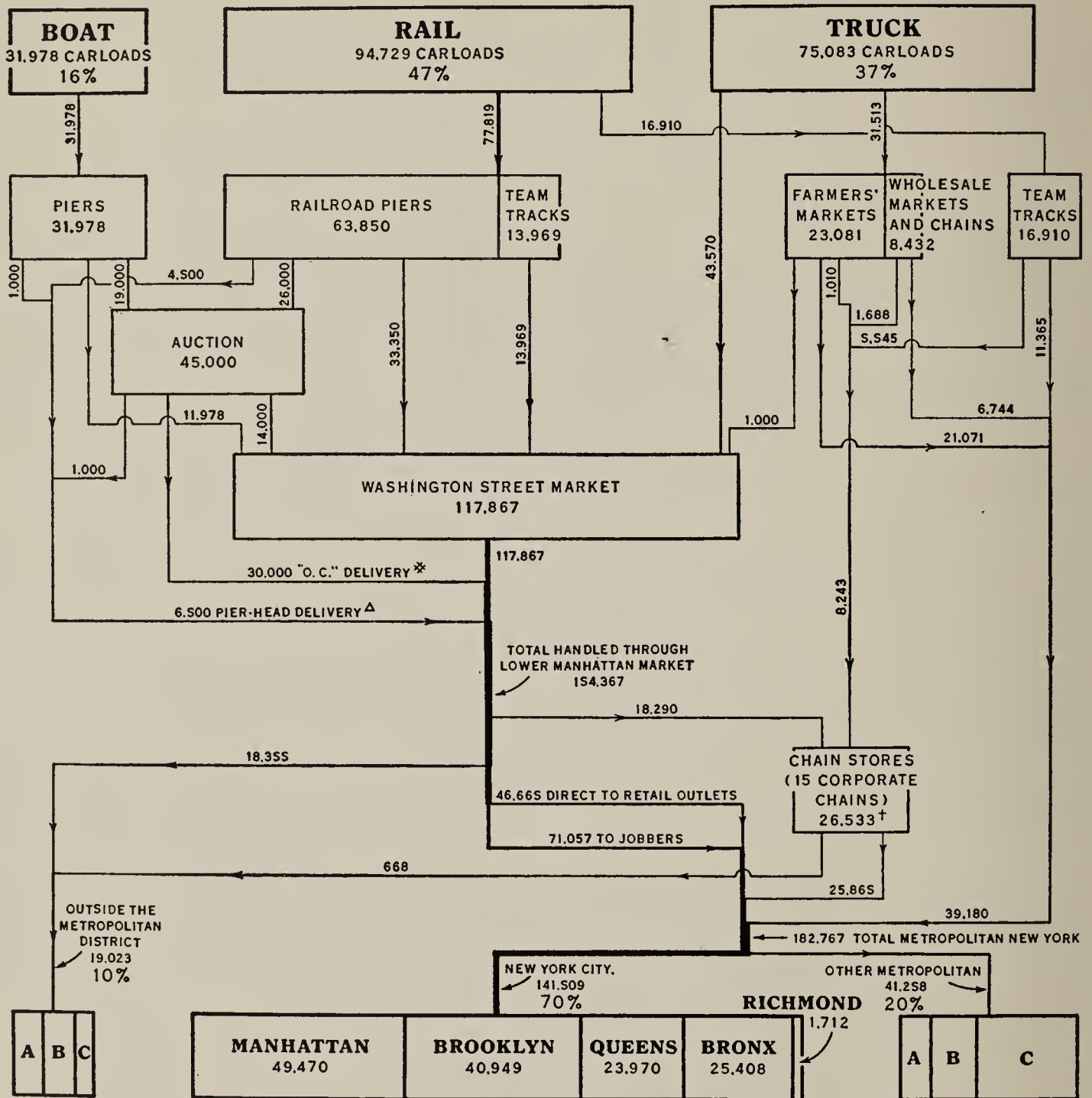
As described on previous pages, supplies are first received at many scattered unloading points. Therefore buyers must visit these many places to learn the comparative quality and prices of offerings and to obtain a complete line of all fruits and vegetables in season, or the products themselves must be hauled to a central location where the buyers can assemble.

Actually, both methods are used, with many variations. Some products are sold entirely or in part on one or more of the piers. Other products are hauled to Washington Street. Supplies arriving by motortruck are not permitted on the piers, to be sold with rail and boat offerings, and must be delivered directly to the Washington Street stores. Therefore, shipments of a particular product that arrive by rail and boat may be sold at one place, while more of the same product arriving by truck is sold elsewhere at a different time. If an attempt were made to handle the large quantities of motortruck receipts on the piers, a serious added traffic problem would be involved because of the physical necessity of entrance at only one end of each pier and the limited space for driveways on the pier floors.

Before the days of long-distance motortrucks, most wholesaling was done on the piers. As truck movement gained in volume and importance, such a large part of the daily supply of many products arrived on Washington Street by motortruck that buyers found there the greatest choice and variety; hence the market came to be "made" on "the Street." Whereupon it became necessary in many cases for rail receivers of the same commodities to transfer such rail receipts to that street in order to find buyers. At the same time, there was a very pronounced trend, in New York as well as in all other markets of the country, for receivers to sell more and more of their supplies in small lots directly to retailers and other

MOVEMENT OF FRESH FRUITS AND VEGETABLES THROUGH NEW YORK CITY MARKETING CHANNELS, MAY 1938-APRIL 1939

TOTAL RECEIPTS 201,790 CARLOADS*



A-- UPSTATE NEW YORK, 6,981
 B-- NEW ENGLAND, 7,565
 C-- NEW JERSEY, PENNSYLVANIA, ETC. 4,477

* BANANAS EXCLUDED. ALL FIGURES IN CARLOAD EQUIVALENTS
 * DELIVERED TO "OWNERS' CART" ON THE PIERS
 Δ HAULED FROM THE PIERS TO BUYERS' TRUCKS OUTSIDE THE PIERS
 † DOES NOT INCLUDE DIRECT RECEIPTS BY CHAIN STORES AT LOCATIONS OUTSIDE NEW YORK CITY, SUCH AS AT WAREHOUSES IN METROPOLITAN NEW JERSEY.

A-- LONG ISLAND 7,000
 B-- OTHER METROPOLITAN NEW YORK STATE 10,614
 C-- METROPOLITAN NEW JERSEY 23,644

FIGURE 8.

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small buyers, rather than selling entirely at wholesale to jobbers and large buyers.

As a result of these and other factors, the proportion of sales at the Washington Street stores has increased tremendously, with a corresponding decrease in volume sold on the piers. Practically all receivers, except those who sell entirely through the auctions, maintain stores in the Washington Street district, and most of the non-auction commodities are now hauled to these stores to be sold instead of being sold on the piers.

All products sold at auction are received by rail or boat, and unloaded and displayed on the piers. Some of the boat cargoes are transferred by lighter or car float to a railroad pier for display, but most of the boat receipts are unloaded at the piers of the various boat lines, on both sides of the Hudson and East Rivers. Samples of such cargoes are then hauled by motortruck from the boat pier to one of the railroad piers or to an auction room, to be displayed and sold along with the other auction offerings. The auction sales are held on the second floor of the railroad piers, or at the offices of the auction companies. After the sales have been made, the products are delivered from the pier where they have been unloaded, by special methods which are described later.

PARTIAL UNLOADS AT THE PIERS

Cars placed at the railroad piers may be completely unloaded at one operation, but to an increasingly large extent during the last few years, receivers have ordered only "partial unloads" of the quantities that they expect to move at any one time, leaving the remainder of the loads in the cars. Receivers have the privilege of holding such cars for 48 hours, the usual period of "free time" for delivery, after which there is a high charge for each day until the car is emptied. A large number of partially unloaded cars are held on the car floats, tying up float equipment, and requiring refloatage back and forth across the river. This practice is condemned by some because the total supply

for each night's market operations is not definitely unloaded.

But this temporary holding of supplies in the cars appears to be a logical process in the marketing of fruits and vegetables. It corresponds to the usual procedure in all markets where cars are placed in yards or on team tracks instead of on car floats. As fruits and vegetables are highly perishable, their transportation for long distances to market has been made possible only by the development of refrigerated and heated equipment to maintain favorable conditions of temperature and moisture. It is logical to hold supplies in such equipment until they are actually needed. One advantage frequently cited of rail over truck shipments is that produce can be held in the railroad cars after arrival at the market until it can be sold and delivered, whereas trucks must ordinarily be unloaded within a few hours after arrival. The development of the partial-unload method at the New York piers seems to be added proof of the economic need for team-track facilities in connection with a produce market, where supplies can be held temporarily before unloading or delivery.

DELIVERIES FROM THE PIERS

In actual physical handling, there are three methods of delivery of all fruits and vegetables that are unloaded on the railroad or boat piers: (1) Hauling to Washington Street by a market truckman; (2) "O. C. delivery"—that is, owner's cart delivery; and (3) "pierhead delivery."

(1) All produce moving from the piers to Washington Street (and to the Gansevoort market) is hauled by commercial trucking concerns. This includes not only the supplies being taken to the receivers' stores for initial sale but also all purchases made at the piers by Washington Street jobbers either at auction or at private sale. The rates for this hauling of only a few blocks are mostly from 4 to 10 cents per package according to size, and the total average cost is about \$37 per carload. But distance is less of a factor

in these delivery costs than are the delays and loss of time involved. Many hours of every night are lost by the trucks as they stand in traffic, or wait to be unloaded, or wait for sales to be made so they can make deliveries. The widely scattered unloading and sale facilities necessitate an immense amount of hauling within the market, and the narrow congested streets and the lack of adequate facilities greatly increase the cost of this hauling.

Produce sold at the piers to buyers who are located outside the Lower Manhattan market (or Gansevoort) is delivered from the piers to the trucks of these buyers by one of two methods—O. C. delivery for most auction products, and pierhead delivery from private sale (and for a few auction products such as tomatoes).

(2) By the O. C. method of delivery, the buyer of auction products sends his motor-truck on the piers to obtain the goods that have there been unloaded and displayed. To get these goods he must pay a delivery and loading charge which amounts to several cents per package. This is paid to the representative of the receiver, usually one of the commercial trucking concerns, who assumes responsibility for correct deliveries, and is supposed to furnish loaders to lift the goods from the pier floor to the tailboard of the buyer's truck. Buyers generally complain, however, that there are not enough loaders to make delivery in a reasonable length of time, and that they get very little service for this charge of about \$20 per car which is assessed against them—more than half of the amount charged for hauling a carload to Washington Street. It also appears, from an editorial in the *Produce News*,⁷ that a considerable part of this O. C. charge actually goes to reimburse the receivers' representatives for shortages in deliveries, for which they have assumed responsibility.

(3) By the pierhead-delivery method, the buyer's truck does not go on the pier to load his purchases. Instead, it waits somewhere

out in busy West Street, near the pier, and the buyer's purchases are hauled from the pier floor out to his truck by one of the commercial truckers. For this hauling, for a distance of a few hundred yards, the buyers pay an average of about \$31 per carload—nearly as much as the cost of hauling to the Washington Street stores.

This pierhead-delivery method originated in the days of the World War, before the advent of the long-distance motortruck. At that time most fruits and vegetables were moved by rail, and the New York piers were handling a much larger volume than at present. Buyers' trucks were admitted to the piers to load their purchases but, owing to the limited driveway space in which all vehicular traffic must enter and leave from one end, there was tremendous congestion, confusion, and delay. It was alleged that these conditions resulted in considerable thievery. The railroads were held responsible for delivery of the goods, and they were confronted with immense loss claims which they believed were at least partly the result of thefts.

Under the Railroad Administration, steps were taken to avoid these losses. Rules were put into effect that the receivers must accept delivery at the time the goods were unloaded from the cars, and that only the motortrucks that represented receivers who had goods on the floors would be admitted to the piers. This largely solved the problem of losses from theft, but it saddled on the industry this extra charge in moving produce through the market.

Because of the great volume of incoming truck receipts and other factors, during recent years the quantity of produce sold at private sale on the piers has dropped to a mere fraction of the former volume. Traffic congestion is no longer a factor, for there is ample space for buyers' trucks to enter and load the volume of produce that is sold by this method. The railroads have disclaimed responsibility for keeping the buyers' trucks off the piers. But commercial truckers still

⁷ The *Produce News*, November 18, 1939.

haul the purchases from the pier floor to the street at an average charge of about \$31 per carload.

DELIVERIES FROM TEAM TRACKS

The nearest Manhattan team tracks are some miles away from the Washington Street market, but part of the rail supplies for the market are received at these yards. Only one yard has direct rail connections; the others must be served by car float and float bridge from the New Jersey shore. Many receivers choose to have certain deliveries made at these yards, or at team tracks located in New Jersey, rather than at the railroad piers which are much nearer to Washington Street.

One reason is that carloads of commodities that sell slowly can be held at these yards at much lower demurrage charges than accrue through partial unloads at the piers. Then some very tender products are damaged less from handling when they are unloaded directly on a truck at the car door than when subjected to the extra handling at the pier. The principal reason, however, for having cars placed in more distant yards rather than on the piers has been that deliveries from these yards could be obtained at any hour of the day or night, instead of being limited to the regulated delivery hours from the piers.

MOVEMENT BETWEEN STORES

Many of the sales at the Washington Street stores are made to jobbers within that same market. If the sales are of goods coming from piers or team tracks, it is often possible to make direct deliveries to the buyer, without first unloading at the seller's store. Truck receipts, however, are in most cases unloaded at the seller's stores, and when sold to other dealers within the market must be transferred from one store to another. The movement between stores, which is known in the market as "catch car-man" hauling, is estimated at 16,250 carloads per year, at an average rate of \$25 per carload.

THE TRAFFIC SITUATION

Several thousand trucks and wagons are engaged each night in moving fruits and vegetables through the Lower Manhattan market. They are of three classes: Incoming trucks hauling from producing areas; intra-market trucks and wagons hauling between the piers and team tracks and the

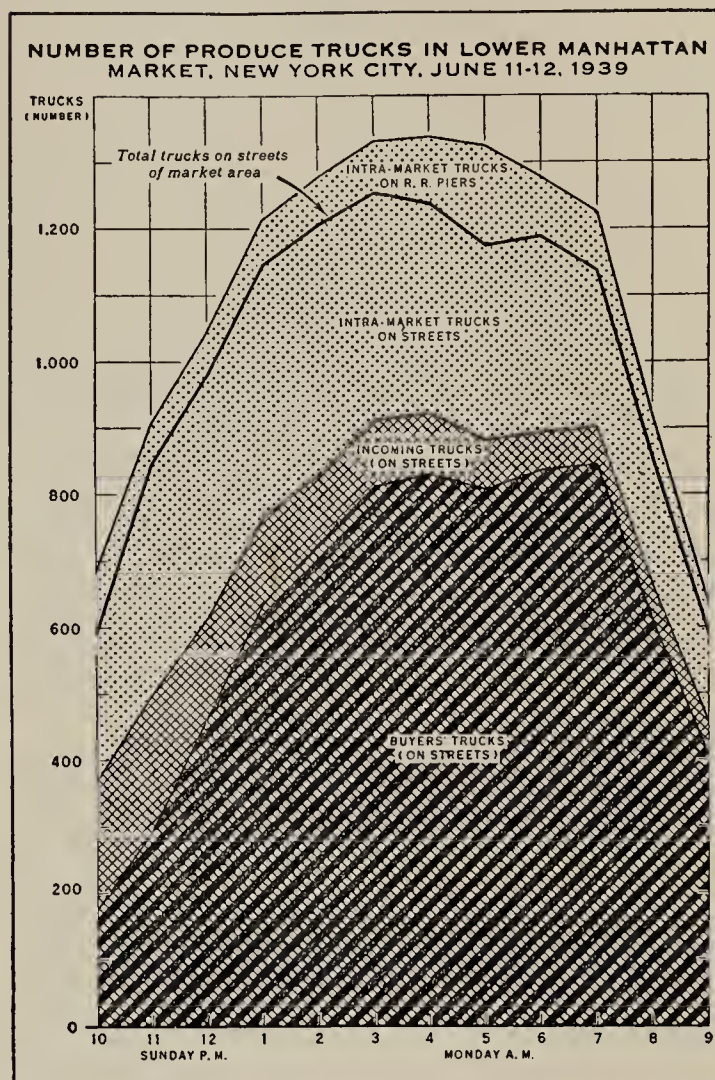


FIGURE 9.

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stores; and the vehicles of all the buyers, large and small, from near and far.

Figure 9 shows the results of an hourly count of the number of vehicles in the market on a moderately busy night. The figures apply only to vehicles used for fruits and vegetables, and do not include other thousands of cars and trucks which traveled on West Street, Chambers Street, and other streets directly through the market district.

Most of the trucks bringing in loads from producing areas arrive during the early part

of the night, so many of them had already unloaded and departed before the count was started at 10 p. m. About 200 were still in the market at that hour. Vehicles of buyers accumulated rapidly after midnight and totaled around 800 each hour for a 5-hour period. Trucks hauling produce from one part of the market to another—the intra-market trucks hauling between piers, team tracks, and stores—made up about one-third of each hourly count.

At least 3 shifts of buyers' trucks are in the Lower Manhattan market each night. Buyers indicate that, on the average, from 3 to 4 hours are required for making purchases and getting loaded. The large buyers from other markets and from out of town begin coming before midnight and are mostly gone before 3 a. m. Buyers who arrive between 1 and 3 a. m. usually leave by 4 to 6 a. m., and are followed by the retailers, hucksters, and other small buyers who arrive in large numbers between 4 and 7 a. m. The total number of vehicles that enter the market during moderately busy nights is indicated to range between 3,000 and 4,000.

At any time between midnight and 7 a. m. the number of produce vehicles in the market totaled from 1,200 to 1,350. This number of trucks would make a line more than 5 miles long, all waiting to load or unload produce. In the narrow streets of the market, most of these trucks must be parked parallel to sidewalks, and there is room for only about 400 trucks at one time in the spaces adjacent to produce stores. The other 800 or 900, then, must stand in the streets in long lines of waiting traffic, or park along the side streets as much as 2 blocks away.

A description of traffic conditions on the market reported by the Federal Trade Commission 20 years ago⁸ is equally applicable in 1940, except that conditions are now aggravated by the still greater number and size of trucks in the market.

The stores in these market districts have neither railroad, trolley, nor water connections and all

⁸ See pp. 145, 148-149 of reference cited in footnote 3, on p. 12.

goods must be trucked to and from them. With the great and constantly increasing populations served from these congested market districts the amount of foodstuffs brought in and carted out is enormous, and the scenes due to cartage congestion in the streets are indescribable. Police, mounted and on foot, attempt to keep traffic moving and break up blockades, but the delays are constant and serious. Twenty minutes to half an hour for a truck to cover one block, and 2 hours to move 2 blocks, are reported, not as single incidents, but as facts to be considered in such congested market districts. . . .

Because of the inadequacy of the stores and the lack of any convenient method for displaying merchandise in the old and unsightly buildings, the sidewalks and streets, as well as the trucks which have brought the goods from the railroads, are utilized for the storage, display, and sale of produce. The sidewalks are so entirely filled with boxes and barrels of produce that the crowd of buyers and dealers fills every space and impedes its own movement, while passage, in places, is impossible except in single file, causing difficulty and delay to jobbers and retailers desiring to inspect and purchase the goods and adding greatly to the cost through loss of time. Such conditions not only tend to a considerable deterioration of the merchandise but are a constant incentive to petty thievery. During the active trading hours the congestion and confusion increase, the crowd of buyers and dealers having business on the street being augmented by purchasers who have been delayed by the congestion when they should have already completed their dealings and left the district for their own stores and offices . . .

The trucks which have brought the produce from the freight yard will often be held for storage and display in front of the stores until purchasers are found for the load and all or most of the goods are sold. . . . As little as possible is unloaded into the restricted stores, although much is unloaded to the pavement. From the pavement or the truck the dealer delivers the purchased goods to the retailer's wagon, often on hand trucks. This may be around the corner or a block or two away, because of inability to bring the wagon nearer the store. In some markets the wholesalers deliver the produce to the purchasers in the truck or wagon in which it came from the terminal. When the wagon arrives it is backed up to the curb, if there is room, to display the goods and await purchasers. The first may buy a portion of the load. The wagon then drives off and delivers the produce. On returning to the store with what remains, the wagon is backed up again for further sales. If there is no room at the curb, it waits until space is clear. Another portion

is sold and delivered, and this is continued until all is disposed of. Having been held on the wagon or exposed on the sidewalk or street, maybe for hours, handled, and rehandled, the goods are already deteriorated when delivered to the retailer and are pretty well "worn out" before they reach the consumer.

DELIVERIES TO AND FROM THE STORES

As not more than a third of the motor-trucks in the market during most of the night can be parked at the curb in front of produce stores, a great part of the deliveries from incoming trucks to stores, and from stores to buyers' trucks, must be made while they stand in the streets, or are parked at some distance from the stores. These deliveries are made by porters, who either carry the produce or push it on two-wheeled hand trucks. Scores of these hand trucks weave in and out along crowded sidewalks between towering stacks of produce. At the corners they are wheeled off the curb with a thud, and then are jiggled along on the cobblestoned streets, loaded with tender and highly perishable products which have been handled carefully all the way from field or orchard, perhaps 3,000 miles away, that they might arrive at this market in good condition. The direct cost of this portage is estimated to be about 1½ million dollars a year. Additional indirect cost of the losses from bruising and deterioration which result from this sort of handling must also reach an immense sum.

SUMMARY OF FIRST DELIVERIES IN THE LOWER MANHATTAN MARKET

Information obtained from trucking organizations, auction companies, railroads, and dealers, and from the unload records of the Agricultural Marketing Service indicates that the first movement of supplies through the Lower Manhattan market by the methods described on preceding pages was as follows:

	<i>Car loads</i>
O. C. delivery from piers.....	30, 000
Pierhead delivery from piers.....	6, 500
	<hr/>
Deliveries from piers.....	36, 500
	<hr/> <hr/>
Handled through Washington Street store section:	
Hauled from piers and team tracks...	73, 297
Direct motortruck receipts.....	43, 570
Hauled from farmers' markets.....	1, 000
	<hr/>
Total, through Washington Street..	117, 867
	<hr/> <hr/>
Total, Lower Manhattan market..	154, 367

SUPPLIES HANDLED AT OTHER PLACES IN THE CITY

In addition to the 154,367 carloads of fruits and vegetables that moved through the Lower Manhattan market, 47,423 carloads were received and handled at other locations in New York City during the 12-month period. By method of arrival, these were as follows:

	<i>Carloads</i>
Transportation:	
Motortruck.....	30, 513
Rail.....	16, 910
	<hr/>
Total.....	47, 423

The greater part of the truck receipts (22,081 carloads) were at the three municipal farmers' markets, located at the Wallabout, Bronx Terminal, and Gansevoort markets. The remainder (8,432 carloads) was reported as being received at the stores of dealers in these and other outlying markets, and at chain-store warehouses.

The rail receipts were at numerous team track yards and warehouse sidings, widely scattered over the city. The locations of several of these are shown on figure 3. Receipts at such points were mostly of two general classes: (1) Watermelons and juice grapes, and potatoes, cabbage, and other hardware products, handled at the yards

where specialized markets for such commodities are established, as described on preceding pages, and (2) miscellaneous receipts of various commodities, mostly at chain-store warehouses and at the Bronx Terminal and Wallabout markets.

A great amount of detailed information was obtained from the railroads regarding

the number, classification, and destination of these scattered receipts throughout the city, to complete the record of total quantities moving through the various marketing channels. Certain characteristics of their handling are discussed in various sections of this report, but no attempt has been made to list or describe them in detail.

Distribution From the Markets

The function of a market is to serve as a meeting point and place of exchange between buyers and sellers, and an important factor in its location should be convenience to the buyers who use it. Primarily, this is a matter of shortest average time-distance for all buyers, involving street and highway connections, traffic density, and possibilities of delays in going to and from the market and in obtaining deliveries. Nearness to other industries or to the markets for other commodities is of slight consequence for, as described elsewhere in this report (p. 38) most New York buyers make a special trip to market during the night or early morning to obtain fruits and vegetables, and they buy practically no other products on the same trip. Therefore, convenience to buyers depends primarily on the market being centrally located and readily accessible, thereby involving the minimum of both time and distance in obtaining supplies.

To determine the most convenient and economical location for a market, as well as to be able to calculate the costs of handling, it is first necessary to know where the fruits and vegetables are distributed, and in what quantities. In a smaller city, this might not be of such great importance because of the shorter distances. But in a city that comprises 309 square miles of land area, interspersed with many wide waterways, distances are important in the distribution of food products that are both bulky and perishable.

WHERE SUPPLIES GO FROM THE LOWER MANHATTAN MARKET

Where are all the fruits and vegetables taken after they have been delivered to the thousands of buyers who come to the Lower Manhattan market? To obtain accurate information with which to answer this question, actual sales records were obtained from 86 dealers in the market for each of 2 weekly periods of 1939. The first set of records was obtained during April, when practically all supplies were being received from a considerable distance, and the second during the latter part of June when nearby products were in liberal supply. Sales were tabulated as to number of packages moving to each subdivision of the metropolitan district and as to type of buyer—that is, to a jobber, a retailer, or a corporate chain-store organization.

The 86 firms were widely representative. They included 40 direct receivers, the 2 auctions, 28 jobbers who bought all their supplies within the local market, and 16 combination receiver-jobbers who received part of their supplies directly from producing districts and bought the remainder in the local market.

The combined sales of these firms represented 75 to 80 percent of the total direct receipts in the Lower Manhattan market during the periods covered. Sales of each group of dealers were tabulated separately

and the resulting figures were weighted in proportion to the total volume of business of each group in the market. Sales by receivers and the auctions to other dealers within the Washington Street market were eliminated, as the distribution of such merchandise when it did move out of the market was indicated by the sales of the jobbers who had made their purchases within the market. Information was obtained from the secondary markets, such as Bronx Terminal and Wallabout, as to the later destination of the supplies that were sold to dealers in those markets. A complete survey was also made of the distribution of 15 chain-store organizations⁹ in the metropolitan district to learn the proportions of their total sales to each section.

The results from the two weekly periods checked closely, about the only difference being that during the last week in June, when locally grown produce was available, out-of-town points took a slightly smaller percentage of the total than in April.

DISTRIBUTION BY GEOGRAPHICAL AREAS

The combined percentages of distribution obtained from these two weekly sample periods were then applied to the total 12-month volume of 154,367 carloads handled through the Lower Manhattan market. The percentage moving to each metropolitan subdivision, and the equivalent number of carloads for the 12-month period, are given in table 2.

Nearly two-thirds of all the fruits and vegetables handled through the Lower Manhattan market were distributed within the five boroughs of New York City. The quantity taken outside the city proper was divided about equally between that which moved east and north, and that which went to the west and south. That is, distribution

⁹ American Grocery Co.; American Stores Co.; The Great Atlantic & Pacific Tea Co.; H. C. Bohack Co., Inc.; Eagle Grocery Co.; Grand Union Tea Co.; Great Eastern Stores; Gristede Bros., Inc.; King Arthur Stores; King Kullen Grocery Co.; Mutual Stores, Inc.; National Grocery Stores; Daniel Reeves & Co.; Thos. Roulston, Inc.; and Smilen Bros., Inc.

to Long Island, Westchester County, other parts of New York State, and to New England was only slightly larger than that to all of New Jersey, Pennsylvania, and other points to the south (table 3).

TABLE 2.—Distribution of 154,367 carloads sold through the Lower Manhattan market

Destination	Percentage of total carloads	Carloads
New York City:	<i>Percent</i>	<i>Number</i>
Manhattan.....	23.5	36,329
Brooklyn.....	19.9	30,741
Queens.....	10.0	15,470
Bronx.....	9.4	14,465
Richmond.....	.9	1,463
Total, New York City.....	63.7	98,468
Other metropolitan districts:		
Metropolitan New Jersey.....	14.8	22,780
Long Island.....	4.0	6,122
Metropolitan New York State.....	5.2	7,974
Total, other metropolitan.....	24.0	36,876
Total, metropolitan New York.....	87.7	135,344
Outside metropolitan New York:		
Other New Jersey, Pennsylvania, etc.....	2.9	4,477
Other New York State.....	4.5	6,981
New England.....	4.9	7,565
Total, outside.....	12.3	19,023
Grand total.....	100.0	154,367

On figure 10 is indicated the center of distribution of the fruits and vegetables that move from the Lower Manhattan market to the metropolitan area, which includes the suburbs of New York City in New York, New Jersey, and Connecticut. This represents the location which is approximately the shortest average distance to all buyers in metropolitan New York who buy produce that has been handled through the Lower Manhattan market. This center was calculated from the volume of these products actually moving to each borough or other subdivision, and from the locations of food stores, hotels, and restaurants within these subdivisions, which represent the final retail outlets. The result of these calculations indicates that the point which would be most

centrally located with respect to all these retail outlets, in proportion to the volume of fruits and vegetables obtained from the Lower Manhattan market, would be in the Borough of Queens, near the Queensboro Bridge over the East River.

TABLE 3.—*Distribution outside New York City from the Lower Manhattan market*

Destination	Percentage of total carloads	Carloads
<i>East and North:</i>		
Long Island.....	4.0	6,122
Metropolitan New York State.....	5.2	7,974
Other New York State.....	4.5	6,981
New England.....	4.9	7,565
Total.....	18.6	28,642
<i>West and South:</i>		
Metropolitan New Jersey.....	14.8	22,780
Other New Jersey, Pennsylvania, etc.....	2.9	4,477
Total.....	17.7	27,257
Total, outside New York City.....	36.3	55,899

DISTRIBUTION BY TYPE OF DEALER IN THE MARKET

In common with produce markets in other cities, New York no longer has a distinct group of fruit and vegetable wholesalers who sell entirely in large lots to jobbers and other buyers. Formerly the carlot receivers—those who received direct shipments by rail or boat from producing sections of the country—sold practically all such receipts at the piers in large lots. Twenty packages of any one commodity was the generally accepted minimum unit of sale in these wholesale transactions.

As has been pointed out, only a small part of the non-auction products that arrive by rail or boat are now sold at the piers. Instead, most of such receipts are taken to the receivers' stores in Washington Street and are there sold with the truck receipts. Today the receivers still sell partly in wholesale lots, at both the piers and the stores, but they also sell a large part of their supplies in

smaller quantities, direct to the retailers, peddlers, and other small buyers.

The number and importance of the small-lot sales by receivers in the Lower Manhattan market of New York is indicated by figure 11. This chart summarizes the sales made during 1 week in April 1939, by 18 representative receivers, according to the number of packages per sale of each individual commodity. The tabulation covers all private sales made by these firms during the week, either on the piers or at the stores, but it includes no sales at auction.

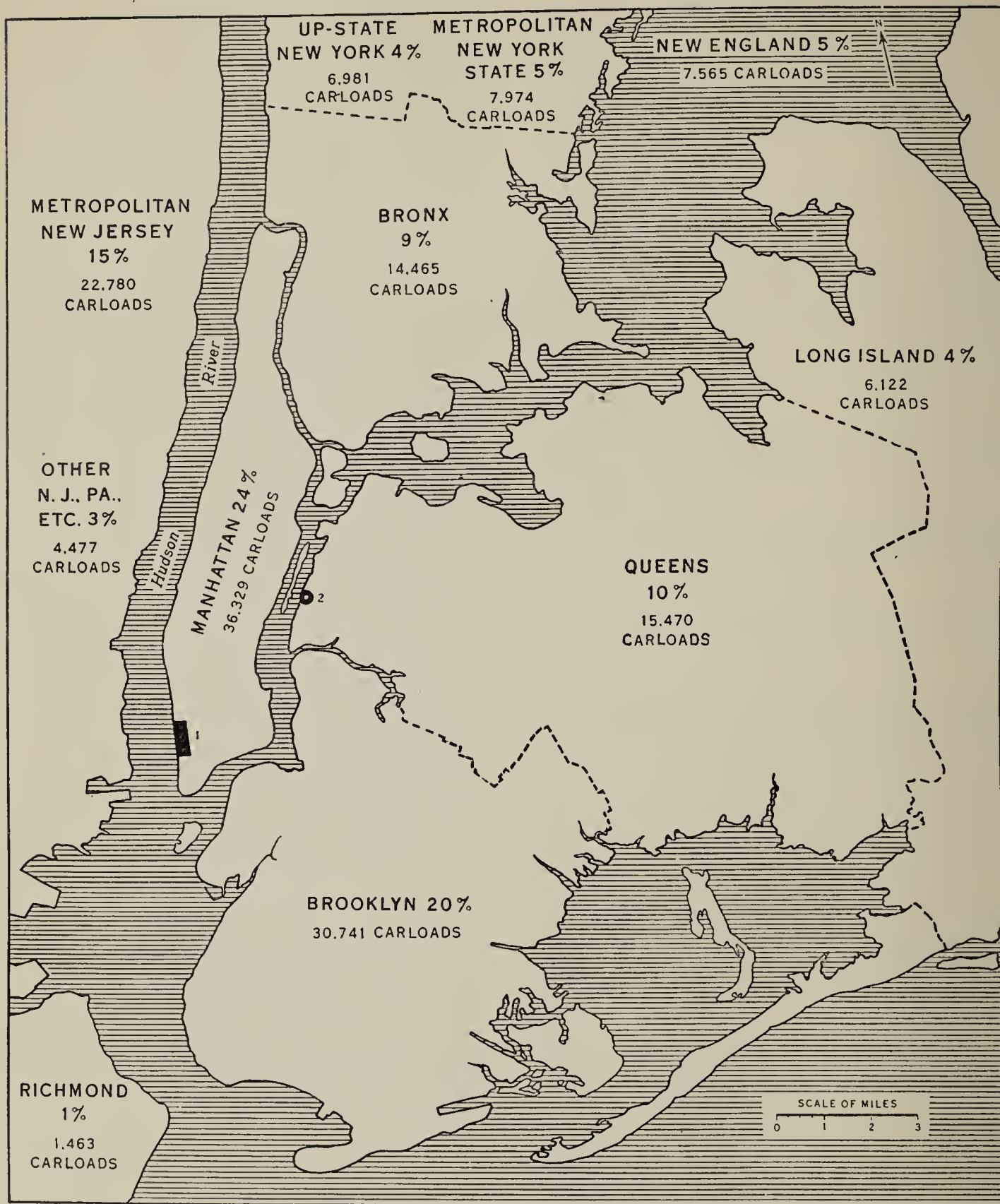
The 18 receivers included several of the largest in the market, receiving by rail, truck, and boat. Their total volume handled during the week was 393,000 packages, equivalent to about 790 carloads, or an average of 44 carloads for each receiver.

These 393,000 packages were sold in 40,744 lots, ranging from 1 package to several hundred per sale. Lots of 1 to 9 packages each accounted for 70 percent of the total number of sales; and lots of 10 to 19 packages, inclusive, made up 18 percent. Thus, 88 percent of the total number of sales represented quantities of less than 20 packages per sale, and only 12 percent was in units of 20 packages or more.

Furthermore, these sales in less than 20-package lots by these large receivers accounted for 43 percent of their total volume of goods sold (21 percent by volume in units of 1 to 9 packages, and 22 percent in 10 to 19 package lots). In other words, nearly one-half the total business of this representative group of large receivers, and nine-tenths of their total number of sales, were in units of less than 20 packages each, which quantity has been generally accepted on the New York market as being the minimum wholesale unit of sale. Even the sales of less than 10 packages each accounted for one-fifth of their total business.

Any attempt to separate the operations of the market by conducting wholesale or large-lot sales in one place and sales in smaller quantities in another would mean

DISTRIBUTION OF 154,367 CARLOADS OF FRUITS AND VEGETABLES SOLD THROUGH THE LOWER MANHATTAN MARKET, MAY 1938-APRIL 1939



1. LOWER MANHATTAN MARKET (WASHINGTON STREET MARKET AND PIERS)
 2. CENTER OF DISTRIBUTION OF FRUITS AND VEGETABLES FROM LOWER MANHATTAN MARKET TO METROPOLITAN NEW YORK

FIGURE 10.

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NUMBER OF PACKAGES PER SALE BY RECEIVERS OF FRUITS AND VEGETABLES

SALES BY EIGHTEEN CARLOT AND TRUCK RECEIVERS, LOWER MANHATTAN MARKET, NEW YORK CITY, DURING ONE WEEK IN APRIL, 1939

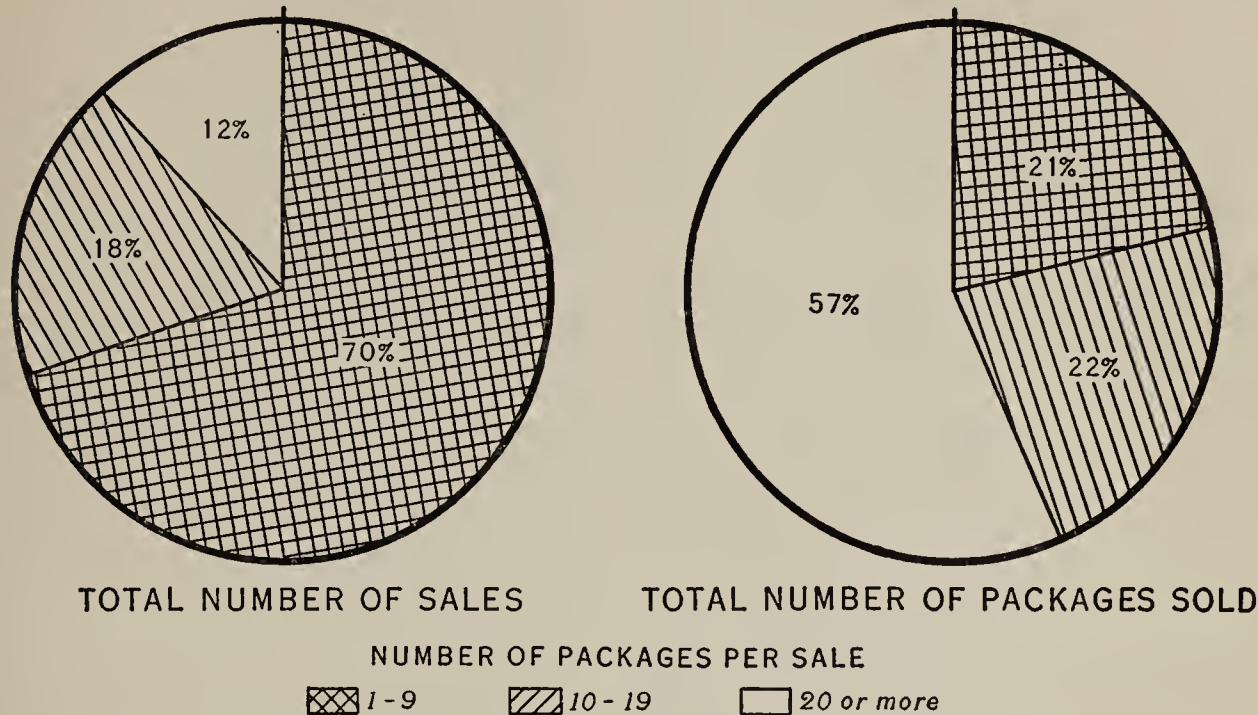


FIGURE 11.

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one of three things: Receivers would have to (1) give up the large proportion of their business now done directly with buyers of less-than-wholesale quantities, and sell that part of their supplies to other dealers who in turn would resell to these smaller buyers; (2) give up their wholesale or large-lot selling and handle all receipts through the jobbing market; or (3) operate in both the wholesale and jobbing markets, with added expense because of such duplication of business organization and facilities.

DISTRIBUTION BY TYPE OF BUYER

The tabulation of sales records of the large number of dealers in the Lower Manhattan market (described on pp. 27 and 28) indicated that the fruits and vegetables handled through the market during a 12-month period were distributed to the various classes of buyers in the quantities shown in table 4.

TABLE 4.—*Distribution from Lower Manhattan market by type of buyer*

Type of buyer	Percentage of total carloads	Carloads
<i>In the metropolitan district:</i>		
Jobbers.....	46	71, 057
Independent retailers.....	30	46, 665
Chain-store warehouses.....	12	¹ 18, 290
<i>Outside the metropolitan district:</i>	12	¹ 18, 355
Total.....	100	154, 367

¹ 668 cars from chain-store warehouses were distributed outside the metropolitan district, making total of 19,023 finally distributed outside the metropolitan district. (Fig. 8.)

Of the entire distribution from this primary market, including all out-of-town sales as well as local, 30 percent went directly to independent retailers. Of the quantity distributed within the 5 boroughs of New York City (98,468 carloads), the proportion was 40 percent to independent retailers. In-

cluding the quantity going to chain stores, the proportion of distribution within New York City direct to all retailers was 57 per cent, and to jobbers 43 percent.

It would be expected that retailers located near the market would come there to buy supplies, but it was found that retailers also come in large numbers from all other sections of the city. The percentage of sales to retailers in each of the boroughs was not greatly different from the percentage of total sales by boroughs (table 5).

TABLE 5.—*Distribution from Lower Manhattan market within New York City only, by type of buyer and city borough*

Borough	To independent retailers		To all buyers	
	Percent-age	Carloads	Percent-age	Carloads
	<i>Percent</i>	<i>Number</i>	<i>Percent</i>	<i>Number</i>
Manhattan.....	42	16,347	37	36,329
Brooklyn.....	30	11,809	31	30,741
Queens.....	15	5,789	16	15,470
Bronx.....	12	4,677	15	14,465
Richmond.....	1	540	1	1,463
Total.....	100	39,162	100	98,468

If retailers from all parts of the city find it advantageous to make such a large percentage of purchases in the present primary market, with all its disadvantages of location and lack of suitable facilities, they might be expected to buy still greater quantities in a more centrally located and adequate market. The greater the number of retail outlets that can be served directly from the primary point of distribution, the smaller will be the percentage of supplies that must move through other locations.

The jobbers of the metropolitan district who buy in the Lower Manhattan market are mostly located in the secondary markets of the city, although there are some who operate at individual locations. The produce that is bought by them is hauled by truck, mostly to their stores, where it is unloaded, displayed, sold to smaller buyers, then reloaded and delivered to the next buyer.

To a small extent deliveries are made directly to the retail stores as the trucks return from Lower Manhattan, particularly by the jobbers who are located in the smaller outlying markets and operate regular delivery routes among retailers. The percentage of such deliveries is small, however, and the greater part of the purchases by jobbers receives intermediate handling before reaching the retail outlets. The trucking to the secondary markets is in part by the jobbers' own trucks, and partly by hired commercial truckers. Much of the delivery from the jobbers' stores to retail stores is also done by the jobbers' trucks, as many of the smaller retailers who are supplied from these markets do not operate their own trucks.

Only small percentages of fruits and vegetables are bought by retailers over the telephone, or by any other method except that of personal inspection. There is so much variability, both in the products themselves, and in the supply, that daily comparison of quality and determination of price are essential. Hence, the buyers almost universally "go to market." This is one of the outstanding characteristics of the fruit and vegetable distributive industry, as compared with the wholesale markets for other products that have a greater degree of uniformity and price stability.

DISTRIBUTION THROUGH OTHER LOCATIONS AND MARKETING CHANNELS IN NEW YORK CITY

The supplies received and handled at locations other than the Lower Manhattan market totaled 47,423 carloads during the 12-month period. A general description of these receipts, the type of products they included, and the places of arrival and sale, have been given in a preceding section of this report. Detailed information was obtained from railroad records, dealers in the various markets, officials of farmers' markets, chain-store organizations, and from other sources, regarding destinations and final distribution. No attempt has been made here to tabulate this

material in detail by points of arrival and marketing channels; only the final distribution figures are given.

The combined results of all the information obtained indicate that through the various marketing channels other than the Lower Manhattan market, the following quantities (in carloads) finally moved to retail outlets in the various metropolitan subdivisions: Manhattan, 13,141; Bronx, 10,943; Brooklyn, 10,208; Queens, 8,500; Richmond, 249; Long Island, 878; metropolitan New York State, 2,640; and metropolitan New Jersey, 864.

TOTAL DISTRIBUTION BY AREAS

By adding these quantities to the distribution from the Lower Manhattan market, the geographical distribution of the total receipts in New York City of 201,790 carloads is shown in figure 12. The percentage to each subdivision, with equivalent number of carloads for the 12-month period, are as indicated in table 6.

TABLE 6.—*Distribution of 201,790 carloads of fruits and vegetables received in New York City, May 1938 through April 1939*

Destination	Percentage of total carloads	Carloads
New York City:	<i>Percent</i>	<i>Number</i>
Manhattan.....	24.5	49,470
Brooklyn.....	20.3	40,949
Queens.....	11.9	23,970
Bronx.....	12.6	25,408
Richmond.....	.8	1,712
Total, New York City.....	70.1	141,509
Other metropolitan districts:		
Metropolitan New Jersey.....	11.7	23,644
Long Island.....	3.5	7,000
Metropolitan New York State.....	5.3	10,614
Total, other Metropolitan.....	20.5	41,258
Total, metropolitan New York.....	90.6	182,767
Outside metropolitan New York:		
Other New Jersey, Pennsylvania, etc.....	2.2	4,477
Up-State New York.....	3.5	6,981
New England.....	3.7	7,565
Total, outside metropolitan.....	9.4	19,023
Grand total.....	100.0	201,790

A comparison of these distribution figures with census data on sales of fruits and vegetables in New York City is made on page 40.

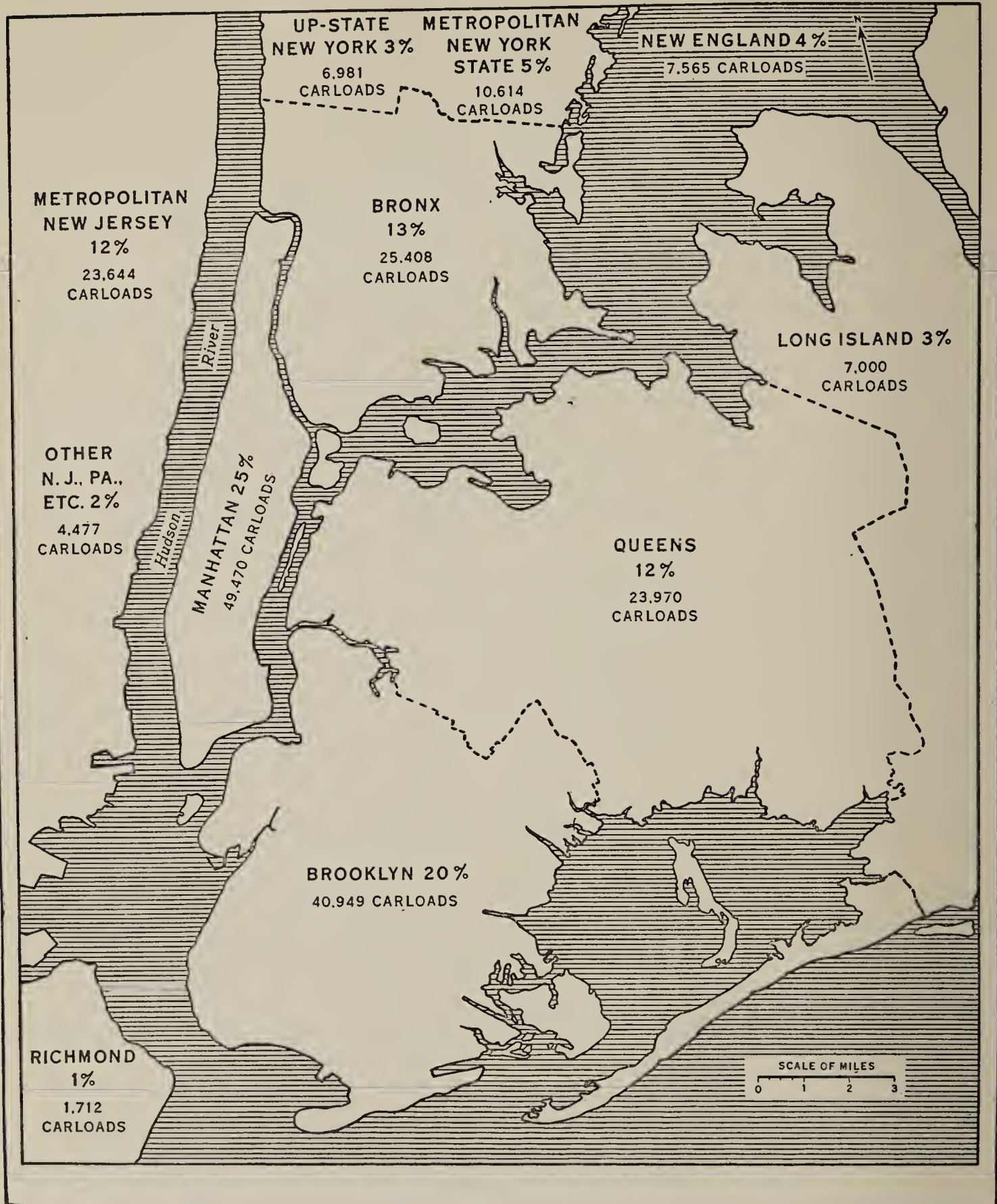
About 70 percent of all the fruits and vegetables received in the markets of New York City is consumed within the city limits. Of the 30 percent that moves to points outside the city, 16 percent goes east and north to Long Island, other New York State points, and New England, and 14 percent goes west and south to New Jersey, Pennsylvania, and beyond. Inasmuch as the distribution outside the city is so evenly divided in opposite directions, it would have little or no influence on the comparative merits of different locations for a market within the city, for a decrease in distance to the buyers in one direction would be offset by corresponding increases in the other direction. The most centrally located and advantageous site within the city would, therefore, serve the areas outside the city equally well.

CENTER OF CONSUMPTION IN NEW YORK CITY

The total quantity of fruits and vegetables consumed within the city of New York during 12 months, handled through the city's entire marketing system, was 141,509 carloads. Thousands of tons of fruits, melons, berries, and vegetables are consumed daily by nearly 8,000,000 residents, and the great numbers of visitors. If the consumers are to receive fruits and vegetables that really are fresh, all this produce must be moved quickly, and the speed and efficiency with which it can be moved is partly dependent on accessibility of supplies.

The location that represents the shortest average distance to the retail outlets through which were sold the 141,509 carloads consumed in New York City is indicated on figure 13, as the center of consumption. This has been calculated from the quantity of these products consumed in each borough and from the location of food stores, hotels, and restaurants within each borough. This central

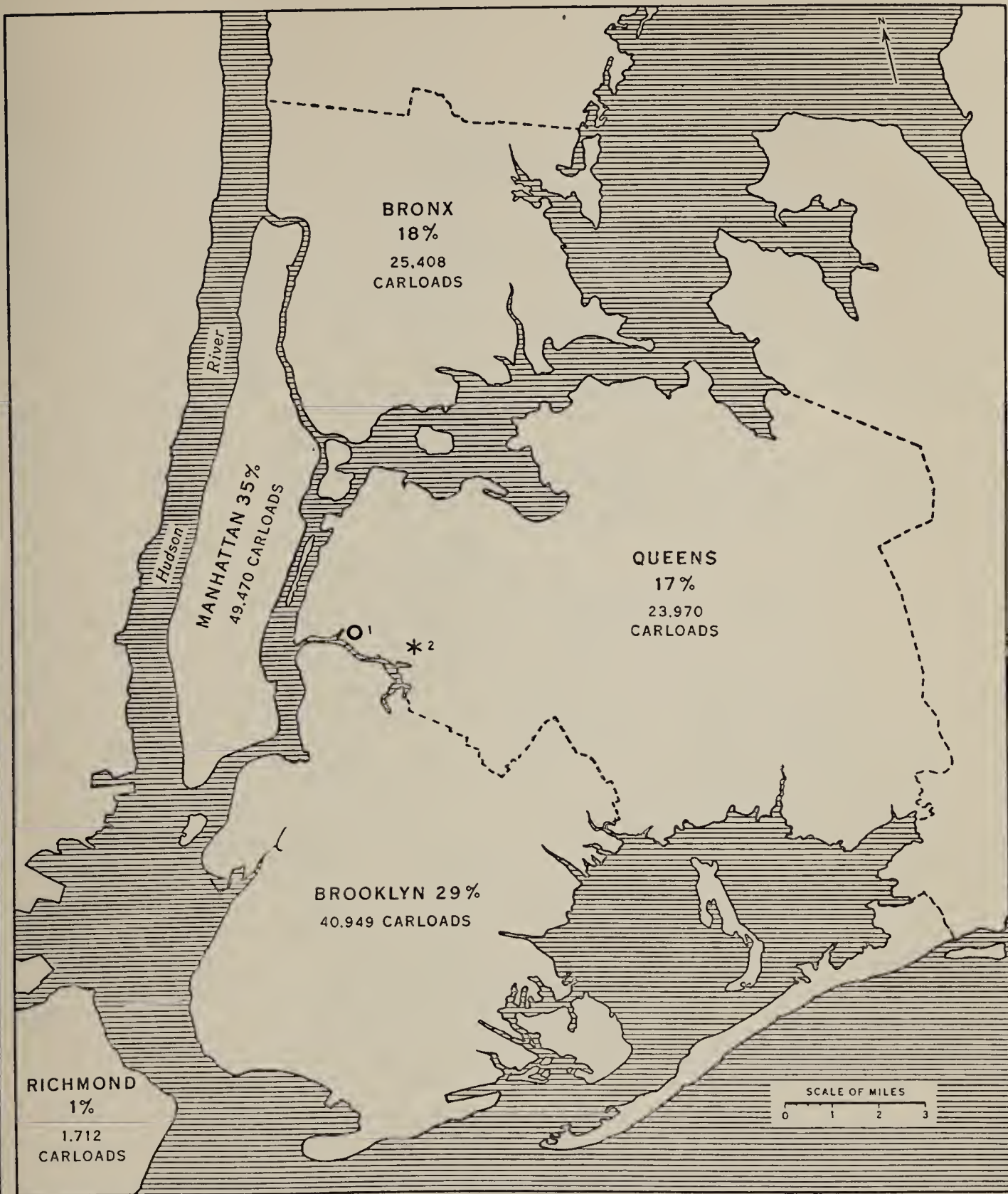
DISTRIBUTION OF 201,790 CARLOADS OF FRUITS AND VEGETABLES SOLD THROUGH ALL MARKETING CHANNELS IN NEW YORK CITY, MAY 1938-APRIL 1939



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FIGURE 12.

DISTRIBUTION OF ALL FRESH FRUITS AND VEGETABLES CONSUMED
 IN NEW YORK CITY, MAY 1938--APRIL 1939
 (141,509 CARLOADS)



1. CENTER OF CONSUMPTION OF FRUITS AND VEGETABLES IN NEW YORK CITY
 2. CENTER OF POPULATION OF NEW YORK CITY

BAE 38021

FIGURE 13.

location is in the Borough of Queens, east of the junction of Newtown Creek and the East River. It is somewhat to the west of the center of population of New York City, as shown in figure 13. This is to be expected because of the large transient population in Manhattan of both visitors and daily workers, which is not counted as resident population, but which does consume considerable quantities of fruits and vegetables. Manhattan, with its many hotels and eating places, uses more than any other single borough in the city, but consumes only about one-third of the city's total supply. The quantities and percentages by boroughs, and resident population in 1940 as estimated by the Regional Plan Association, are shown in table 7.

TABLE 7.—*Resident population of New York City in 1940, by boroughs, as estimated by the Regional Plan Association, and fruits and vegetables consumed during the 12-month period ended April 1939*¹

Borough	Population		Fruits and vegetables consumed	
	Percent	Number	Percent	Carloads
Manhattan.....	23	1, 815, 000	35	49, 470
Brooklyn.....	36	2, 857, 000	29	40, 949
Queens.....	18	1, 390, 000	17	23, 970
Bronx.....	21	1, 625, 000	18	25, 408
Richmond.....	2	200, 000	1	1, 712
New York City.....	100	7, 887, 000	100	141, 509

¹ Footnote 4, p. 18.

RETAILERS AND THEIR BUYING PRACTICES

To get a clear idea of the buying practices of retailers, 430 representative retailers in the metropolitan area were interviewed. The stores operated by these retailers were of all types and sizes, from the small corner grocery with only a few semi-perishables to the large specialized produce markets. The volume of fruits and vegetables handled per store per week ranged from as few as 10 packages to as high as 1,000, with an average for the whole group of 218 packages per week. They were distributed among the boroughs and that part of the metropolitan

area of New Jersey in roughly the same proportion that all food stores and restaurants are distributed. Figure 14 shows their approximate location, and the extent to which they purchased in the Lower Manhattan market.

It was found that 60 percent of these retailers obtained all or a part of their supplies directly from the Lower Manhattan market. Of those who purchased part, the great majority bought at least 75 percent there, going to the market from two to four times a week for the main part of their supplies. The remaining purchases were made from nearby jobbers, with the exception of very small quantities that were bought directly from producing sections.

These interviews disclosed that volume of purchases is quite as important as distance in determining what market a retailer visits. If he handles a considerable volume, or can arrange to buy in cooperation with other retailers so as to obtain full truckloads, he is likely to go to the Lower Manhattan market regardless of distance, for there he can find the greatest variety of daily offerings—not only variety of products, but for any one product a great variation in size, quality, and condition, with corresponding price differentials.

It is not enough that a market have a full line of products to offer—buyers also wish to have a selection of these other factors. With motortrucks and arterial highways, retailers are no longer limited to the nearest market as in the horse-and-wagon days, but can go to those markets that have the greatest advantages to offer. Just as motortrucks have made tremendous changes in the transportation of fruits and vegetables from producing areas to terminal markets, so have they made possible a much faster and more direct distribution from these terminal markets to the surrounding metropolitan areas. Therefore, such terminal markets should be so located and designed that the increased number of buyers can be served efficiently and economically.

EXTENT TO WHICH REPRESENTATIVE RETAILERS IN METROPOLITAN NEW YORK
PURCHASE FRUITS AND VEGETABLES IN LOWER MANHATTAN MARKET



PORTION PURCHASED IN LOWER MANHATTAN MARKET
 ● All ◐ Part ○ None

BAE 35703

FIGURE 14.

About 93 percent of the retailers interviewed reported that the proprietor or an employee of the store went to a wholesale or jobbing market to buy the fruit and vegetable supplies. The others obtained their supplies through other buyers, from traveling jobbers, or by telephone. Only 14 percent of the retailers did any buying over the telephone, and such purchases were usually "fill-ins" or forgotten items. Most of these retail buyers went to market from 3 to 6 days each week, with an average for the entire group of five times a week.

Six percent of these retailers (chain-store units were not included in the sample) were members of groups of retailers for which one man did the buying at the market. The average size of these groups was 10 members. Most of them had been operating from 2 to 4 years, although 1 had been in existence for 10 years. This group buying appears to be a recent and growing development. The "traveling jobber" who regularly delivers to a group of retail outlets serves in somewhat the same capacity.

Of the 420 retailers for whom some buyer went to market for fruits and vegetables, 399 bought no other products on the same trip. Of those who did buy other products on the same trip, 13 bought groceries or imported products, and 8 bought eggs or butter.

These retailers made a practice of buying from several dealers rather than giving their business to a single merchant. Those who obtained most of their supplies in the Lower Manhattan market bought from an average of eight wholesalers and jobbers on a single trip to market, while those who purchased most of their supplies in other markets bought from an average of only four dealers. Seventy-four percent of the purchases moved to the retail stores in the retailers' own trucks.

Each of the retailers interviewed was asked how much time was required for him to go to the market, buy his supplies, load them on his truck, and get them back to his store. The usual response for the Lower Manhattan market was from 2 to 6 hours and for other

markets from 1 to 4 hours. The average time required for Lower Manhattan was said to be 4 hours and for other markets 2 hours. Buyers in Lower Manhattan reported an average loss of time of about 1 hour on account of traffic congestion, while the time lost in this manner in other markets was less than 10 minutes.

NUMBER OF FOOD STORES AND RESTAURANTS IN NEW YORK CITY

A city fruit and vegetable marketing system includes all the steps and locations through which such products move from the time they arrive at the city until they reach the consumer. Each part of this system should be closely correlated with all other parts, if the immense quantities of these products are to be distributed quickly and efficiently so they will reach consumers while they still retain their freshness, flavor, and full food value. The wholesale markets are only one part of the whole system with the function of assembling complete supplies of fruits and vegetables from all producing areas and distributing them to the numerous retail outlets. The retailers, in turn, must anticipate the wants of consumers and make available, at the right time and in convenient places, a selection of products capable of satisfying those wants.

In the city of New York, with nearly 8,000,000 residents and additional millions of yearly visitors, many retail outlets are engaged in the distribution of fresh fruits and vegetables. Retail stores, hucksters, push-carts, fruit stands, and restaurants and other public eating places—these are the points through which New York's annual supplies of 141,509 carloads reach the final consumers within the city.

Where are such outlets located, and what is their comparative importance in fruit and vegetable marketing? These questions are pertinent to any consideration of the development and location of wholesale markets, and some information regarding them is available from Census records.

The Census of Retail Distribution for 1935 lists two of the principal types of retail outlets for fruits and vegetables—retail food stores and public eating places. It does not list such retailers as hucksters and pushcart operators, who handle such an important part of New York's supplies. Therefore, it does not give a complete picture of the city's distribution, but it represents such a large part of the total that it furnishes a good indication of what the distribution may be.

The total number of retail food stores reported in the 1935 Census was 52,161. The location of these stores by boroughs is given in the first line of table 8. Brooklyn had by far the largest number—nearly 20,000—and it also had the greatest volume of total retail sales, although the average size of food stores was somewhat smaller in

that borough than in other parts of the city.

Many of these food stores handle little or no fruits or vegetables. More than 95 percent of all the fruits and vegetables sold through retail food stores was reported by 26,252 of these stores, or about half of the total number. These 26,252 consisted of grocery stores, grocery and meat stores, and the specialized fruit and vegetable stores, with the value of total annual sales of all products amounting to \$440,000,000. The percentage of fruits and vegetables included in these total sales varied widely between groups of stores, from 10 percent in grocery stores to 95 percent in the specialized produce stores. Total fruit and vegetable sales of the three groups combined amounted to \$101,000,000 for the year.

TABLE 8.—*Values of fresh fruits and vegetables distributed annually through food stores and restaurants in the five boroughs of New York City*

[Based on the 1935 Census of Retail Distribution]

FOOD STORES OF ALL TYPES (GROCERY, BAKERY, CANDY, MEAT, FRUIT AND VEGETABLE, ETC.)

Item	Manhattan	Bronx	Brooklyn	Queens	Richmond	Total New York City
Total stores.....number..	14,406	9,536	19,698	7,357	1,164	52,161
Total sales, all commodities.....dollars..	241,796,000	157,159,000	275,539,000	150,378,000	19,554,000	844,426,000

STORES HANDLING 95 PERCENT OF THE FRUITS AND VEGETABLES REPORTED SOLD THROUGH ALL FOOD STORES

Total stores.....number..	7,948	4,332	9,630	3,644	698	26,252
Total sales, all commodities.....dollars..	133,565,000	74,387,000	137,284,000	80,933,000	13,181,000	439,350,000
Sales of fresh fruits and vegetables.....do....	29,924,000	20,600,000	31,091,000	16,984,000	2,195,000	100,794,000
Cost of these fruits and vegetables.....do....	19,300,000	13,300,000	20,100,000	11,000,000	1,400,000	65,100,000

RESTAURANTS, CAFETERIAS, LUNCHROOMS, AND HOTEL DINING ROOMS

Total eating places.....number..	7,296	1,448	3,887	1,817	482	14,930
Total sales of meals.....dollars..	221,521,000	17,154,000	41,581,000	17,945,000	2,360,000	300,561,000
Cost of all food sold.....do....	88,607,000	6,862,000	16,633,000	7,178,000	944,000	120,224,000
Cost of fresh fruits and vegetables.....do....	6,500,000	500,000	1,200,000	500,000	70,000	8,770,000

COMBINED COST TO THESE RETAIL OUTLETS OF THE FRESH FRUITS AND VEGETABLES SOLD

Cost to food stores.....dollars..	19,300,000	13,300,000	20,100,000	11,000,000	1,400,000	65,100,000
Cost to restaurants, etc.....do....	6,500,000	500,000	1,200,000	500,000	70,000	8,770,000
Total.....do....	25,800,000	13,800,000	21,300,000	11,500,000	1,470,000	73,870,000
Percentage of cost by boroughs.....percent..	35	19	29	15	2	100

A detailed W. P. A. study, made in 1936, of the sales of thousands of packages of fruits and vegetables in New York City indicates that retailers pay for their fruits and vegetables about 65 percent of the total selling price. On this basis, the cost to the retailers of all these fruits and vegetables sold through the 26,200 stores was about \$65,000,000.

The Retail Distribution Census of 1935 lists 14,900 restaurants, cafeterias, lunch-rooms, and hotel dining rooms in the city of New York; their location by boroughs is indicated in the third section of the table. Annual sales of meals at all of these eating places totaled \$300,561,000, of which about 74 percent, or approximately \$222,000,000, was expended in the Borough of Manhattan, and only 26 percent in the other four boroughs combined.

In general, about 40 percent of the sales of meals in restaurants was expended for raw food materials. The total cost of food sold by all of these public eating places in New York City would have been, therefore, about \$120,000,000. Restaurant operators estimate that about 7 percent of this food cost represents purchases of fresh fruits and vegetables. On this basis, the cost to the restaurants of fresh fruits and vegetables which were served as a part of meals would have been nearly \$9,000,000.

Some of the fruits and vegetables served by restaurants and hotels is purchased from retail stores, but a very large part is obtained from some type of wholesaler such as traveling truck-jobbers, restaurant and hotel supply houses, or the regular dealers in the wholesale markets. Such purchases are comparable, therefore, with the purchases of the same products by retail food stores. Manhattan, even with its great number of daily visitors, utilizes only one-third of the fruits and vegetables distributed through these retail outlets, and residents of the other boroughs consume two-thirds. Although this does not

include the entire distribution in New York City, it is a sufficiently large sample of all retail outlets to be representative of the total consumption. Table 9 shows the percentages of distribution by boroughs as derived from census data, compared with data obtained from sales records of dealers in Lower Manhattan and from other sources, which are summarized in table 7.

TABLE 9.—Percentages of distribution by boroughs of all fruits and vegetables consumed in New York City

Borough	Census data, 1935	Dealers' sales records, 1939
	<i>Percent</i>	<i>Percent</i>
Manhattan.....	35	35
Brooklyn.....	29	29
Queens.....	15	17
Bronx.....	19	18
Richmond.....	2	1
Total.....	100	100

These separate sources of information agree rather closely on the final destinations of fruits and vegetables sold through the markets of New York City. They show how much of the total supplies must be moved eventually to each of the subdivisions of the city and its environs, and consequently the relative importance of each subdivision. Thus nearly one-half of the total supply for the city is consumed in the Boroughs of Brooklyn and Queens, and only about one-third is used in Manhattan.

The Lower Manhattan market is several miles distant from the section of the city that is central to all the final buyers of fruits and vegetables. Therefore, it is not most advantageously located to serve the buyers most efficiently and economically. Subsequent pages of this report show the costs of distribution from the present market location compared with what they might be from other possible sites.

Marketing Costs in New York

A description of the existing markets, and of the methods used in moving produce through them, brings out instances of inefficiency in distribution. But before any real plan for improvement can be worked out it is necessary to go beyond mere description. It is not enough to say that nearly half the consumer's dollar in New York City that is spent for fruits and vegetables goes to pay the cost of getting the products from the city limits to the consumer's kitchen. Sermonizing about distribution costs may appeal to popular fancy, but if definite improvements are to be accomplished, each operation involved in the distributive channel must be studied, its cost ascertained, and an analysis made to find out whether or not the cost of such an operation can be reduced or eliminated.

With this thought in mind each operation involved in getting fruits and vegetables from the original unloading point to the retail stores in New York City was studied during the course of this investigation. Effort was made to find out whether each operation was necessary, what was the cost of its performance, and whether or not a way could be found to improve or short-circuit that particular task.

But the first thing to be done here is to point out exactly what these costs are under present conditions. A critical examination of them for the year that ended April 30, 1939, discloses that the total marketing cost

of the entire quantity of 201,790 carloads of fruits and vegetables, from the time they were unloaded until their arrival at the retail outlets in New York City, amounted to an average of \$209 per carlot. This was 15 percent of the estimated retail sale value of \$1,400 per carload, and 26 percent of the estimated wholesale value of \$800 per carload.

COSTS WITHIN THE LOWER MANHATTAN MARKET

On the three-fourths of the total receipts that were sold through the Lower Manhattan market, the total costs of handling between unloading point and retailer averaged \$235 per carload. It is on this part of the supply that most of the savings can be made through improvement in wholesale market facilities and methods. In considering the possibility of reducing these marketing costs, attention should be given to each of the principal items involved. City marketing costs on the 154,367 carlots sold through the Lower Manhattan market were considered to begin when the supplies actually reached the point where they were unloaded from the transportation agency that brought them into the city.

Most of the rail receipts were floated across the Hudson River and unloaded on the piers at the market site. The marketing costs on these were considered to begin when the car float reached the pier, and therefore include unloading and other costs in the

market which are absorbed by the railroads, but do not include the costs of floating which are considered to be a part of the actual transportation. On rail receipts trucked to the market from team tracks, cartage from the team track to the market is included.

TABLE 10.—*Summary of estimated city wholesale marketing costs on 154,367 carloads of fruits and vegetables sold through Lower Manhattan market, May 1938–April 1939*

[A more detailed statement is shown in table 15 and its explanatory notes]

Item	Carloads	Cost per carload	Amount
	<i>Number</i>	<i>Dollars</i>	<i>1,000 dollars</i>
Costs at Lower Manhattan market:			
Cartage.....	127,498	33	4,181
Porterage.....	134,000	10	1,340
Rent for fruit and vegetable stores and offices.....	154,367	9	1,400
Rent for fruit and vegetable pier space (paid by railroads).....	63,850	8	488
Unloading, sorting labor, and maintenance of piers (paid by railroads).....	63,850	19	1,225
Margins, excluding cartage, porterage, and rent.....	196,046	50	9,894
Waste and deterioration due to inadequate facilities.....	154,367	12	1,852
Time lost by motortrucks due to inadequate facilities:			
Trucks bringing products to market.....	43,570	5	218
Trucks of buyers.....	154,367	7	1,005
Total.....	¹ 154,367	140	21,603
Costs from Lower Manhattan market to metropolitan retail outlets:			
Cartage.....	136,012	62	8,393
Margins, excluding cartage.....	89,347	70	6,243
Total.....	¹ 136,012	108	14,636
Total costs from unloading point to metropolitan retail outlets or to trucks of out-of-town buyers.....	¹ 154,367	235	36,239

¹ These are not the totals of the carloads given in items preceding the total.

The city marketing costs on boat receipts were considered as beginning with cartage from the piers, or O. C. charges at the piers. Since supplies arriving by boat are unloaded on piers that are not used strictly for market purposes, boat-pier rentals and unloading costs are not included.

The total costs of handling the supplies that moved through the Lower Manhattan market are summarized in table 10.

About 88 percent of the volume sold through the Lower Manhattan market was distributed in the metropolitan area. On this quantity, costs from unloading points until delivery to retail outlets are included, but for the 12 percent sold out of town, the market costs include only those accruing up to the time the products were loaded on the buyers' trucks.

These city marketing and distribution costs can be segregated fairly well into those incurred within the Lower Manhattan market and those incurred between that market and the retail stores. The total cost of handling that part of the city's supplies which moved through the Lower Manhattan market amounted to more than \$36,000,000, of which \$21,600,000 was incurred at the market. The remainder represented the cost of moving the supplies from the market to metropolitan retailers.

It should be emphasized that facilities, organization, and location of a central market affect costs not only at the market site but also through the marketing channels between the market and the retail outlets. Elimination of congestion, modernization of facilities, and improvement in operating methods in a centrally located market will not only shorten the time and distance from the unloading point to the retailer, but probably will eliminate some handlings to which the product is subjected and reduce the deterioration and spoilage. Therefore, improvements within the central market not only should result in savings within the market itself, but should also effect savings between the market and the retail outlets.

CARTAGE COST

The cost of cartage alone within the Lower Manhattan market area amounts to more than \$4,000,000 a year (table 10). This charge is made for moving the supplies from the many scattered unloading points to the

central market area and for other movement from one place to another within the market. It also includes charges of about \$800,000 at the pier for the items known as O. C. and pierhead-delivery charges.

This \$4,000,000 bill for intra-market cartage is one of the items on which a very material saving could be made in a modern, well-arranged market, for such a market would make the greater part of this hauling unnecessary and would facilitate such cartage as remained to be done by reducing the traffic congestion. On products shipped to New York on consignment a large part of the cartage from the railroad piers to the stores, amounting to about \$36 per car, is charged back as a direct cost to the shippers. On other shipments cartage charges are, of course, added to the marketing expense and are indirectly paid by the growers and the consumers.

PORTERAGE COST

Porterage is a second important item of expense for handling in the Lower Manhattan market. This amounts to about 1½ million dollars a year. The extreme congestion in this market area has already been pointed out as well as the fact that only about one-third of the trucks moving supplies to and from the stores can get near the stores for loading or unloading. The congestion and hindrance to trucks is responsible for a very large part of this porterage bill. A modern market would make it possible to reduce this cost very materially.

RENT

The rental bill for the year amounted to nearly \$1,900,000. This sum is about half a million dollars greater than would need to be charged in a properly located, adequate market, so designed and constructed that it would give dealers every necessary facility for the efficient operation of their business—facilities that are not now available in the present market.

Margins of wholesalers, jobbers, auctions, and auction receivers in the market (excluding cartage, portorage, and rent paid by them) are estimated to have been nearly \$10,000,000 for the year. This item includes such costs as wages of employees other than porters, salaries, office expense, brokerage and commissions paid, bad debts, communication and travel expense, interest, light, heat, advertising, inspection, and storage. The fact that dealers' margins are the largest single item of cost in the Lower Manhattan market does not mean, of course, that the dealers are making excessive profits—or even any profits. Costs are very high. Such evidence as is available indicates that net profits of this group of dealers are rather moderate.¹⁰ Nevertheless, a lack of net profits does not mean efficient operation. Farmers, dealers, and consumers would all benefit from a lowering of costs which would allow fruits and vegetables to be handled on narrower margins.

It was impossible to determine just what effect the provision of an adequate market would have on the actual margins per car charged by these dealers but it is known that, because of present conditions, dealers are forced to hire many porters and helpers, that they must have salesmen in more than one place at a given time, and that in many other ways present conditions make their costs of operation expensive. Therefore, it seems reasonable to assume that at least some of the costs of these dealers could be reduced if new market facilities were carefully planned, and if the funds used in their construction were judiciously spent. However, no estimates of such savings as these have been included in the discussion to follow on potential savings.

¹⁰ GEARREALD, T. N. AN ECONOMIC STUDY OF FRUIT AND VEGETABLE WHOLESALING AND JOBBING FIRMS IN NEW YORK CITY. N. Y. (Cornell) Agr. Expt. Sta. Bul. 721, 67 pp. 1939.

COSTS PAID BY RAILROADS

Labor for unloading and sorting supplies at the railroad piers, and maintenance and other operating expenses in connection with the piers, cost the railroads more than \$1,200,000 per year. This amounts to an average of about \$19 per car on the rail receipts floated to Manhattan. A considerable saving could be effected in this item if cars were unloaded from sidings at stores or sale platforms. To the extent that supplies are now handled both on the piers and at some other location in the market, handlings and space requirements could likewise be reduced for the products brought to the market by railroads. Whether such savings to the railroads would reduce transportation charges is debatable, but savings from greater efficiency in any part of the system are desirable, even though there may be little assurance that a saving to the railroads would be reflected very directly and fully in freight rates.

SPOILAGE

Deterioration and spoilage of products form a further item of great importance in the expense of handling fruits and vegetables in the Lower Manhattan market. It has been pointed out how these commodities are subjected to excess handling, jolting on hand trucks, long exposure to heat and cold, lack of storage facilities, and delay through congestion. All of these cause or hasten deterioration, whether it shows first in this market or appears later in the retail stores. It is difficult to measure the monetary value of this deterioration. It is almost impossible to ascertain how much occurs within the market, and how much is caused after the produce leaves the market. Even in a market with practically ideal facilities there would still be considerable waste; but certain waste and deterioration of products now taking place may definitely be charged against the inadequate facilities.

Various studies have been made of the amount of waste occurring after produce arrives in the city, including waste in the retail stores. These investigations show wide variations for different commodities and conditions but, based on all the information that can be obtained, it appears that a conservative estimate of the waste and spoilage due to inadequate facilities in the present Lower Manhattan market averages at least \$12 per carload. This figure includes only such wastes as could be avoided in a modernized market. It amounts to slightly less than 1 percent of the retail value of the products.

TIME LOST BY MOTORTRUCKS

Another item of cost is the value of time lost in the market by motortrucks hauling to and from it, caused by traffic congestion and the lack of loading and unloading space. As explained in detail in the explanatory notes on table 15 of the appendix, the value of time lost is figured at \$10 per carload on the quantities hauled from the market direct to retailers and at \$5 per carload on the quantities taken by other buyers. The total value of this time lost by buyers' trucks hauling from the market was estimated at \$1,005,000. The corresponding amount for trucks hauling to the market was \$218,000.

TOTAL COSTS WITHIN LOWER MANHATTAN

The total costs on the 154,367 cars of fruits and vegetables sold through the Lower Manhattan market, from the time they reached the point of unloading by the original transportation agency until they were taken out of the market on the buyers' trucks were approximately \$21,603,000, an average of \$140 per carload. From the above discussion of the nature and amount of each of the items making up this cost, it seems evident that very substantial savings could be made in the cost of handling the products within the Lower Manhattan market.

COSTS INCURRED BETWEEN THE LOWER MANHATTAN MARKET AND RETAIL OUT- LETS

Of the 154,367 carloads handled through the Lower Manhattan market, 136,012 carloads were distributed in metropolitan New York. The other 18,355 carloads were taken outside the metropolitan district, and no further costs have been figured on this quantity after it was loaded on the buyers' trucks.

The cost of handling the 136,012 carloads from the time they left the Lower Manhattan market until they reached the retail stores within the metropolitan district amounted to about \$14,636,000. These costs may be segregated into cartage, and margins excluding cartage.

CARTAGE BETWEEN MARKET AND RETAIL STORES

It was found that nearly 60 percent of this total bill was for cartage, or trucking costs. This included the cost of trucking by jobbers and by retailers from the Lower Manhattan market, and the cost of trucking from the jobbers' stores in other markets to the retail stores of produce which had previously moved through the Lower Manhattan market. Most of the actual cartage to the retail store is performed by the retailers themselves, but the cost to them of performing this service was included. In arriving at the total cartage bill, the cost to chain stores for trucking to and from their warehouses was likewise included. On this basis it was found that the total cost of hauling the 136,012 carlots from the market to metropolitan retail outlets was about \$8,393,000 for the year, not including value of time lost by the trucks in the market.

There are several ways by which it would be possible to reduce cartage costs between the central market and the retail stores. Within certain limits as to distance of haul, an increase in the proportion of sales in the central market that go directly to retailers

without passing through secondary markets would reduce cartage costs, since to some extent such action would substitute one cartage operation for two or more. In this respect, distribution from a market located near the center of consumption of the area to be served is more economical than distribution from a market not centrally located. When plans are made to locate a market in such a way as to reduce this cartage bill, such factors as connections with arterial streets, bridge, and ferry tolls, and density of traffic must be considered as well as distance.

JOBBERS' MARGINS

About \$6,243,000 was the amount charged by metropolitan jobbers outside of Lower Manhattan, and by chain stores, for wholesaling and jobbing functions. This figure, of course, excludes cartage paid by them, which was included in the cartage bill listed above. It does not seem probable that the provision of a modern central market would bring any reductions in the amount of these margins per carload, since these charges are made by dealers who operate outside the central market. On the other hand, if any new central market were so located that it would be convenient to more retail buyers than now visit the present market, it is probable that the quantity redistributed through secondary markets would be reduced. Then the total bill charged by dealers in such markets might be somewhat reduced, even though the margin per car might remain the same.

TOTAL COSTS THROUGH THE LOWER MAN- HATTAN MARKET TO RETAIL OUTLETS

The total of all the charges listed above for the handling of the 154,367 carloads sold through the Lower Manhattan market amounted to approximately \$36,200,000. This is an average of \$235 per carload. Even when costs paid by the railroads at the market site of about \$1,700,000 are subtracted, the total is \$34,500,000. It is pointed out again

that this figure covers only the costs between the original unloading point in the city and the retail outlet, and does not include any charges coming out of the retail margin except cartage costs to the retailers in bringing supplies to their stores. Neither does it include any costs to out-of-town buyers after the produce is loaded on their trucks.

COSTS ON SUPPLIES NOT HANDLED THROUGH THE LOWER MANHATTAN MARKET

It has been pointed out that, during the 12-month period, 47,423 carloads of fruits and vegetables were received inside the city limits of New York without being handled in any way in the Lower Manhattan market. This quantity included receipts at farmers' markets, at other outlying markets, and at chain-store warehouses. The total marketing bill for these products from the time they arrived in the city until they reached the retail outlets was \$5,846,000 for the year, or an average of \$123 per carload.

The average cost per car for handling products that did not move through the Lower Manhattan market was materially lower than the cost assessed against products that did move through that market. Although there are many reasons for this difference, the fact that it exists is of considerable importance to the dealers who operate in Lower Manhattan and to the industry at large. In itself it constitutes some argument for improving the methods of handling that part of the supplies which must move through the central market. A break-down of the cost of handling the part which does not move through Lower Manhattan shows that cartage amounted to \$2,330,000 or 40 percent of the total bill, and that margins other than cartage amounted to \$3,516,000, or 60 percent of the total.

Availability of a well-located, modern, central market might reduce the quantity marketed through other channels, but it is not probable that it would bring any savings in the present cost per carload of handling through such other channels. For this

reason, in the later discussion of possible savings, none are included for the portion of the business which is not now moving through the Lower Manhattan market. The discussion of market improvement has been limited to a consideration of that part of the city's supply which is now moving through Lower Manhattan at an average cost per car of \$235.

TOTAL COSTS

The total cost of handling all fruits and vegetables that moved into the city of New York between the point where they are unloaded and their delivery to the retail outlets or to trucks of out-of-town buyers totaled approximately \$42,000,000 during this period (table 11). This \$42,000,000 marketing bill consists of about \$21,600,000 for handling in the Lower Manhattan market, about \$14,600,000 for moving supplies from the Lower Manhattan market to the retail outlets, and about \$5,800,000 for total handling costs of products not passing through Lower Manhattan.

TABLE 11.—*Summary of marketing costs on 201,790 carloads of fruits and vegetables, New York City, May 1938–April 1939*

Item	Quantity	Average cost per car	Amount
Handled through Lower Manhattan market:			
From unloading point until taken out of the market.....	Carloads 154,367	Dollars 140	Dollars 21,603,000
From Lower Manhattan market to metropolitan retail outlets.....	136,012	108	14,636,000
Total.....	¹ 154,367	235	36,239,000
Not handled through Lower Manhattan market.....	47,423	123	5,846,000
Total.....	201,790	209	42,085,000

¹ This is not the total of the carloads given in items preceding the total.

An apportionment of this \$42,000,000 marketing bill over the total volume handled shows that the average cost per car for the operations described above amounted to

\$209. This figure does not include the buying time of retailers and out-of-town jobbers, but does include the time spent by metropolitan jobbers in making their purchases, which cost was included in their margins. Waste due to deterioration and spoilage that are attributable to inadequate facilities has been considered in the costs, but the estimate of the monetary value of this item has been conservatively made. Some waste in the handling of fresh fruits and vegetables is inherent in the nature of the products and cannot be eliminated regardless of the adequacy of any market facilities.

The foregoing discussion merely summarizes the present costs of handling fruits and

vegetables in the wholesale markets of New York City. It does not give a complete break-down of these costs, nor does it enter into a detailed explanation of how they were calculated—only the general statement is used that the costs per carload were obtained and these costs were applied to the volume entering into each operation. Those who are interested in a more complete break-down of these costs and an adequate explanation of how they were ascertained should read the complete discussion which appears in the appendix (pp. 104–120). The costs shown there are believed to be sufficiently accurate for all practical purposes, although it is of course not maintained that the figures are exact in every detail.

What's The Matter With The Present Market?

To be specific, Just what is the trouble with the present system of marketing fruits and vegetables in New York City? Just where can improvements be made that will make the marketing system more efficient and will reduce the costs of distribution?

SCATTERED DELIVERIES AND SALES

One of the most important weaknesses of the New York market is the fact that the thousands of carloads of fruits and vegetables destined to it arrive in the city at many different locations scattered over a rather wide area. Each rail line has its own piers and yards, separate and removed from all others so that rail receipts are unloaded at a large number of places. Boat cargoes are discharged at many piers up and down the water front on both sides of the Hudson River and along the East River. Motor-trucks have no terminals of any kind where products can be concentrated for unified sale, nor can their loads be handled in the places where rail and boat receipts are unloaded. Therefore, these loads move to still different locations, and are taken directly to the individual stores of dealers.

Buyers who must have a complete line of fruits and vegetables, including commodities arriving over several railroad and boat lines as well as by motortruck, would have to visit many widely separated places if they were to obtain supplies at the point where they are originally unloaded. This, of course, would entail an almost endless amount of time and

very high expense. So the products are partly assembled at locations where buyers can make their inspections and purchases. But there is no one location where it would be physically possible to assemble all supplies, so sales must still be held at different places. Some offerings are sold on any one of several piers, and others in the Washington Street store district.

The volume handled at these stores has increased tremendously during the last decade. But there are no rail connections to this part of the market. Supplies arriving by both rail and boat must be hauled by motortruck from the piers on the river front or from team tracks, several miles distant. This moving of supplies from unloading points to Washington Street, or from one place to another within the market, is very expensive in several ways.

In the first place, it results in an annual cartage bill of more than \$4,000,000, a large part of which could be avoided if supplies arriving by all methods of transportation were unloaded directly on central sales floors. But in addition to the actual cartage cost, the handling and moving of the products from one place to another is hard on them and leads to more rapid deterioration and spoilage. Highly perishable products, which have been brought long distances from farm to city, should not be subjected to any unnecessary handling and exposure after they arrive in the market.

Many separate locations for handling the

products mean duplication of the physical facilities, of which some must be provided at each place. The total cost of all of them may have been more than enough to have provided one complete and efficient market, yet because the "shot has been scattered" no really satisfactory market has been established.

A further point, of considerable importance to railroads, although it seems to have been rather commonly ignored by them, is the fact that they are penalized if they cannot deliver directly to the sales floors of a central market when their competitors are able to do so. The additional cartage and handling to which rail receipts must be subjected between the railroad and the market area is one of the reasons for the decline in the quantity moved by rail into the markets of several of the large cities.

It is evident that the present methods of handling fruits and vegetables in New York City would be vastly improved if some way were found by which supplies would be unloaded directly on the floor where they are to be displayed and sold, regardless of their method of transportation. This would result in savings in cartage, deterioration, and time that would run into millions of dollars annually. It would also promote a more general and widespread knowledge of available supplies, which is necessary for proper establishment of prices, and would make easier the marketing tasks of buyers and sellers.

TRAFFIC CONGESTION

As there are no rail connections to the Washington Street store area, the 117,867 carloads of fruits and vegetables handled there during the 12-month period were all brought to the market by motortruck or wagon. In addition to all these vehicles bringing in supplies, there are in the same district each night thousands of buyers' trucks that haul away these supplies, and still other trucks that are engaged in hauling from one store to another.

The attempt to move all these vehicles into this century-old market area has resulted in a traffic problem that cannot be solved there. By actual count it was found that throughout most of one night from 1,200 to 1,350 trucks were in this market area at one time. The streets are, for the most part, only 30 feet wide, so that all parking must be parallel to the curb. This leaves room for only one line of traffic in the center of the street. The stores themselves have no rear entrances, so all supplies must be moved in and out through the front. Under these conditions not more than 400 trucks can park at the stores at one time, and they can get there only through heavy traffic congestion. The other hundreds of trucks and wagons must park some distance away and have their loads moved to or from the stores by hand or on hand trucks at a portorage cost of around \$1,340,000 a year. The traffic problem in the market is further complicated by the fact that the market is located in an area through which must pass considerable other traffic that has no connection with the activities of the market itself.

This means that a great deal of time and money could be saved if the market were so designed and located that the necessary traffic could be properly handled. If streets were wide enough that the trucks could back up to the curb on each side instead of parking parallel, more than twice as many vehicles could load and unload at a given number of stores at the same time. Furthermore, if the stores were so arranged that they could be reached from a street at the rear as well as from one in the front, this number of vehicles could again be doubled.

The traffic problem is caused by narrow streets and lack of loading space. The only reasonable solution is to make streets wide enough and provide sufficient loading space to take care of the business. Streets that were laid out a hundred years ago in an area that was not even designed for a market simply cannot be expected to handle present-day business. Any sound program for improving the New York market must include

provision for the motortrucks and wagons which are essential to its operation. The functioning of the market would also be improved if traffic having nothing to do with market activities did not have to pass through it.

INADEQUATE BUILDINGS

The market district is not only inadequate as to its streets and its lack of facilities for unloading directly on the sales floors, but the very buildings themselves are not adequate for the proper handling of fruits and vegetables. Stores in the Washington Street district were not designed nor built for the handling of immense quantities of bulky perishable products. Most of them are merely old tenements, tall loft buildings, or warehouses, which were erected here many decades ago and were taken over by produce dealers as the city grew and its food requirements increased. Their floors are at street level with no loading or unloading platforms. They have no rear entrances, being built solidly against the backs of other buildings in the same block. Few have refrigerated rooms and many have insufficient space for common storage. Produce is commonly displayed on the sidewalk in front of the store, and there is seldom room to unload all supplies at one time. Trucks bringing supplies are kept waiting in the streets.

When a buyer visits the store of any particular operator he may purchase supplies that are in the store, on the sidewalk in front of the store, on a truck standing somewhere in the traffic jam, still on the railroad piers, or in a team-track yard, or perhaps still on a car float out in the river.

Facilities like these make it impossible for the dealers to develop sound merchandising programs for displaying and selling their products to the best advantage. They make it equally difficult for the buyers to perform their function of assembling supplies for consumers. The chief problems in the market can be summed up in the statement that because of inadequate equipment an

unnecessary amount of labor is required. In other words, there is not a proper relationship between physical facilities and labor.

In spite of the inadequacy of the facilities the total rent bill for their use, including stores, offices, and pier space, amounts to about \$1,900,000 a year. This is a sum greater than would be needed to provide as modern and efficient facilities for the handling of fruits and vegetables as can be designed, if located outside the skyscraper district where land could be obtained at a reasonable price. Such greatly needed improvements in facilities, which the trade must have if it is to operate efficiently, could be provided not only without any increase in rental charges but with an actual reduction in rents over that being paid at the present time, to say nothing of other savings that would be made possible by them.

IMPROPER LOCATION

There is probably no reason why the principal wholesale fruit and vegetable market of New York City is in its present location, except that it was started there more than a hundred years ago when the products of Manhattan's farm lands were brought down to the growing city at the tip of the island. Now it meets none of the requirements of a good location for a produce market. It is located in a part of New York where the traffic is heaviest and where movement by motortruck is difficult. Instead of being located near the center of the area that it serves, it is situated at the edge of the city, several miles away from the center of distribution of products moving from it. It is located in the very shadow of the skyscrapers of New York's financial district, where land is of such high value that it would be impossible to get space for expansion at any reasonable cost. Yet expansion would be necessary before there could be efficient marketing of these bulky and perishable fruits and vegetables, which cannot be stacked into buildings several stories high but must be handled on the ground floor.

For these reasons, if the time comes when a new central wholesale fruit and vegetable market to serve New York City is to be constructed, a number of better locations could be found than the one in which the market is now situated. Locations could be obtained which would move the products nearer the final consumers before they are taken from the original transportation agency. Lower rental charges would be possible because of the peculiar situation in New York whereby lower-priced land is available in the center of the city than in the area around the present market. This ability to obtain land at a reasonable figure would in turn make it possible to have wide streets, team-track yards, parking areas, and other features that are essential to efficient handling but that can be had only when a large extent of land is available.

LACK OF STORAGE SPACE

In any wholesale fruit and vegetable market supplies do not arrive at the same rate that they move into channels of consumption. The receipts vary from day to day, and the volume of sales is normally much heavier on certain days of the week than on others. To smooth out these fluctuations and differences between time of arrival and time of sale the market must act somewhat as a reservoir, and maintain reserve supplies.

Rail receipts can be held temporarily in the refrigerated or heated cars. It is not always possible, however, to gage the unloads exactly to meet the demand, so a certain quantity of the products that have been unloaded must regularly be carried over to a later sale period. Motortruck receipts must usually be unloaded as they arrive, regardless of the prospects for their immediate sale. Boat receipts are intermittent, arriving in relatively large quantities at varying intervals. Altogether, there is usually a considerable volume that should be stored at least temporarily. Some commodities may be kept in ordinary storage; others that are

more perishable must be placed in cold storage. As most of these supplies need be kept for only short periods, it is often not economically feasible to move them to a cold-storage plant at any great distance from the place where they are to be sold. Instead, some of the stores should have cold-storage space as well as room for common storage.

In the present Lower Manhattan market there is not adequate storage space, and very few stores are equipped with cold-storage facilities. Truck receipts in particular must often be sacrificed at prices below market values, because of lack of space or facility in which to hold them. As long as supplies do not move into the market in the same quantity per day as they move out, storage space is an essential requirement and should be included in any program for market improvement.

PRICE-MAKING DIFFICULTIES

One of the most important functions of a market is the establishment of prices, through the interaction of the forces of supply and demand. Sellers endeavor to get the highest price at which they can move a certain quantity of goods, while buyers try to purchase at as low a price as possible. The more complete information they all have regarding the factors of supply and demand, the more stable will be the price situation. Lack of complete and accurate information results in wide price variations and fluctuations.

All of this is particularly true in a wholesale fruit and vegetable market where, from one sale period to the next, there may be large differences in quantity of supplies, and in the many variable factors of quality and condition of the commodities. It is primarily because of these conditions that fruit and vegetable buyers customarily go to market, personally to make comparison of quality, evaluate the factors of supply and demand, and bargain for price. If sellers and buyers have incomplete or inaccurate knowledge

regarding supply and demand, they are hampered in arriving at a price that will hold throughout the sale period—that is, the point of equilibrium which represents the minimum amount that sellers as a group will take, and the maximum that buyers will pay, for the day's supply of each commodity.

In the Lower Manhattan market, supplies are received at many widely scattered places and cannot be concentrated within any one sale area. It is difficult for either sellers or buyers to gain definite information regarding the quantity and quality of perishables available in these several locations. Furthermore, the hours of arrival and delivery of motortruck receipts are unregulated and unpredictable. Arrivals by other methods of transportation, while also subject to variability, are on fairly regular schedules. Operating conditions of the railroads are such that the time and volume of deliveries can be determined with some dependability. But trucks may arrive and make delivery at any hour.

There also exists a similar lack of information regarding the combined needs, desires, and activities of all buyers, which represents the other side of the supply-and-demand equation. This is due to the scattering of the buyers at different locations where sales are held and to the long hours of selling which spread out the buying activities. The larger part of current supplies are offered in many stores located on public streets, buyers can come in at any time, and dealers one after another accept earlier and earlier buying offers, until the period of trading is extended throughout most of the night.

The Lower Manhattan market is handicapped in its function of price determination by this lack of market information due in large part to the scattering of both supplies and demand. This results in wide variations in price during a single trading period, leading to difficulties and dissatisfaction for shippers, dealers, and buyers.

LACK OF PROPER REGULATION AND MANAGEMENT

The business of the Lower Manhattan market is scattered over a rather wide area. It is conducted in properties located on public streets and owned by a large number of private individuals and organizations. It has therefore been found to be practically impossible to establish or enforce regulations regarding hours of selling and other trading practices. The result has been that there is little actual management or control of the market. Sales are extended over unduly long periods, resulting in wide price fluctuations, much overtime work, and many other unsatisfactory conditions. Charges and rentals are determined by private ownership and outside interests, primarily on the basis of charging all the traffic will bear.

Dealers who operate within the market are often inclined to feel that so long as the charges are assessed on them all alike, they, as individuals, are not hurt, because these charges can be passed on to the consumers or back to the growers. But other dealers who are more farsighted realize that the repeated tacking on of additional charges will result in the movement of increasingly large quantities around the market and through other channels to the consumers.

Perhaps it would be well to note here that there is a distinct element of monopoly in most city markets. This monopolistic feature does not consist, as some people assume, of collusive practices of dealers, for ordinarily there is very substantial competition among the dealers who handle each kind of produce. Owners of the market property, however, have a monopoly over location. This is very important in New York as well as in most other large markets for it is difficult for dealers to do business anywhere except in the established market.

An organized market should be operated under unified management that will take

into consideration the interests of the entire industry that does business in it, as well as the general interests of the public. It is only by such unified management operating in the interest of all that a market can be made to function in an efficient and orderly way. The present primary market in New York City cannot be so operated, for it is made up of many divergent interests with no definite area of jurisdiction. In it, rules and regulations are difficult, if not impossible, to enforce.

There are other inadequacies in the New York market but it is believed that if the seven features listed above were corrected several of these other problems would tend to be solved automatically.

In the preceding pages the wholesale fruit and vegetable markets of New York have been described, the methods by which supplies are handled have been portrayed, the costs of each operation in the marketing process analyzed, and the important weaknesses of the market pointed out. The next section of this report deals with methods of improvement or reorganization to correct such weaknesses. Different courses of action are analyzed, and an effort is made to determine which is most feasible. To this end the discussion that follows is devoted to a consideration of ways of going forward to obtain the much needed improvements in handling fruits and vegetables through the wholesale markets of New York City.

How the System Can Be Improved

Type of Marketing System Needed

In working out a plan for establishing a satisfactory method of distributing fruits and vegetables in a city like New York, the first task is to find out just what kind of marketing system is needed. That is, what kind of system will move the products from the city limits to the consumers throughout the area in the most efficient way possible? Such a system includes the entire channel through which the products are distributed. Any change in any part of the system should be considered in relation to the broader question of what type of system is desirable, and it should be made solely for the purpose of adapting the market channel to modern needs.

The principal fault with the present methods of marketing fruits and vegetables in New York is the fact that market improvement has not kept pace with changing conditions. For this reason, it is extremely important that any plan evolved for improving the system, or any part of it, not only corrects existing evils, but also takes into consideration the changes which have been occurring in the industry and future developments which can reasonably be expected to come.

To illustrate, in the old days supplies were received largely by water and wagon. Sales were made at such places as piers extending into the river. Later, when rail receipts became important, cars were floated to piers, and sales continued to be made in that type

of market. In recent years receipts by motortruck have become a very important factor. These changes in transportation mean that a type of market which would have met the needs of the city 25 or 50 years ago is not likely to be satisfactory for modern conditions.

In addition to transportation changes there have been many other developments, of course, such as increased population, increased volume and variety of receipts, changed methods of sale, new channels of distribution, as well as changes in the functioning and operations of the market. Consequently, before deciding the exact type of market that is needed, where it should be located, and how it should be operated, it is desirable to reach a decision on some of the more general features, or fundamentals, of the marketing system.

CENTRALIZATION VERSUS DECENTRALIZATION

The first question to be decided in determining the type of marketing system needed is whether or not receipts entering the city should go first to one central market or whether they should go directly to two or more separate markets. When supplies move first to one central-market area and are distributed throughout the city from that one market, the marketing system is said to be centralized. On the other hand, when supplies go directly to several markets scattered over the consuming area without

first having been concentrated at any one location, the markets are said to be decentralized.

In most cities it is generally admitted that only one wholesale fruit and vegetable market is necessary and desirable to serve the area because buyers from every part can visit, without inconvenience, the one market. But the question may properly be raised as to whether a city may grow so large that not all buyers can reach one market. In fact, several decades ago New York City's population had become so great and was spread out over such a large area that retailers found it inconvenient to visit the central market in Lower Manhattan with the horse-and-wagon transportation then used. When this happened, a number of secondary markets were established through which supplies moved in passing from the central market to the retailers. The secondary markets (so called because they received their supplies from the central or primary market) were located near the retailers who used them. They made it more convenient for the retailers to buy, but at the same time they made it necessary for the produce to move through two or more markets between the city limit and the retailer.

As far back as 30 years ago people in the city became concerned over this passing of produce through successive markets. Many dealers thought it was satisfactory to have supplies sold first in the central market in large lots to jobbers who were located in the secondary markets and from these move on to retailers. On the other hand, some people began to feel that the central market was no longer necessary and that supplies should move from the producing areas directly to the secondary markets without passing through any central-market area. For at least three decades the question has been much discussed as to whether New York should have one central market as a primary receiving point for its supplies or whether, instead, several decentralized markets should be established in different parts of the city, each

receiving its supply directly from producing areas.

In 1913 a special market commission, which had been appointed by the mayor to study the situation, recommended a decentralized marketing system to replace the old system where supplies reached the secondary markets by moving through one central market. This commission recommended that a market be built in each borough and that each of these markets receive its supplies directly from producing areas and distribute them to the population living within its particular district. The report of the commission pointed out that New York was a collection of several large cities, divided or separated by natural geographic boundaries, and it concluded that the area was too large to be served with perishable food products from any one location. It recommended that the first complete market be erected in the Bronx and this be followed by similar action in the other boroughs.

As a result, on the site which the committee recommended, the Bronx Terminal market was eventually built (although the structure itself did not conform with the suggestions made by the committee). From time to time this market in the Bronx has been improved in an attempt to make it a primary receiving market rather than merely a secondary market. Even to this day the city administration is continuing the effort to make this a successful decentralized borough market.

The question that must be answered at this time is not whether the recommendations of the Mayor's Market Commission of 1913, if carried out, would have brought a correct solution of the marketing problem at that time. Present concern is whether or not a decentralized system of borough markets is the answer now. Have conditions changed during the last 27 years? Are decentralized markets now necessary, or is it possible to have one central market?

The chief argument for decentralized markets is that, under such a system, produce

will move as far as possible toward the retailer before leaving the original transportation agency and when it has once been unloaded, it will have to pass through only one market before reaching the retail store. It is generally conceded that transportation costs can be lower when the produce is handled in this way than when it passes through two or more successive markets, or is handled in only one market located at too great a distance from the retail outlet.

The further argument is given that a city the size of New York is so large that a market in each borough would handle as large a volume as is handled in most cities, and therefore if a market can operate successfully in a place the size of Baltimore or Cleveland, each of New York's decentralized markets would be just as successful because each of them would handle a larger supply than is handled in most other cities of the country.

On the other hand, proponents of the centralized market, while admitting transportation savings under a decentralized system, argue that the advantages of a centralized system outweigh its disadvantages in transportation. The first and most important argument given for having a central market to serve the area is that such a market is necessary for the proper establishing of prices. Obviously with extremely perishable foods such as fruits and vegetables the function of price making is facilitated by a high degree of concentration of supply and demand in one area. For this reason usually both buyers and sellers find it to their interest to use a central market. In a fruit and vegetable market, supply consists chiefly of goods brought in from day to day. They wilt or deteriorate so quickly that they cannot be held for any long periods of time, so supplies fluctuate greatly from one day to another, and this in turn leads to wide fluctuations in prices. The buyer wants supplies concentrated in one market in order that he may be sure he is not paying more than the true market price for that day. The seller wants a central

market where all buyers will assemble in order that he may get the real market value of his products and distribute them over as wide an area as possible.

Because of the importance of a central market as a price-making agency, both buyers and sellers have traditionally favored this type of market over the scattering of supplies among a number of decentralized markets within an area. A further argument given for a central market is that even with all the progress that has been made in setting up standards and grades, fruit and vegetable buyers still feel that they cannot make their purchases of most commodities on the basis of description or grade. They wish personally to inspect the commodities before they purchase. In order that these comparisons of quality can be made it is advantageous that the supplies be concentrated within one area.

A study of the different types of markets for different commodities reveals that whenever buyers habitually go in person to the market to make their purchases (as do fruit and vegetable buyers) they derive substantial aid through having supplies concentrated within a given area. Markets in New York display more than a hundred different fruits and vegetables during the course of the year. Many of these in turn consist of numerous varieties or types, and all differ decidedly in factors of size, color, quality, and condition.

Some buyers serve customers who demand the best quality. Others sell to people of low incomes who must provide the most food practicable for each dollar. Still other buyers specialize in supplying restaurants or hotels where certain sizes or other requirements must be met. Each group has different needs, and to meet these needs the greatest possible range of offerings is required. For this reason buyers want to go to the central market where the largest quantity and variety is available.

Therefore, the principal factors that make a central market desirable are: (1) The need for a price-making mechanism which will

work properly for extremely perishable foods such as fruits and vegetables, (2) the necessity of a personal inspection of commodities for comparison of quality, and (3) the custom of buyers going personally to the market to obtain the particular kind or quality of products that they need for their clientele. On the other hand, the chief argument for decentralized markets for fruits and vegetables is that these products are bulky and have a high transportation cost, a part of which could be reduced by having the commodities move as far as possible toward the retailers before they leave the original transportation agency.

While recognizing the advantage claimed for decentralized markets, students of the question believe that such markets are not so necessary today as they were at the time the Mayor's Market Commission made its report in 1913. Retailers then brought most of their supplies from the market by horse and wagon and could conveniently go only a few miles to obtain them. A visit to the central market in Lower Manhattan was almost out of the question for most retailers, except those within a radius of a few miles of that market. They were dependent upon jobbers located at some nearby point to obtain their supplies for them. Under these conditions it was felt that the provision of a number of decentralized markets, each receiving its supplies directly from producing areas, would make possible economies in distribution.

But in the quarter century that has elapsed since these recommendations were made, there have been drastic changes in commerce. Modern motortrucks and arterial streets and highways have greatly extended the distances that buyers can go to market. Figuratively speaking, New York has been drawn closer together. In a motortruck over a through highway, retailers can now go 10 or 12 miles for their supplies in less time than it formerly took them to go 2 or 3 miles in a wagon. Today many miles can be covered quickly—once the trucks are loaded and

away from the market. No longer is New York a collection of separate cities, each forced by the limitation of time and distance to be self-sufficient in the source of its perishable foods. No longer is a buyer obliged to take whatever happens to be available in his own locality. He can now go to the central market where he can find the greatest possible variety from which to choose.

The study of buying practices of retailers throughout the city revealed that this is exactly what a large number of them are doing. Many consider the greater distance to the central market more than offset by other advantages to be gained from greater selection or from price-making factors.

Therefore, as improvements have been made in the methods of transportation within the city, a central market can satisfactorily serve a wide area. As the chief objection to a central market has been partially overcome, while the needs for such a market remain as important as before, it is the consensus that a central market would be in a far better position today for meeting the needs of New York City than it was a quarter of a century ago.

Although some arguments still remain for the direct movement of supplies to secondary markets, the balance in the argument seems to lie in favor of establishing a central market, strategically located and properly laid out and equipped for handling most fruits and vegetables that go into the New York City area. Such a market could be within easy reach of a vast majority of buyers within the city. For outlying regions, secondary markets will continue to be used although some of these, particularly in Newark, may be expected to develop into primary receiving markets for their respective areas.

It should be pointed out that semi-perishable commodities, such as potatoes and the other commodities commonly referred to as hardware, will probably continue to be handled in separate, specialized markets. But although a few commodities will move to decentralized market areas, there is a real

need for an adequate central market to handle most of the fruits and vegetables now moving into the city. Students of marketing in all parts of the country are fairly well agreed on this point, and the situation has been summarized by the deputy commissioner of the New York City Department of Markets.

It is granted that there are many commodities in both the fruit and vegetable line, that might be sold, more or less advantageously, in decentralized markets—commodities where the entire carload is practically of one grade and character—and this is being done to some extent in the outlying markets of New York City. Potatoes, of course, are in a class by themselves as buyers are familiar with the grades . . . and find no particular need of searching the many offerings of the day for quality and price. . . .

The jobber and distributor, educated by years of experience, is keenly alive to quality and prices—he knows his quality and he directs his buying energy to prices. As a matter of fact, he is really not concerned so much in the price that is established for the commodities that he takes to his store, as he is in knowing definitely that his competitor is not getting the same article at a less price. It is this very thing that acts as a magnet, to draw to the source of greatest supply, the greatest congregation of buyers.¹¹

SHOULD THE CENTRAL MARKET SELL TO ALL TYPES OF BUYERS?

It has already been pointed out that the central market in New York a few decades ago served the retail outlets by sending its supplies through secondary markets. In other words, sales in the central market were mostly in large units to jobbers who moved the supplies to another market area before breaking them up into small lots for sale to the retailers.

Is it still necessary that the central market confine itself to large-lot selling or should it sell in both large and small lots to whatever jobbers and retailers care to buy there? It should be borne in mind that if such a market sells only in large lots, most retailers cannot

buy there, and the products will necessarily move through at least two successive markets. Should a system of definitely planned successive markets be established, or should it be planned to have supplies handled as far as possible in only one central market between the city limit and its retail outlets?

Some assistance in answering this question can be obtained by referring to the trend within New York's present central market. Several years ago when railroads brought in practically all supplies, sales in the central market by the receivers were mostly in large lots. From the piers where the first sales were made, the produce was hauled to the nearby Washington Street jobbers' stores or to some other jobbing market. But when increasing quantities began to be brought in by motortruck it was possible for supplies to bypass the large-lot seller and go directly to the jobber. That is, jobbers were in a position to enter the receiving business and did not have to depend entirely on other receivers for their supplies. This tendency of supplies to bypass the former receivers continued to the point where larger and larger quantities were going around the established market directly to outlying markets, to out-of-town buyers, and to large-scale retailers. In other words, competitive channels of distribution began to develop.

When this development came, the established channel of distribution found it increasingly difficult to move supplies through a succession of markets. Jobbers became receivers. Receivers, who formerly sold only in large lots, began to sell in small lots as well. Trucks moved their supplies directly to the former jobbing section of the central market and, with increasing frequency, rail receipts began to be moved to this section instead of being sold first on the piers.

These same trucks made it possible for retailers from a wider and wider area to come directly to this changed type of central market. Some receivers resisted the change and tried to continue to sell only in large lots, but the trend continued. Competition was forc-

¹¹ KIMBALL, CARL W. RELOCATING, DISLOCATING, AND DECENTRALIZATION OF PRIMARY WHOLESALE MARKETS. Unpublished report. September 1938.

ing a change and motortruck transportation was facilitating it. Slowly but steadily wholesaling and jobbing were being merged, until the present situation has resulted. There is no longer a definite distinction between wholesalers and jobbers, because practically all dealers in the central market (with the exception of the auction companies) now sell in any quantity, large or small, as was pointed out on page 29.

It was further pointed out on page 36 that 60 percent of a representative group of retailers interviewed throughout the city obtained all or part of their fruits and vegetables in the Lower Manhattan market, even though the market is at one edge rather than near the center of the city, and in spite of all its congestion and delays. Of the produce distributed from the present central market to all parts of New York City, 40 percent moves directly to independent retail outlets. If sales to chain stores are included, more than 50 percent of all sales in the present central market to buyers within the city are made directly to retail organizations.

From the above discussion it is evident that dealers who operate in the present central market are now selling in both large and small lots. That they wish to continue to do so was emphasized when a committee representing the trade recently voted 10 to 1 against separation of wholesaling and jobbing in any new market that might be built. Many receivers state definitely that they could not give up their sales in small lots and still remain in business. That retailers, in increasing numbers, want to go directly to the central market is evident by their growing practice of obtaining supplies in this way.

The result of opening a market to buyers of both large and small lots has been to decrease the number of hands through which the produce passes between producers and consumers and thereby to reduce the margins of handling. Although it costs the receiver more to make a large number of sales in small lots directly to retailers than to do entirely a wholesale business, he can do it for less than

the combined cost of wholesaling and jobbing through two separate dealers plus the cost of cartage between the two. During the decades of rapid expansion in commercial production and marketing of fresh fruits and vegetables, receivers were accustomed to a liberal margin or profit and, in general, were satisfied to have jobbers do the work of supplying smaller buyers. But conditions have changed.

The answer to the question as to whether or not sales in the original receiving market should be made directly to retailers can no longer be found solely in the preferences of the trade. The situation has developed to the point where it is becoming increasingly evident that sales must be made in this way if the existing channel of distribution is to retain its present importance. If supplies are first unloaded at some point where they are sold in large lots only, from there trucked to another area where they are sold in smaller lots, and some of them perhaps moved from there to still another market to be resold before they reach the retail store, the total cost of handling through all these markets and through all these cartage operations makes the cost of distribution between the city limits and the retail stores so high that such a distributive channel finds itself subjected more and more to severe competition from other channels.

That the competition is already very keen and the pressure on the existing system very great is evidenced by the views commonly expressed by the dealers now operating in the market. Receipts from producing areas are tending more and more to bypass what has heretofore been thought of as the regular channel of distribution. Chain-store organizations have established warehouses at centrally located points with rail connections so that supplies arriving from producing areas by either rail or truck can be delivered directly to the floors of these warehouses and moved from there directly to the retail units.

The cost of handling supplies in this way is materially below that of handling through

the existing complicated succession of markets in New York, and the only way that the New York trade and the independent retailer can be expected to compete satisfactorily with other channels of distribution is to cut out every possible unnecessary operation within the marketing system and have supplies move as directly as possible from the original unloading point to the retail outlet. The system of wholesale markets must be made as efficient as any other channel of distribution if it is to avoid declining in importance.

Therefore, since the trend of the trade is toward allowing sales to be made in any size unit within the market, since dealers insist that they be permitted to sell this way, since retailers want to buy directly in the central market, and since the most efficient method of distributing produce is for it to move as directly as possible between the original unloading point and the retailer, being subjected to a minimum of handling and cartage, it seems imperative that in any central market which may be established to serve New York City the sales should be made to all types of buyers in both large and small lots as the buyers wish.

MARKETING SYSTEM NEEDED

It becomes evident that New York City needs one central market for handling most of its supplies of fruits and vegetables, even

though some of the commodities will continue to move to decentralized or specialized markets. The point has been made that such a central market should be open to buyers of both large and small quantities so that the products will not have to pass through a succession of secondary markets. Previously, it has been shown that the present central market is inadequate.

In working out a plan for an improved central market, past trends should be considered, present needs met, and future developments anticipated, to the end that any expenditures on market facilities be made with a view toward having such facilities as flexible as possible. For example, if the central market could be so located that it would not only at present serve as a central market for the entire city but could likewise serve as one of two or more decentralized markets if such markets should become necessary in the future, there would be a real advantage. Similarly, if the market could be so designed that the facilities will be flexible enough to permit adaptations to meet changing trade practices, there would be a further definite advantage.

In the following pages attention is given to the specific kind of central market that should be provided, and its lay-out, equipment, method of operation, and location. The economies and other advantages to be gained thereby will be pointed out.

HOW THE SYSTEM CAN BE IMPROVED

Essentials of a Good Market

As it has become evident that New York needs one central market open to all types of buyers for handling most of its fruits and vegetables, the logical question to be taken up next is, Just what kind of a market is needed? How should it be constructed, designed, equipped, and operated so as to correct as many evils of the existing market as possible and distribute supplies in the most efficient way? To accomplish this, the following essentials, or principles, should be taken into consideration.

COMPLETENESS

The market should be complete in that it should handle a complete line of fruits and vegetables. To obtain such a variety the market must be open to all transportation agencies on an equal basis, and should handle receipts by rail, motortruck, and boat. The market should be open to all types of dealers and to all commodities from all parts of the country. This completeness is necessary if buyers are to be able to obtain within it a full line of goods. No market should have its supplies restricted to only one method of transportation. Nor should any situation be created which would make it necessary for jobbers and retailers to visit several areas to obtain the complete variety of fruits and vegetables they need.

SUITABLE DESIGN

If a market is to operate efficiently it must be carefully designed. In it there should be

ample space on sale platforms, or in individual stores, or both, for the unloading, display, storage, and sale of supplies. If store buildings are provided, they should have both front and rear entrances and be so arranged that each end of every store will open on a street. The stores should have covered platforms at both front and rear; full-size basements for storage (both common and refrigerated if needed), washing, repacking, ripening, etc.; mezzanine offices overlooking the sales floors; and elevators or conveyors to connect the basement and the first floor. The floors of the sale platforms and stores should be at the height of railroad-car floors and truck beds, to facilitate the movement of produce between them and transportation agencies in a way that will result in the least bruising and injury to the products.

All streets within the market should be at least 100 feet wide so that trucks could back up to both sides of the sale platforms, including both front and rear of stores. This would make possible the loading and unloading of a maximum number of trucks at any one time. Adequate parking areas should be provided for trucks that are not ready to load or unload.

Another important factor in design is that of providing for direct unloading from railroad cars, as well as motortrucks, on the sales floor. Insofar as possible, it should not be necessary for supplies arriving by rail to be moved by motortrucks from the railroad to

the sales floor. To this end, railroad tracks should be laid along both sides of the sale platforms and along one side of the store buildings. In all cases where tracks are laid beside the buildings, paving should be level with the top of the rails so that, when the railroad cars have been unloaded and removed, trucks could use the same space.

It is desirable that the market be so located that it can be completely enclosed with fences and gates to make possible the regulation of deliveries and the enforcement of selling hours, and to expedite the gathering of information on the volume of current receipts. This, of course, can be done only if the market is located in an area that can be closed to non-market traffic.

PROPER LOCATION

Several factors must be taken into consideration in selecting a desirable location for a central wholesale fruit and vegetable market. First, the market should be so located that supplies arriving over all railroads can be moved into it. Rail connections are an absolute necessity. Second, the market should be located conveniently with respect to highway transportation. It should be easy to reach from all highways that are important in bringing in supplies. From it, arterial streets should radiate in all the directions from which buyers come.

In addition to being conveniently located for all transportation agencies moving supplies both to and from it, the market should be situated at or near the point which is the shortest average time-distance from all buyers that use it. That is, it should be located as near as possible to the center of consumption in order that supplies may move as far as possible toward the final consumers before leaving the original transportation agency and that buyers may be able to make their purchases in as short a time as possible. Locating the market too far away from this center of consumption is likely to lead to

the establishment of intermediary markets between it and the retailers, thereby tending to increase the cost of distribution.

A fourth and final factor of considerable importance in choosing a location is the ability to obtain a large area of land at a reasonable price. As the products must be handled mostly on the ground floor, a large acreage is required for the efficient laying out of a market. Furthermore, provision should be made for future expansion. As land is such an important factor in an efficient market, it must be obtained at as low a cost as possible. Otherwise the charges for the use of the market will be unnecessarily high.

It is difficult to find one area that perfectly meets all four of these requirements. Nevertheless any area should be selected only after due consideration has been given to each of these factors, and it should, insofar as possible, meet the conditions specified in all of them.

REASONABLE COST

In any market only necessary facilities should be provided. These should be plain and relatively inexpensive. Additional office space, auction rooms, etc., can be provided above the store units or sale platforms without requiring any additional buildings. In many markets there has been much needless waste of funds in providing unnecessary facilities and construction materials. Such expense simply adds to the rental charges assessed on the industry. It should be remembered that nothing is gained if the apparent savings through efficient lay-out are offset by providing facilities so expensive that the carrying charges amount to as much as the savings effected. Modernistic buildings with round corners, glass bricks, marble wainscoting, unnecessary additional stories, and elaborate utilities may perhaps be decorative, but there is little reason for assessing charges for such unnecessary items against the cost of distributing food.

EFFECTIVE PRICE MAKING

A good market should not only be located and laid out in such a way that it will take care of the physical movement of produce, but it should also make possible the proper operation of the price-making forces. An important function of a market is so to focus supply and demand that the correct market price will be established. To this end any market that is set up should concentrate supplies and buying power and be so regulated and operated that the price-making mechanism can operate efficiently.

SOUND MANAGEMENT

No matter how well a market has been designed, how complete it is, or how perfect its location, it cannot function in the best possible way unless it is well managed. It should be so managed that it will operate in the public interest without discrimination against any type of dealer or buyer, against any form of transportation, or against produce from any State. Charges levied on the industry for the use of the facilities should provide only for cost and maintenance and should not be designed to produce a profit for any non-market purpose. Al-

though dealers who operate within it should be allowed the maximum practicable degree of individual initiative in conducting their respective businesses, the market management should be strong enough to assist the industry in enforcing desirable regulations and stopping practices that are an unnecessary burden on the cost of distribution.

In order that the market may so operate, its board of directors or other managing agency should include representatives of each of the groups which have a direct interest in it—shippers, dealers, buyers, and consumers, as well as the appropriate agencies of government.

The above is a general discussion of the essentials of a good market. The principles here enunciated would apply to a terminal market in almost any city. In the following pages these principles will be applied to the situation in New York for the purpose of pointing out exactly the kind of facilities needed, where they should be located, the kind of management and regulations that should be provided, and potential savings that can be made. Some attention will likewise be given to the question of getting concrete action toward accomplishing the results that are indicated to be desirable.

HOW THE SYSTEM CAN BE IMPROVED

Why Reorganization of the Present Market Will Not Do

When market improvement is proposed, the first consideration would naturally be given to the possibilities of renovation or reorganization of facilities at the present location. That is the place where marketing has been done for generations, and where everyone is accustomed to doing business; it is logical to consider it. Furthermore, reorganization of an existing market would ordinarily be less expensive and easier to do than rebuilding or relocation.

As would be expected, many proposals have been advanced in recent years for reorganization of the facilities and the methods of operation in the Lower Manhattan market, or more particularly, of the railroad piers and the Washington Street store section. The proposals have included a great number and variety of plans for utilization of these facilities. Some would merely reorganize the methods of operation in the market and leave the present facilities unchanged except for minor alterations. Others include extensive enlargement and consolidation of pier space, but with the Washington Street store section remaining practically unchanged. Still other plans would utilize the present piers, but they call for extensive modification or even a complete rebuilding of the Washington Street market.

What would be the result if such proposals were put into effect? Would it be possible to make this market adequate for the handling of New York's fruit and vegetable sup-

ply and one which would embody the essentials of a good market? Specifically, how much would it reduce the total cost of distribution of fruits and vegetables in New York, and how would the amount of this reduction compare with the total net savings which might be made by some other forms of market reorganization? The problem is not just to make some saving, but to effect the greatest possible saving in the total bill for distribution of this part of the city's food supply, and at the same time to provide for intangible but necessary factors like price making, and the prevention of waste and spoilage due to exposure or unnecessary handling.

REORGANIZATION OF METHODS IN PRESENT FACILITIES

Inquiry might first be made into the possibility of merely reorganizing the practices and operation of the market in the present location and with existing facilities, to see what savings might be made without large expenditures for remodeling or rebuilding. It is often suggested that if the receiving and selling in large lots were all put back on the piers, as was the situation in former years, many of the problems would be solved.

It is generally recognized and agreed that if a large volume of produce were again to be displayed and sold on the present piers, operations would necessarily have to be limited to wholesale or large-lot selling.

There would be insufficient space on the pier floors to accommodate all the displaying and selling operations of the entire Lower Manhattan market, and it would be a physical impossibility to assemble and deliver all the purchases, in both large and small quantities, made by the buyers who now come there. In fact, during past years when most incoming supplies were handled on the piers and sales were made only at wholesale, it was even then impossible for buyers to assemble their own purchases from the pier floors, and the special pierhead delivery was developed. Obviously, it would now be impossible to accommodate on these same piers all the retailers and other small buyers, in addition to handling the wholesale operations which alone formerly taxed the capacity of the pier floors.

There are some who recommend that wholesaling and jobbing be separated. What would be the result if this were done by placing all receipts on the piers for the first sale, to be made in wholesale quantities and leaving Washington Street as a jobbing market as was the situation in years past?

COMPARATIVE COST OF SELLING ALL RECEIPTS AT WHOLESALE ON THE PIERS

It would be physically possible to stack all receipts of the present Lower Manhattan market on the railroad piers that are now being used. About 64,000 carloads annually are already being unloaded on these piers from car floats. Another 14,000 carloads of rail receipts now being trucked to Washington Street from team tracks could be placed on the piers, half by car floating and the other half by trucking. The 43,500 carloads arriving by truck might be unloaded on the piers with perhaps no greater difficulty than is encountered now when they are being unloaded in Washington Street. About 7,000 carloads of the boat receipts, principally green vegetables, would probably be trucked to these piers for sale. This would place 128,500 carloads on the railroad piers each year (not counting auction

samples brought from the boat piers) and would leave 25,000 carloads to be distributed directly from the boat piers.

With this 153,500 carloads stacked on the rail and boat piers ready for sale, the next operation would be the selling. Wholesale dealers who operate in this way, selling minimum units of 20 packages, would find some of their expenses reduced. Therefore, their present average margin of about \$46 per carload (excluding the items of cartage and portorage) might be reduced to, say \$40. On this basis the total annual bill for the first sale of the 153,500 carloads on the piers would be \$6,140,000.

After the sale had been made by the original receiver, the next operation in moving the produce on its way toward the consumers would be to get it off the piers. But the cost of getting it off would depend on where it was going. About 27 percent of all receipts in the market, auction and non-auction, is now bought by jobbers within the market who buy mostly in wholesale quantities and sell in small lots. Receivers of non-auction products sell more than 40 percent of their volume in units of less than 20 packages. It appears, therefore, that more than one-half of the present sales to all buyers outside Lower Manhattan are made in less than 20-package lots. About 30 percent goes directly to independent retailers, relatively few of whom could buy at wholesale. Also many jobbers and out-of-town buyers simply cannot purchase 20 packages at a time of every commodity on the market. The greater part of the buyers who now purchase in Lower Manhattan in less than 20-package lots would still find it advantageous to do so on most commodities. As a conservative estimate, it would appear that not more than 55 percent of the total sales on the piers could be made in large lots directly to buyers located outside of Lower Manhattan; and the other 45 percent, or 69,075 carloads, would be handled through Washington Street stores.

At present cartage rates, the cost of truck-

ing these 69,075 carloads from the piers to Washington Street would be \$2,555,775. Of the remaining 84,425 carloads moving directly from the piers out of the market without going through Washington Street stores, 30,000 carloads of auction sales would probably continue as at present to be picked up by the owner's cart with the O. C. charge of \$600,000.

This would leave 54,425 carloads to be moved from the piers directly to the trucks of buyers coming from outside the market. The present volume handled in this way is 6,500 carloads a year. Even for this small quantity buyers' trucks do not go directly on the piers to pick up their purchases, but wait outside to have them carted off the piers to their trucks by the pierhead-delivery method, at a cost of \$31 per car. If such cartage is necessary for 6,500 cars, it would be even more necessary for 54,425 cars; so the cost of this pierhead delivery at present rates would be \$1,687,000 annually. Thus the total cost of getting the 153,500 carloads off the piers to buyers' trucks or to Washington Street would probably be about \$4,843,000.

With only 69,075 carloads from the piers and 1,000 carloads from farmers' markets moving to the Washington Street stores, congestion in that area would be somewhat reduced. For this reason the present portorage bill of \$10 per carload might be reduced to, say, \$7, so that the total portorage on the 70,075 carloads handled in Washington Street would be only \$490,525 instead of the present figure of \$1,340,000. On the basis of present jobbing margins (\$65 per car), the total annual bill charged by jobbers in Washington Street for their services on the 70,075 carloads handled by them under the new set-up would be about \$4,555,000.

With all wholesaling on the piers and all jobbing in Washington Street, some supplies could be moved with less handling than at present; but others, particularly motortruck receipts, would receive more handling. Therefore, there is no reason to assume that the new arrangement would bring any

decrease in waste and deterioration of produce.

Probable costs of handling through the present market if all receipts were first sold in large lots on the piers are summarized in table 12. These costs are based, of course, on the assumptions stated above. From this summary it appears that total annual cost of handling in the Lower Manhattan market through a set-up such as that just described would be about \$22,400,000.

TABLE 12.—*Estimated costs of handling through the Lower Manhattan market under conditions assumed on pp. 65 and 66.*

Type of cost	Carloads	Rate per car	Total cost
	<i>Number</i>	<i>Dollars</i>	<i>Dollars</i>
Cartage from boat piers to railroad piers.....	7,000	41	¹ 287,000
Cartage from Manhattan team tracks to railroad piers.....	7,000	41	¹ 287,000
Cartage of auction samples from boat piers.....	15,000	3	¹ 45,000
Pierhead delivery from piers.....	54,425	31	² 1,687,175
O. C. delivery from piers.....	30,000	20	¹ 600,000
Cartage from piers to Washington St.....	69,075	37	² 2,555,775
Cartage from farmers' markets to Washington St.....	1,000	35	¹ 35,000
Portorage in Washington St. market.....	70,075	7	³ 490,525
Operating margins of wholesale receivers.....	153,500	40	³ 6,140,000
Operating margins of jobbers in Washington St. market.....	70,075	65	² 4,555,000
Rent of stores and offices.....			¹ 1,400,000
Rent and maintenance of piers, and unloading (paid by railroads).....			¹ 1,225,000
Waste and deterioration due to inadequate facilities.....	154,500	12	¹ 1,854,000
Value of time lost by trucks.....			¹ 1,223,000
Total.....			² 22,384,475

¹ No change from present costs.

² Increase over present costs.

³ Decrease from present costs.

The corresponding costs under present conditions and arrangements are estimated at about \$21,600,000 (table 10). It appears, therefore, that instead of making a saving in the costs of distribution, a proposal for putting all incoming receipts on the present piers for first sale in wholesale quantities would result in an added cost of around \$800,000 per year for handling these products

through Lower Manhattan. Primarily, this is due to the fact that such a market could not fulfill an essential requirement of completeness—it could not supply all types of buyers. Sales in small lots would have to be made in a supplemental market at a separate location. Therefore, a much larger quantity would have to move through the hands of additional dealers. There would also be considerable additional cartage because of the necessity of transferring a large part of the motortruck receipts from point of initial unloading to the place where they would be sold to the smaller buyers. It appears that not enough advantages would be gained in other respects to offset the added cost of these operations.

ENLARGEMENT OF PIERS

Many of the proposals for revamping the present market go beyond mere reorganization. They involve extensive additions to the present piers to provide a larger area for accommodating the great number of trucks and wagons that now transport nearly one-third of all supplies into the market and that haul the entire quantity away. It is theoretically possible to expand piers enough to give all the area needed, but none of these plans has proposed that the entire market operations be conducted there, for no matter how greatly the piers might be enlarged they would still be surrounded on three sides by water and would be accessible to motor-trucks from only one side.

It is generally agreed that this one approach would be inadequate to accommodate the thousands of trucks that come to the market, and the plans for enlargement of the piers have contemplated that such facilities would still be used only as a distinct wholesale market for initial sale in sizable lots and that smaller trade units would be continued by jobbers in the Washington Street area.

Some savings could probably be made by changes in practices or methods of handling on the piers and by different ways of delivery from the piers to the Washington Street

stores, but such savings admittedly would be small. The market would also still lack the fundamental essential of completeness. A large part of the supplies would still have to be moved to supplemental jobbing markets before reaching the retailers and other small buyers. Although there would probably be some savings, there would be added costs, and the fundamental shortcomings of the system would not be corrected. Therefore, it appears that, after making allowance for the capital investment necessary for pier enlargement, the total bill for handling would not be materially less than the estimated costs of doing all wholesaling on the present piers, as outlined above.

REVAMPING WASHINGTON STREET

Other proposals for improvement in the Lower Manhattan market have involved varying degrees of revamping the Washington Street store section. These plans have ranged all the way from a few minor alterations to a complete demolition of all present structures and a rebuilding of the entire area.

What might be the results of attacking the inadequacies of this part of the present market? Most of the present costs in which major savings might be made are those due to two general conditions in the market area: (1) The many scattered and unrelated places of arrival of produce, which condition necessitates such a large amount of hauling and handling for assembly, sale, and delivery; and (2) the inadequate space and facilities in which to perform these operations. Any attempt at market renovation that does not correct these shortcomings in the present set-up cannot effect the greatest net savings in total cost of distribution of fruits and vegetables in New York. Revamping or even rebuilding of only one part of the system cannot correct the evils that result from faulty adjustment of the system as a whole.

It might be possible to enlarge and rearrange the piers to provide for unified receipt of all supplies, but a pier market alone has such physical limitations that it could not

perform the entire distribution to all types of buyers. Similarly, rebuilding in Washington Street would not in itself make a complete and efficient market, unless it provided for direct receipt of supplies. For regardless of the design of any market structures that might be built, much of their efficiency would be lost if supplies had to be unloaded at other points and then hauled to them. Such developments would fundamentally be mere makeshifts, and would not meet the essential requirements for a complete market.

Instead of a piecemeal attack on the separate parts of the present market, a more effective program might be to build a completely coordinated and adequate market in the present market district, which would pro-

vide for direct receipt and handling of all supplies. This would mean a tremendous investment for the land that would be required. Would the resulting savings in market operations more than offset the carrying charges on such an investment, if it were made? A later section of this report deals with the possibilities of such a plan as compared with the costs through the present market, and as compared with results that might be obtained from similar measures in other parts of the metropolitan area. But before such comparison can be made, it is necessary to consider the kind of facilities needed for a market that would be adequate to serve New York, and to investigate the possibilities of alternative locations.

HOW THE SYSTEM CAN BE IMPROVED

Kind of Facilities Needed

Any reorganization or possible relocation of the primary marketing facilities for fruits and vegetables in New York involves many problems. Where should such a market be located? How much would it reduce the costs of distribution? How should it be operated? These and many other questions must be considered.

But first it is necessary to determine just what the market itself should be—what facilities would be needed, how these facilities should be arranged and operated, and how much space they would require. The greatest savings in the total cost of distribution through the present market are to be made through more efficient market organization and lay-out. Location is of secondary importance, because a well-arranged and adequate market might function almost equally well in any one of several locations. The matters of greatest importance are to have within the market itself the right type and size of buildings and other facilities, and to have them laid out and operated so as to provide for the most orderly and efficient sale and movement of goods between incoming carrier and outgoing trucks.

It will first be assumed that a location can be obtained where the most efficient lay-out and operating conditions can be secured. Incoming supplies should be unloaded directly at the place of initial sale to save hauling and handling between unload point and place of sale. It would not be feasible to

locate all stores and sale platforms along the water front for direct unloading from car floats, because of the length of shore line that would be required. Instead, the cars should be pulled off the car floats over float bridges at the market site, and switched directly to the various stores and platforms for unloading. This would make it possible to handle all incoming rail receipts on land.

Several economies are to be made from such an arrangement. Car unloading is less expensive on land than from car floats. Cars that are only partly unloaded can be held on tracks in the market area instead of being floated back and forth. Most important, probably, is the simple mathematical proposition that many more trucks can approach a platform or building that is accessible from all sides than one that is partly surrounded by water. Consequently, incoming and outgoing motortruck movement can be handled much more quickly and efficiently from such a location.

It will be shown later that a site could be obtained where a market could be located entirely on land, with direct rail connections by land and by float bridge from car floats.

If the market is near or adjacent to the harbor water front, a dock might be provided for such ships as may be able to discharge their cargoes at the market, but it is not probable that all boat receipts of fruits and vegetables could be received in this way. Ship cargoes are usually made up of many

items, most of which would have to be discharged at the regular piers of the various steamship lines. The vessels normally remain in harbor the shortest possible time, and it is not feasible to have them towed from one point to another within the harbor to make deliveries of separate products. Under any system of market reorganization it is probable that most ships carrying fruits and vegetables would necessarily discharge such cargoes at their own piers, and that there would be continued need for special methods of sale and delivery of such products similar to those now employed.

BUILDINGS AND FACILITIES

Assuming, then, that proper location and sufficient area can be obtained for whatever type and size of market might be needed, the following physical facilities are suggested as approximate requirements for a central market to serve the New York area:

- 225 store units, complete with offices, basements, and cold-storage room where needed.
- Platform space for unloading and display of 500 carloads for auction or private sale.
- 250 additional offices, for members of the industry who do not operate stores, and for allied interests.
- Auction salesrooms.
- Cold-storage plant.
- Team tracks and yards for several hundred cars, with supplemental switching tracks; rail connections to each store and sale platform for direct unloading of cars; direct rail connections with rail lines, and float-bridge connections with car floats.
- Streets not less than 100 feet in width, at each end of every store and around all sale platforms, connecting with city arterial streets and thoroughfares.
- Parking areas totaling not less than 450,000 square feet (space for about 500 trucks).
- Fencing around the entire area, with gates at all entrances.
- Available area for farmers' market.
- Available area for expansion.

STORE UNITS

It is suggested that store units be approximately 25 feet wide and 60 feet long, with a 20-foot covered platform at either end. This

would make an over-all length of 100 feet, of which 60 feet would be enclosed. These store units might be built in groups of about 20 each, with continuous platforms and floors at height of truck beds and car floors. Each store unit should have a mezzanine office, a full basement with elevator or conveyor to store floor, and provision for refrigerated room if desired. A mezzanine office is usually found to be more desirable for a fruit and vegetable store than either a first- or second-story location, because it provides a view of the sales floor and fairly direct supervision of sales and deliveries without actually taking up any ground-floor space.

Firms that want larger store space could take two or more adjoining units without partition walls. A store with a total measurement of 25 by 100 feet would probably provide sufficient space for most of the dealers and would be preferable to a greater width for single units. Multiples of this width could then be used for larger enterprises.

Alongside the platform at one end of the stores two or more railroad tracks should be laid for direct unloading of cars to the stores. Cars on the outer track would be unloaded through the doorways or between the cars of the inner line. This would furnish track space for an average of at least one car to each 25-foot store unit at each shift of cars. Platforms at the opposite end of the stores would then be available at the same time for the unloading of incoming trucks. Railroad tracks should be paved level with the top of rails, so that after the railroad cars are removed, trucks can back up to both platforms for unloading or loading. These platforms would accommodate 5 or 6 trucks per store at one time, or a total of 1,200 to 1,300 trucks at the combined platforms of the entire store section of the market. Streets between groups of stores should be not less than 100 feet in width, to permit trucks to back in to the store platforms along either side and still leave room for traffic.

SALE PLATFORMS

Large enclosed platforms, also at height of car floor and truck bed, should be provided for the concentration of products for private sale and for auction display. An inside width of 110 feet seems to be satisfactory for such structures. With a 20-foot middle aisle the length of the platform as inspection and sale space, this width would leave a 45-foot section along either side for unloading and display of merchandise. The platform should be enclosed with a series of sliding doors, and have additional 10-foot covered loading platforms around the entire building. Double railroad tracks should be laid along both sides of the building for car deliveries, with tracks paved level with top of rails to permit trucks to use the platforms after cars are removed. Streets 100 feet wide around the platforms would allow trucks to be backed in from all sides, making continuous tailboard loading or unloading space around the entire building. Loading platforms of both the store units and the sale buildings should have a continuous step at half the height of platform, to provide ready access at any point. This step would not interfere with either trucks or cars.

The sale platforms might be built at any length to conform to the shape and general features of the market area. As a matter of traffic convenience, they should not be longer than city blocks, with as many separate buildings as needed to fulfill the total requirements for platform space. A total length of 2,400 feet would provide for the handling and display of 400 to 500 carloads, according to commodities. It would furnish trackage for placing more than 200 cars at the platforms at one time, and would provide tailboard space for more than 500 trucks when railroad cars were removed.

OFFICES AND AUCTION ROOMS

Additional offices, and auction rooms, should be provided on the second floors of the store and platform structures. Two

offices, each 25 feet wide, could be provided, above a store unit, with corridor between, or 200 offices above 100 stores. Auction rooms and offices should be located over the auction sale platforms. As stated before, the equivalent of about 250 single office units are occupied in the present Lower Manhattan market by the industry and allied interests in addition to the offices that are in stores.

COLD-STORAGE PLANT

A public cold-storage plant in the market area would be desirable, but the advisability of erecting a new building would depend on the adequacy and accessibility of existing plants. A suitable location should be planned within the market, but actual erection and operation of such a plant could be left to commercial cold-storage enterprise. If a cold-storage plant is erected, provision might be made to have refrigeration supplied from this plant to the individual cold-storage rooms in basements of stores.

TEAM TRACKS

Trackage should be provided within the market area for several hundred cars of produce, but it is not recommended that space be provided for the maximum number of cars of all such products that might be received at one time. Many of these cars can be held in the regular hold yards of incoming carriers as in the past. Also, there is some question whether a new market area should be expanded sufficiently to provide for handling watermelons and juice grapes, for which special yards and concentration points have already been established. Certain advantages would be gained by having these products handled within the central-market area, but, in view of the channels through which these commodities are sold and distributed, these advantages might not be enough to justify the additional size and cost of the market area that would be required.

PARKING AREAS

A highly essential part of a complete and adequate market would be large parking areas for business cars and for trucks when not engaged in loading or unloading, thereby leaving the street and store-front space for "working" trucks. Without such provision each incoming buyer or trucker pushes his vehicle just as far into the market as he can find a space, and leaves it there even though it may be hours before he expects to load. Other trucks are prevented from using these spaces, and must wait a chance for other locations or have their loads moved by hand portorage. The streets and loading spaces in the market are needed for the job of transferring several hundred carloads each night between incoming and outgoing transportation.

All waiting or non-working vehicles should be kept out of the streets, and the only way this can be done is to provide definite and ample parking areas.

FENCES AND GATES

The entire market area should be enclosed with a substantial fence, with wide gates at all entrances, for enforcement of regulations regarding hours of selling and delivery and hours of admittance of incoming trucks, and to facilitate the assembling of information on the volume of each night's receipts by truck.

FARMERS' MARKET

A farmers' market probably should be provided, with covered display platforms. The driveway along one side of each platform should be reserved for farmers' trucks only, and the alternating driveway should be open for buyers.

The size and area of a farmers' market to be developed in connection with a new central terminal market in New York would depend in part upon the effect of such a central market on future operations of the secondary markets where municipal farmers' markets

are now located. If, for example, the operations of the Wallabout market would be transferred to the new central market, presumably the Wallabout farmers' market would likewise be transferred. The requirements for a farmers' market are relatively meager, other than the land it occupies. As the size of the area that will be needed for this use is not known, it has not been included in the accompanying estimates of land requirement for a central market. In a consideration of location and total area needed for a market, additional provision should be made for whatever farmers' market facilities are decided upon.

AVAILABLE AREA FOR EXPANSION

In the selection of a market site, consideration should be given to the possibilities of obtaining additional land if needed for future expansion.

Population trends for the New York region have been estimated as follows by the Regional Plan Association, Inc.¹²

Within the past few years there have been definite signs indicating a permanent slowing up of population growth. . . . Planning activity should now look forward to a total population in the New York region of about 16½ million by 1960, . . . which is not far from the maximum population expected. In New York City the estimated population for 1960 is 9,384,000 . . .

A wide divergence obtains in the separate boroughs. Manhattan is expected to continue to lose population but at a slower rate than in the decade preceding 1930. The expansion of commercial areas and the desertion of blighted areas will be partly offset by the gains due to improvements such as the East River Drive. By 1960 this borough will probably have a population of about 1,727,000, or a decrease of 8 percent between 1930 and 1960.

Brooklyn is expected to experience a 30 percent gain in the 30-year period. There is comparatively little open space in the borough for expansion, and the older areas are being deserted. Its growth will probably continue, however, by the replacement of single-family and two-family houses with apartments and with the rehabilitation of some of the older areas.

¹² See reference cited in footnote 4. p. 18.

Large undeveloped spaces in the Bronx and Queens permit the continued growth of these boroughs particularly as rapid transit is provided. Richmond will continue its conservative growth until rapid transit to Manhattan is supplied, at which time a faster rate can be expected.

The city as a whole, which gained 23.3 percent from 1920 to 1930, is expected to grow only 13 percent in the present decade and 11 and 6 percent respectively in the following 2 decades, making a gain of 32 percent for the 30 years from 1930 to 1960.

ARRANGEMENT OF FACILITIES

The arrangement or lay-out of the facilities in a market would depend, of course, upon the particular area on which it might be built. In a general way, and subject to variation to fit the shape or operating requirements of any specific site, figure 15 indicates one method of arrangement that might be used.

It should be noted that the store buildings and the sale platforms are of similar type of construction, for the groups of store units are merely long buildings with continuous floors, divided by partitions into store units. Therefore, if it were found that less platform space and more stores were needed, some of the platform area could be divided into individual selling space, either with or without the erection of partitions. Or if common platform selling proved to be more advantageous than separate stores, the groups of store units could readily be converted into open platforms by the removal of the 60-foot partitions that form the store enclosures. Such a market would provide, therefore, a great degree of flexibility to meet future developments.

Some of the products displayed on the sale platforms would later be moved to individual stores, and likewise there would be a certain amount of interchange of goods between stores. This hauling might be done by motortrucks operating at street

level, and a subway transportation system might also be provided to connect the basements of all stores with each other and with the platforms. Platform trucks might be hauled through these subways by electric tractors, and at destination be pushed directly into the store basements for unloading. This would avoid interference with traffic on the streets and would afford protection for perishable products from heat or inclement weather.

All groups of offices and the auction rooms should be connected by enclosed bridges across intervening streets, at the second-floor level. Occupants and patrons of the market could go to and from any of the offices and the auction rooms without going out of doors or descending to the street level.

A possibility for increasing the trackage for rail connections with stores and platforms, or of removing such connections from the streets, would be to build railroad tracks above the one-story structures, unload on the roofs of these units, and deliver to the floors by gravity. Although no specific details of this plan have been prepared, it is understood that the additional cost for construction of building walls to support such tracks would not be excessive.

COST OF CONSTRUCTION

No definite estimates have been prepared as to costs of construction of the facilities that have been listed and described. Some general figures are available, based upon estimates by engineers of the city of New York for similar type of construction in New York City,¹³ and on the costs of comparable facilities in other cities. From these have been prepared the following approximations as to general costs for the

¹³ NEW YORK CITY DEPARTMENT OF MARKETS. PLANS FOR TYPICAL WHOLESALE MARKET IN BROOKLYN. October 1938.

ILLUSTRATION OF A POSSIBLE ARRANGEMENT OF A PRIMARY FRUIT AND VEGETABLE MARKET IN THE NEW YORK HARBOR AREA
 (THIS IS NOT A SPECIFIC PLAN FOR A MARKET IN NEW YORK)

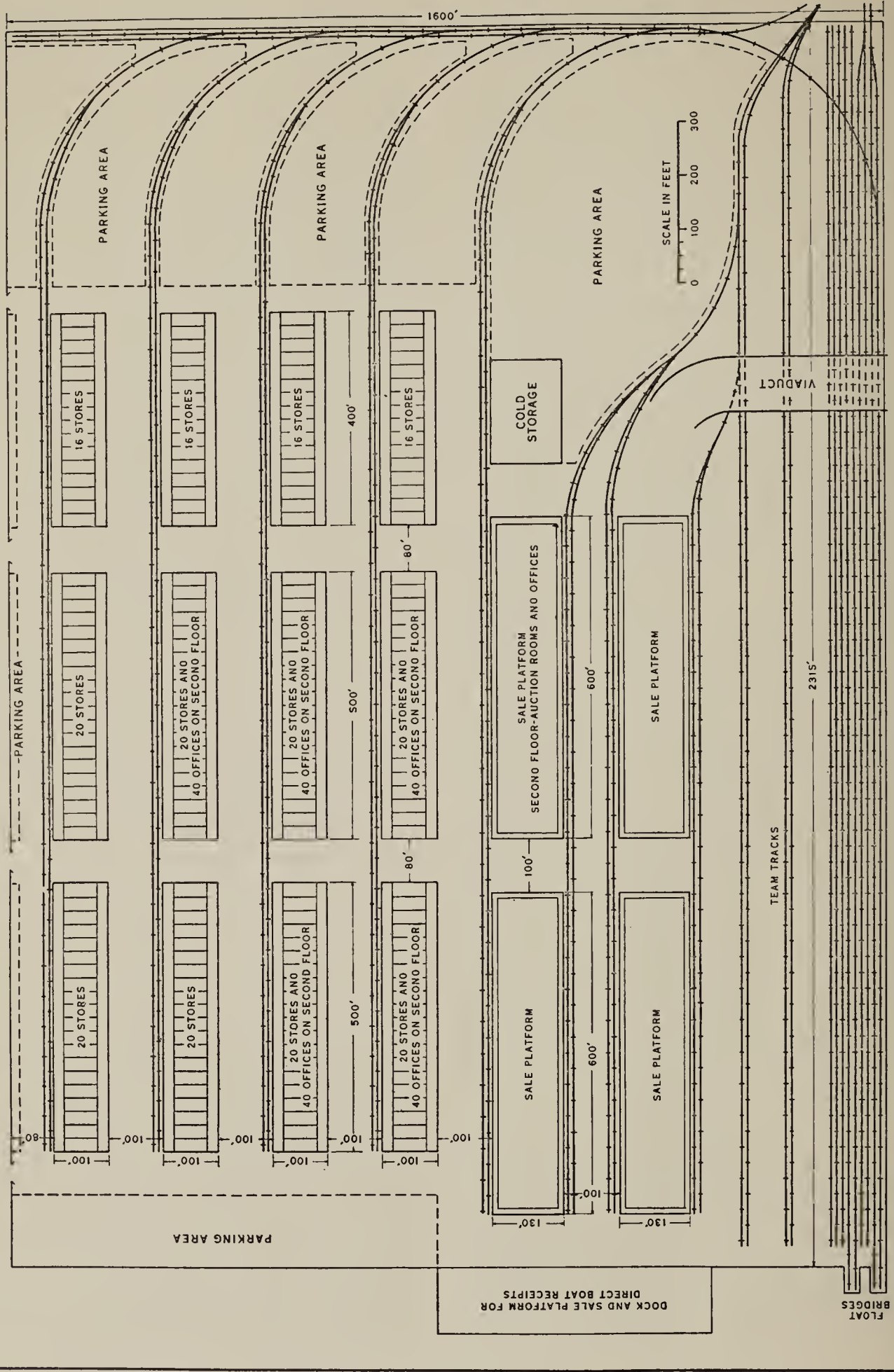


FIGURE 15.

This illustration is merely to show how stores, sale platforms, and other facilities described in this report might be arranged for quick and efficient handling of fruits and vegetables, and to indicate the space that would be required. The area covered by this plan is approximately 85 acres. Much

work and consultation among members of the produce trade, engineers, architects, transportation agencies, city officials, and others—and the selection of a definite site—would be necessary before a detailed lay-out for a new market could be made.

indicated structures and facilities in a modern market. It must be repeated that these figures cannot be considered as actual estimates, but only very general indications derived from other estimates and cost data.

100 2-story store and office units (100 stores and 200 offices on second floor) -	\$2, 500, 000
125 1-story store units.....	2, 000, 000
1 2-story sale platform, 600 by 110 feet (with auction rooms and offices on second floor).....	700, 000
3 1-story sale platforms 600 by 110 feet..	1, 300, 000
Paving and utilities.....	800, 000
Railroad tracks, float bridges, dock, fencing, etc.....	700, 000
<hr/>	
Approximate cost of facilities (not including cost of land)---	8, 000, 000

AREA REQUIRED

The exact area required would depend on operating conditions and the lay-out in any particular location. In general, the space required for the various sections of a market, as indicated in figure 15, would be as follows:

	<i>Acres</i>
225 stores, 25 by 100 feet (562,000 square feet).....	13
4 platforms, 600 by 130 feet (312,000 square feet).....	7
Team tracks, switching tracks, and connections (not including store and platform connections in the streets).....	25
Streets (dimensions indicated on fig. 15)....	30
Parking areas.....	10
<hr/>	
Total estimated land area (not including farmers' market).....	85

With this outline of the type and size of facilities and the approximate area needed for an adequate central market to serve New York, the next point for consideration is location. Where might this extent of acreage be obtained at reasonable cost, accessible to all forms of incoming transportation, and conveniently located to buyers? On the following pages an analysis is made of the possibilities and the advantages and disadvantages of locations that have been suggested in various parts of the metropolitan district.

Where Should The Market Be Built?

GENERAL AREAS

There are three general sections of metropolitan New York in which locations have been proposed for a central wholesale fruit and vegetable market—Manhattan, New Jersey, and Long Island. In Manhattan the proposed sites are along the west side, south of Fourteenth Street. For a New Jersey location most proposals have been for some part of Jersey City or Hoboken, although sites as far removed as Bayonne or the Jersey meadows have been suggested. In this study, consideration has been limited to the district near the Hudson River between Greenville and the entrance to the Lincoln Tunnel. For a site on Long Island, the proposals have mostly been for some location near the East River, between Wallabout Basin and Queensboro Bridge.

PRINCIPAL FACTORS TO BE CONSIDERED

From the standpoint of location there are three fundamental requirements for a city wholesale fruit and vegetable market: (1) Accessibility to incoming and outgoing transportation, (2) shortest average time-distance to buyers, and (3) sufficient area at a reasonable cost. There may be difficulty in finding a place that fully meets all of these requirements, but any site that is selected should come as nearly as possible to doing so.

ACCESSIBILITY TO TRANSPORTATION

Rail

All of New York City except the Borough of the Bronx is located on islands¹⁴ and only two incoming railroads have direct rail freight connections to the city.¹⁵ All other rail lines, except the Long Island Railroad, terminate on the New Jersey shore of the Hudson River or New York Bay, and incoming cars are delivered to all parts of the harbor by means of car floats.

The car floats are immense ferries, each with a capacity of from 10 to 24 railroad cars. By means of float bridges, which bridge the gap between car float and land, cars are quickly run on or off these great ferries. Tugboats pull up alongside, make fast to the floats with massive ropes and push them anywhere within the harbor. They may go up the Hudson River toward the giant spider web of the George Washington Bridge; or down the Bay to the industrial water front of Brooklyn; or around the Battery and up the East River, beneath the 4 mammoth bridges which span that arm of the harbor; or beyond the East River up into the Harlem River, which separates Manhattan from the mainland. All through this great harbor

¹⁴ Manhattan on Manhattan Island, Brooklyn and Queens on Long Island, and Richmond on Staten Island.

¹⁵ The New York Central Railroad to Bronx and Manhattan, and the New York, New Haven & Hartford Railroad to Bronx and Long Island. The Baltimore & Ohio crosses to Staten Island, but for the other boroughs its terminus is in New Jersey.

these tugboats ply back and forth with car floats, between scores of float bridges or water-front freight stations.

During the winter months car-float operations in the Hudson and East Rivers are at times hampered by fog and occasionally by ice. Difficulties from fog are encountered on an average of about 14 days each year, although usually for only a part of each day. Fog would be a greater hindrance on a long haul than on a short one.

Railroad representatives state that fog conditions are less serious in New York Bay than in the rivers, and that at no time during the past 10 years have operations had to be suspended on the Greenville-Bay Ridge car-float interchange.

According to the Coast and Geodetic Survey¹⁶ the speed of the current in the narrow part of the East River, between the Manhattan and Williamsburg Bridges, averages slightly more than 1 mile per hour faster than in the Hudson River opposite Lower Manhattan. Where the East River widens out, however, between the Williamsburg and Queensboro Bridges, the average current is approximately the same as in the lower part of the Hudson River.

The same records of the Coast and Geodetic Survey indicate that the range in rise and fall of the tides is slightly lower in the wide part of the East River than in the Hudson River opposite Lower Manhattan.

When car floats are to be moved only a short distance, as just across the river, a tug may take only 1 float at a time. If the trip is a considerable distance it may take 2, 1 fastened on either side. With 20 or more cars on a float, 40 or more at a trip—almost a train load—these sturdy craft push over the harbor's waters, which have been described as "Nature's Belt Line".¹⁷

¹⁶ MARMER, H. S. TIDES AND CURRENTS IN NEW YORK HARBOR. U. S. Coast and Geodetic Survey Spec. Pub. 111, rev. ed., 198 pp. 1935.

UNITED STATES COAST AND GEODETIC SURVEY. TIDAL CURRENT CHARTS, NEW YORK HARBOR. Ed. 4, Ser. 551. 1939.

¹⁷ HEDDEN, WALTER P. BUILDING A PRODUCE TERMINAL ON SOLID FACTS. Unpublished address before the New York Food Marketing Research Council. June 1926.

Here there are no railroad tracks to maintain, no costly city right-of-way, no street crossings—just a broad waterway leading to the freight stations and rail sidings of the Nation's greatest city. If there is not room at some stations on these densely populated islands to "set a freight car," it is left on the car float tied up at a pier, while the contents are unloaded. Where there are railroad tracks leading to yards, or warehouses, or factories, the float is pushed up to a float bridge, the cars are pulled off on land, and are again on their way. Within the harbor area there are no fewer than 37 of these float bridges, each connecting with inland tracks. Hundreds of thousands of cars a year are moved over this city waterway to bring merchandise and food for the city and materials to supply its industries. New York is well equipped to use these harbor waters, which make it one of the great ports of the world.

The railroads own car-floating equipment and perform the marine operations of making deliveries within the harbor. A number of private companies also maintain terminals for the handling of freight shipments, and they own and operate floats and tugs. These organizations receive cars at the float bridges of incoming rail lines, and float them to the piers or float bridges of their terminals for delivery to consignees. Cars are later returned, either empty or reloaded with outbound freight. This service replaces the marine operations and the terminal handling operations of the carriers. For performing this service the private terminals receive a share of freight charges, in the form of allowances or payments by the railroads for the tonnage handled.

Some of the characteristics and operations of a few of these private or contract terminals have been described as follows:¹⁸

Baltic Terminal, located at the foot of Baltic Street, Brooklyn. It is served by one float bridge and a marginal railroad, and offers house delivery

¹⁸ NEW YORK, NEW JERSEY PORT AND HARBOR DEVELOPMENT COMMISSION. JOINT REPORT. 495 pp. 1920. See pp. 137-138.

for carload and less-than-carload freight, track delivery for carload freight, warehouses for general merchandise, and carload and less-than-carload deliveries for . . . steamship lines docking at its piers. . . . It is served by car floats operated by the New York Dock Company.

The Bush Terminal Company's plant in South Brooklyn extends from Twenty-eighth to Fifty-first Streets. . . . The company has 8 piers, 2 modern loft buildings, 118 warehouses, a marginal railroad and yard, a float bridge, and direct connection with the Long Island Railroad. . . . It is served by its car-float equipment . . .

The Jay Street Terminal. . . . occupies the Brooklyn water front from Gold Street to New Dock Street. It has 9 piers, 10 warehouses, a railroad and a float bridge. It offers house delivery for carload and less-than-carload freight, track delivery for carload freight, warehouses for general merchandise, and sidings for various private industries. It operates its own marine equipment.

. . . Brooklyn Eastern District Terminal, in Brooklyn, from North Third to North Tenth Street. It has seven piers, public warehouses, four float bridges, and a marginal railroad. It offers house deliveries for carload and less-than-carload freight, track deliveries for carload freight, a warehouse for the storage of hay and straw, warehouses for general merchandise, a grain elevator of 500,000 bushels capacity and private sidings for industrial concerns. It is served by car floats operated by the Brooklyn Eastern District Terminal Company.

The cost of floating cars throughout this harbor area is a part of the freight rate, just as any part of the haul from point of origin, or any switching operation. The same freight rate applies anywhere within the free lighterage limits, which include practically all of the harbor area. A car of apples from Oregon, or spinach from Texas, or onions from Michigan, takes the New York City freight rate, regardless of the particular station in the city to which it is to be delivered, just as a car shipped to Chicago or any other city can be delivered anywhere within that city.

A reorganization or relocation of the wholesale fruit and vegetable market would involve changes in the deliveries of the rail arrivals of these commodities. At a location in New Jersey the cars arriving from west of

the Hudson River would have direct land connections, and the railroads would save the expense of the car-float operation. At a location in New York City, either on Manhattan or Long Island, most rail shipments would be transferred across the river or harbor by car float, in the same way that tens of thousands of carloads of other freight are delivered. To each of these locations the freight rates from shipping points are the same.

As with other forms of water transportation, the cost of car floating is determined largely by volume handled per trip. A tugboat can move two loaded car floats at much less cost per car than it can move a single float. Likewise it can move fully loaded floats at less cost per car than when floats are only partly loaded. The car floats are the width of three railroad tracks and for an "interchange" movement, where cars are merely carried from one float bridge to another, they can be loaded with three lines of cars. But at pier stations, where cars must remain on the floats while they are unloaded, it is necessary to have an unloading platform the length of the float, and this is built over the center track. This leaves space for only two lines of cars, and floats destined to piers can therefore carry only about two-thirds as many cars as those destined to float bridges.

For example, using floats with a capacity of 7 cars on each side and 6 in the center (20 cars to each float) a tugboat could move 40 cars to a market equipped with float bridges, compared with only 28 cars to a pier station. Car floating from New Jersey float bridges to a market on Long Island would take about 1 to 1½ hours per trip longer than to the west side of Lower Manhattan, but with the extra number of cars per trip that might be taken to a market equipped with float bridges, it is probable that the actual cost *per car* would not be greatly different from that to the present Lower Manhattan piers.

Motortruck

Accessibility to motortrucks, with both incoming and outgoing supplies, is primarily a matter of connections with main highways and city thoroughfares. Numerous bridges, tunnels, and ferries connect the various sections of Metropolitan New York, from which radiates a network of arterial streets, boulevards, and highways. Only a few are indicated on figure 3. As most trucks, hauling both incoming and outgoing market supplies, arrive after the evening rush hours of city traffic, depart ahead of the morning rush, and have flexible routes, those bringing fruits and vegetables from producing areas would experience relatively little difference in making deliveries in any of the areas in which a market might reasonably be located.

An important consideration in location of a primary market, however, is not only whether the incoming motortrucks *can* deliver to that market, but whether they *will*. Instead, they might go past it to secondary markets, or to other points in the distributive system. They are not limited to a fixed line of travel or to any terminal, and can readily seek the most advantageous place of delivery. The farther a primary market is removed from a central location in the area it is to serve, the smaller will be the proportion of goods moving directly from it to retail outlets, and consequently, the greater will be the importance of the secondary markets that do supply the retailers. The greater the size and importance of the secondary markets the more likelihood there will be of motortrucks delivering their original incoming loads at these secondary markets, thereby saving intermediate handling and hauling.

A primary market located on the New Jersey side of the Hudson River would probably receive, over a long period of time, a much smaller percentage of the total motortruck receipts than such a market at a more central point. Incoming trucks could deliver within the city at much less additional ex-

pense than the cost of a separate haul for the receipts that had been first unloaded in New Jersey. The establishment of a primary market with rail terminals in New Jersey would probably be a handicap to the railroads in their competition with motortruck transportation.

Boat

Most ships must dock at their regular piers if they carry general cargoes. A few ships carrying mostly fruits and vegetables might unload at a dock at or near the market. In this respect there is little difference between locations along or near the water fronts of Manhattan, New Jersey, or Long Island, as they are all accessible to ocean-going vessels. Even Newtown Creek, the inlet from the East River on the Brooklyn-Queens boundary line, carries a heavy traffic of deep-water ships.

CONVENIENCE FOR BUYERS

No matter what the transportation methods by which fruits and vegetables arrive in the city, or where the primary markets are situated, or the number and location of secondary markets, these products must eventually reach the retail outlets through which they are finally passed on to the consumers. The function of the wholesale markets is to assemble complete supplies from producing districts, and then distribute them to the numerous retail outlets. Previous chapters have dwelt in detail on the distribution of fruits and vegetables to the various sections of New York City and its suburbs, and the quantities that are eventually used in each of these sections.

The center of consumption of these products, based on shortest average distance to the retail outlets of the five boroughs of the city, is found to be near the western end of Long Island, at the dividing line between Queens and Brooklyn (fig. 13). About 30 percent of the total volume is distributed outside the city limits, of which half goes to Long Island, to Westchester County, and

to points beyond, and the other half goes to New Jersey and westward. Therefore, the center of consumption within the city is also centrally located for the buyers coming in from the various suburban and out-of-town districts.

The center of consumption represents the shortest average distance to retail outlets, and therefore the location at which the greatest total number of buyers, large and small, could visit the central market for direct purchases. If the market were located several miles distant from this central location, a smaller number of buyers could afford to visit it, and more would be dependent on the secondary markets for their supplies. This would automatically increase the volume of goods moving through additional markets, with added handling and hauling charges, and would thereby increase the total cost of distribution of fruits and vegetables. There would then be the likelihood that the dealers operating in these markets would lose business, for as their costs increased, the tendency would be for greater quantities of supplies to go around them through more efficient marketing channels.

When the 430 representative New York retailers were interviewed (p. 36), they were asked to state their preference between some location in New Jersey, in Manhattan, or on Long Island near the East River. Of those replying, 55 percent favored some East River location, 34 percent a Manhattan location, and 11 percent some site in New Jersey. There was a close relationship between the location of the retailer and the location he preferred for a market.

A market on the western end of Long Island between the Queensboro and Williamsburg Bridges would be at or near the center of consumption. The Lower Manhattan market is about 5 miles from this center, and a location in New Jersey would be 7 to 9 miles distant, depending on the position of the site selected.

New Yorkers themselves, as well as many others, are prone to think of Manhattan as

being the center of New York. There is some reason for this rather general belief. It is the Nation's greatest financial and business district. The hotel district, where most visitors stay, and the theaters, are midway in Manhattan. Many industries center on that crowded island, and hundreds of thousands of people are employed there. But most of New York's millions of residents do not live there; their homes are in other boroughs of the city and in the suburbs. Brooklyn alone exceeds Manhattan in population by more than a million, and is larger than any other city in the United States except Chicago. The Bronx has expanded rapidly since the turn of the century, and now the city's greatest growth is in the Borough of Queens. On the other hand, the number of residents in Manhattan has been decreasing for many years, and the center of population of the city as a whole has been moving steadily eastward since 1900 (fig. 16).

Fresh fruits and vegetables are consumed where the people live. Regardless of the location and importance of other industries, the food supply must be distributed to the city's homes and eating places. The midpoint among all of these is on the western end of Long Island, and a market built at or near this point would be more convenient for buyers in most parts of the city than such a market built in Lower Manhattan or in New Jersey. In fact, a market in this location would actually be closer and more convenient even to the greater part of Manhattan than is the present market, as is apparent from figure 13.

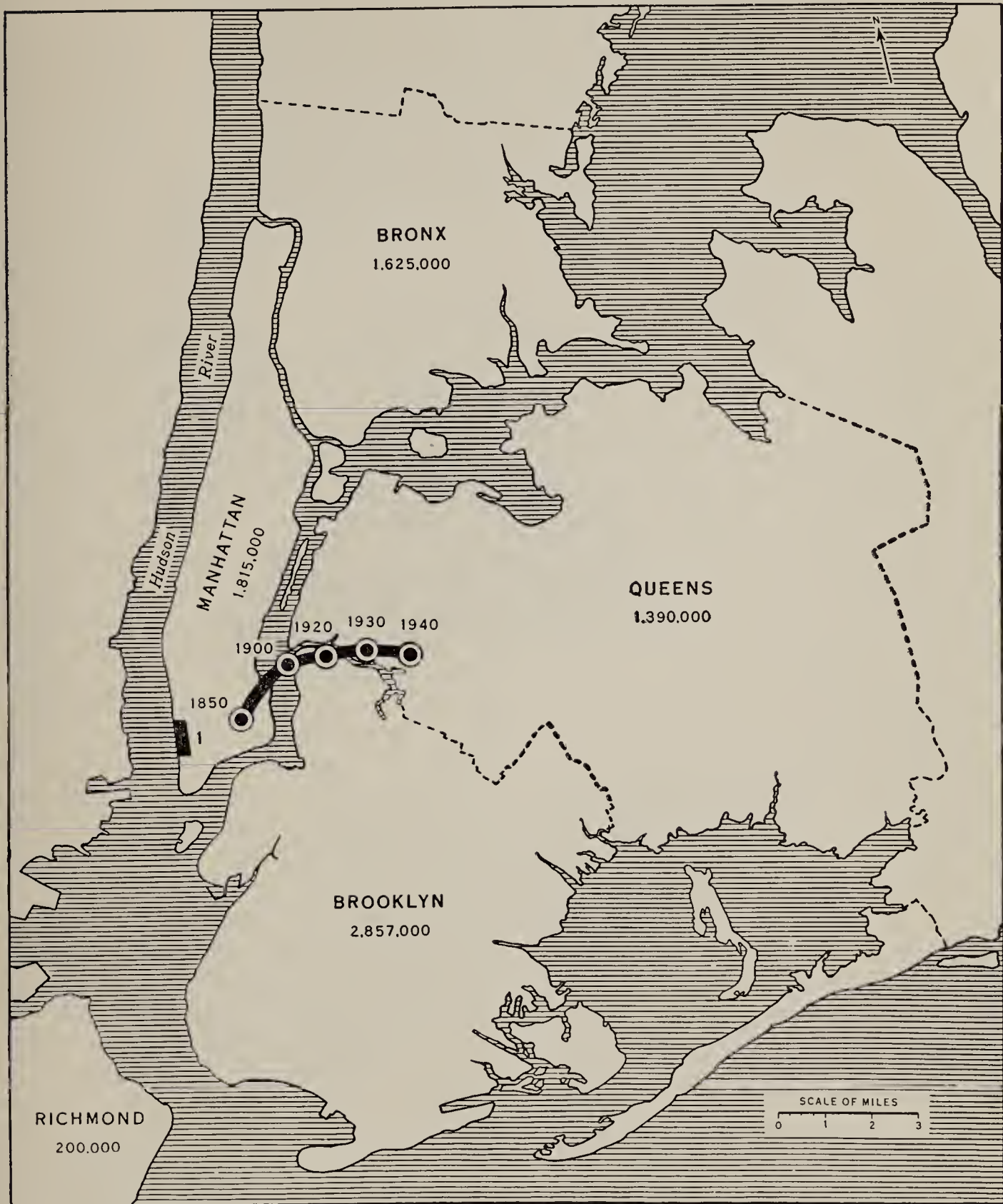
AREA AND COST

An area of land large enough for a market might presumably be obtained in any one of the three general locations mentioned, the difference in this respect being primarily the cost of acquiring such areas. In figure 17 are indicated the assessed property valuations in the various suggested sections, on the basis of dollars per square foot for the com-

POPULATION OF NEW YORK CITY BY BOROUGHES

ESTIMATED BY REGIONAL PLAN ASSOCIATION AS OF 1940

TOTAL NEW YORK CITY 7,887,000



● CENTER OF POPULATION OF NEW YORK CITY IN EACH YEAR INDICATED. CALCULATED BY THE REGIONAL PLAN ASSOCIATION, INC.
1. LOWER MANHATTAN MARKET (WASHINGTON STREET MARKET AND PIERS)

FIGURE 16.

BAE 38035

ASSESSED VALUE OF LAND AND IMPROVEMENTS IN SECTIONS OF METROPOLITAN NEW YORK IN WHICH LOCATIONS FOR A CENTRAL PRODUCE MARKET HAVE BEEN SUGGESTED

Valuations of 1938

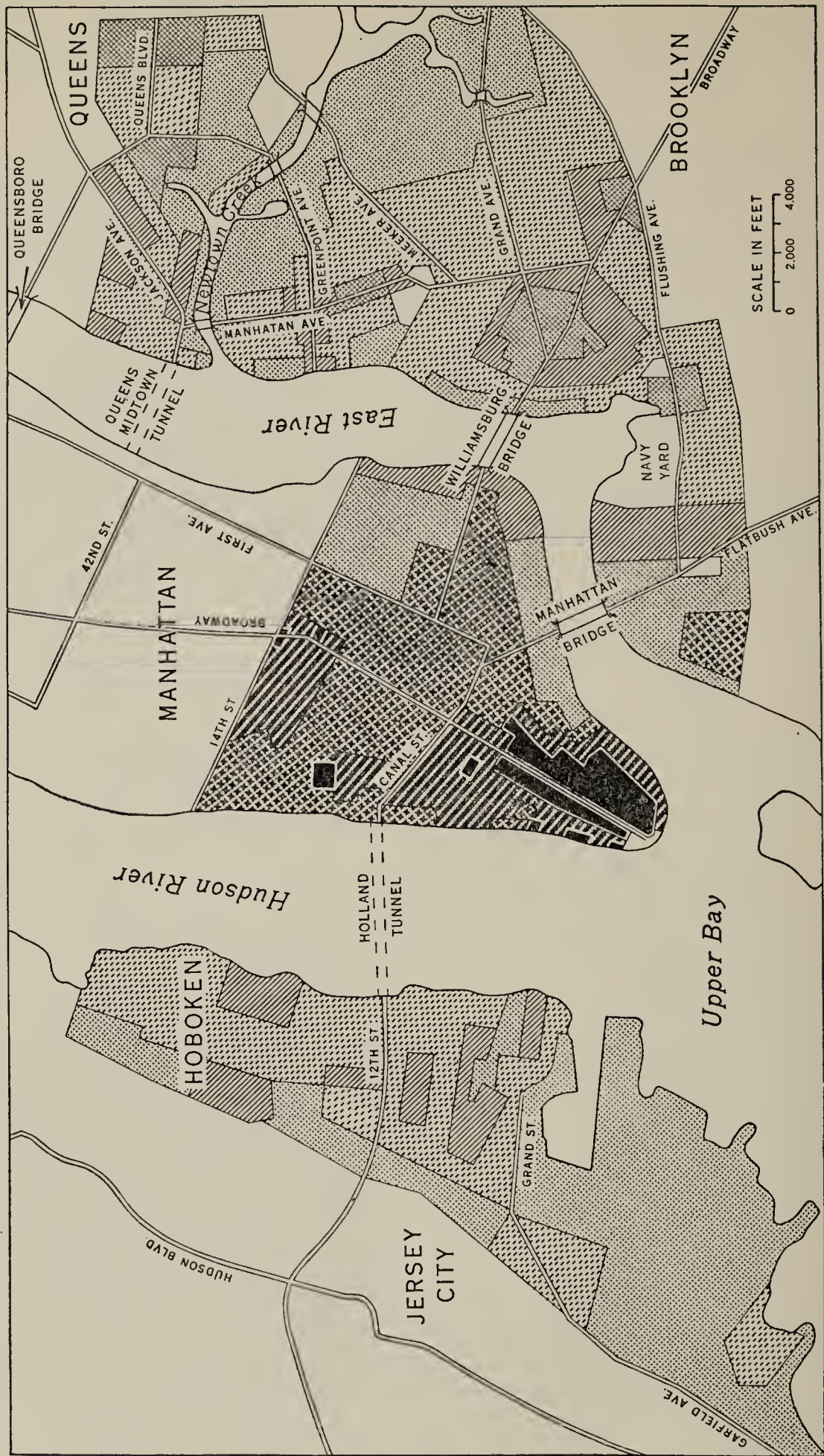


FIGURE 17.

bined value of land and improvements. (The assessed values in both New York and New Jersey are supposedly full values, and in many instances in recent years they have been more than the selling price.) The size and the total valuation of each city block were obtained from the assessment records, and from this was calculated the average value per square foot for each block. All blocks were then classified according to the indicated range in values.

On a small-scale map it is not possible to show each block separately, so areas have been classified as nearly as possible according to predominating value. Where wide variations appear within small areas (as where large factories are surrounded by vacant blocks), averages of such sections have been indicated.

Assessed valuations indicated on the map represent only the land and improvements within property lines and do not apply to streets. The proportion of any given area which is included within property lines depends on size of blocks and width of streets, and may range from 60 to 70 percent. If 65 percent is within property lines, this would be, on the average, 28,314 square feet of each acre (65 percent of 43,560 square feet per acre). Then for an assessment of \$1 per square foot within property lines, total assessments would amount to approximately \$28,314 for each acre of land in a specified tract. From this may be calculated the values of any number of acres at any average assessment. Thus, 85 acres assessed at \$2.50 per square foot would have a total valuation of approximately \$6,000,000. At an average assessment of \$20 per square foot, a similar size tract would have a valuation of about \$48,000,000.

As indicated on the map, there are in New Jersey near the Hudson River, and in Long Island near the East River, large areas with average assessed valuations of less than \$4 per square foot. There are also some unoccupied or relatively undeveloped tracts in these districts where valuations are as low as

\$2 or less per square foot. In Manhattan, south of Canal Street, where the present Washington Street market is located, valuations average well above \$20 per square foot; and only a short distance away are the skyscrapers of the financial district, where values range upward to more than \$700 per square foot.

The cost of 85 acres of land in any one of these general sections of the metropolitan district might vary from around 5 or 6 million dollars in parts of New Jersey and Long Island to around 50 million dollars in Lower Manhattan.

New York City is doubtless unique among the cities of the world, in that its center is relatively undeveloped. For a long time in the early history of New York, Manhattan was the principal part of the city. Because of the wide waterways surrounding the island, the community did not spread out as do most cities, but became tightly packed on the island. When finally it was forced to go beyond Manhattan's narrow confines, it did not build up evenly beyond the waterways. Much of the Long Island water front had become industrialized, and was not desirable for residential development. But neither has it all been taken up by industry, and there is today, directly across the East River from the skyscrapers and office buildings of central Manhattan, in the very center of the city from the standpoint of population and food distribution, a large section of relatively undeveloped and low-priced land.

IMPORTANCE TO THE CITY OF NEW YORK

The primary fruit and vegetable market that serves metropolitan New York is of great interest and importance to the city of New York for two reasons: (1) It is one of the city's major industries, doing an annual business of more than \$130,000,000, occupying properties worth many millions of dollars, and employing thousands of people; and (2) it is the distributive source of an important part of the food supply of the city's millions of residents and visitors. Reorganization or

relocation of the market is therefore an important matter to the city, and would be difficult to accomplish without the active assistance and cooperation of the various agencies of the municipal government.

It is doubtful whether New York City could give the same degree of aid and assistance in establishing a market in New Jersey, outside the boundaries of the city and of the State of New York, as it could within its own corporate limits.

ADVANTAGES AND DISADVANTAGES OF EACH LOCATION SUMMARIZED

The preceding discussion of the three fundamental requirements of a good location for a central wholesale fruit and vegetable market may be summarized as follows:

A site on the lower west side of Manhattan, at or near the present market, is about 5 miles from the center of consumption for the city. It is accessible to incoming trucks, and to incoming rail shipments by means of the usual method of harbor car-float deliveries. The only connections for diversions are by car float. Its street and highway connections for outgoing motortruck transportation are only fair, largely because this is the congested part of the city. In this location a sufficient area for a complete and adequate market could not be obtained except at a tremendous cost.

A market located on the New Jersey shore of the Hudson River between Greenville and the entrance to the Lincoln Tunnel would be between 7 and 9 miles from the center of consumption. It is accessible to the greater part of rail and truck transportation, both

incoming and outgoing. It would enable the railroads to save the cost of car floating on shipments arriving west of the Hudson River, and would effect savings in Hudson tunnel and ferry tolls for incoming trucks. However, it would require a great deal of hauling by buyers coming to the market, with much additional cost for tunnel and ferry tolls because of the large number of vehicles that would be involved. In this location sufficient area probably could be obtained at a reasonable cost.

A site on the western end of Long Island is near the center of consumption, which represents the shortest average time-distance to buyers. It is accessible to incoming and outgoing truck transportation. It is accessible to incoming rail shipments by means of the usual methods of harbor car-float deliveries, with a possibility of some alternative methods at least in emergencies; for diversions of rail movement, direct connections could be established to the north and east, and the usual car-float interchange would be available to the west and south. In this location a sufficient area probably could be obtained at a reasonable cost.

Each of the areas is accessible to boats which might discharge cargoes at the market.

The Long Island site most nearly meets the requirements considered above for a complete central wholesale fruit and vegetable market. However, before the comparative advantages of the different locations can be fully determined and a final statement made on where the market should be located, an analysis must be made of the probable costs of distribution through each location.

Kind of Management and Regulations Needed

MANAGEMENT

In the previous discussion of the essentials of a good market it was brought out that regardless of how carefully a market has been designed, how efficiently it has been laid out and equipped, and how well it is located, its success will depend in no small degree on the character of its management. The operation of a central market in a city the size of New York is a large business undertaking. To be successful such a market must be managed as well as any other business of comparable importance. The mistaken opinion has often seemed to prevail that all that is needed in working with markets is to bring into existence satisfactory facilities and let them run themselves. No conclusion could be farther from the truth.

Many groups have genuine concern in the type of management that is placed in control of a central wholesale fruit and vegetable market. Growers are concerned because such a market is an outlet for the products which they have gone to much time and expense to produce, and because the trade practices in such a market have a definite effect on the returns they receive for their products. As prices established in a market like the one in New York substantially affect prices that growers receive in many other parts of the country, it is of tremendous importance to them that the market be so operated that the price-making forces can

function as they should. Farmers in every State want to be sure that there will be no discrimination within the market against products originating in their States. Transportation agencies have much to gain through the satisfactory operation of a good market because that makes it possible for them to deliver efficiently the supplies they are hauling. Each transportation company has a further interest in being assured that the management will not tolerate any discrimination against it in favor of some other company or type of transportation.

No one group is more concerned with the type of management of a market facility than the dealers who are earning their livelihood by carrying on their business operations within it. These dealers are interested in having available as efficient facilities as possible at a minimum cost. They also want to be as unhampered as possible in exercising their initiative in the merchandising of their products. In short, dealers would like the management to provide them with such facilities and surroundings as must be provided cooperatively, and at the same time to leave them as free of restrictions as possible in their own business operations, imposing upon them no regulations other than those that are generally recognized as being for the good of the industry. When dealers move into a particular market they are vitally concerned with its success. They want nothing done that will prevent the

largest possible number of buyers from coming into it or that will prevent them from obtaining as large a volume of business as they can handle. In order that this condition may exist, they want a type of management that will insure the success of the market where they have cast their lot.

Retailers and other buyers who come to the market want it to be so operated that they will be able to obtain within it at a reasonable price, with a minimum of time and expense, a complete line of fruits and vegetables that can be delivered to them in good condition. They want the market to be so designed, the produce so displayed, and the rules and regulations so established, that they can be reasonably sure of the quality of the products they are getting and the correctness of the prices they are paying.

Consumers have a rather large stake in any market that handles their food supplies. Their principal interest is to obtain the foods they need in as good condition as possible without having any unnecessary charges saddled upon them.

The management of a market, then, has a very real responsibility in making that part of the marketing system serve in the best way possible in the process of bringing the food supplies from the thousands of farms where they are produced to the millions of consumers in the area.

But the management's responsibility does not rest solely on the distribution of the products. Another group is vitally concerned with its success—the investors who have put their funds into the market facility. Such funds are usually advanced as a sound business loan, and although the people who furnish the capital have no right to expect exorbitant returns, they do have a right to expect the market to be so operated that they can be assured of the safety of their investment and reasonable earnings on it.

In order that the interests of the entire public (which is composed of all the agencies mentioned above) may be protected, it seems advisable that the managerial board which

controls the market should be composed of a group of individuals who will adequately represent the various groups who are most concerned in the successful operation of the market. It is only through adequate representation on the managerial board that each group can be assured that its interest will be protected.

It is not enough that such a board should be honest and willing to do the right thing. It is equally important that it be capable of exercising all the functions which are essential to the market's success. That is, the management should be familiar with the interests of all groups involved in the marketing process and honest in dealing with them; be capable of working out far-sighted plans for marketing efficiency; and be composed of good businessmen who will run a public market in just as businesslike a way as any other large corporation would be managed. The management of a market should be familiar with distribution problems, finance, real estate operations, and various governmental regulations, and must be familiar with many other fields of activity, each of which is very important to the success of the market.

Tasks that come under the scope of management of a market are rather large and varied. In the first place, it is the duty of the management to see that the proper facilities are provided for meeting the needs of efficient distribution and that these facilities are improved from time to time to meet changing conditions. It is a function of the management to see that the charges for the use of these facilities are properly assessed between different types of dealers and different individuals. The management must be sure that the total charges collected are sufficient to meet the needs of the market and keep it operating on a sound basis, but at the same time are not so large as to provide a profit that might be diverted to non-market uses. The correct determining, fair apportioning, and proper collection of market charges is a very important task.

REGULATIONS

The management should constantly be on the alert to further the interests of the market in anything that relates to the proper handling of supplies. In this connection it should give no small attention to cooperating with the various elements of the industry in formulating desirable regulations for the common good, and assisting in their enforcement.

In the fruit and vegetable industry the Federal Government has laws dealing with honesty of business operations, standard containers, standardization, grading, and inspection. Cities usually have regulations dealing with sanitation, traffic, weights and measures, and they provide police and fire protection. The trade itself has been active in promulgating and enforcing some regulations such as those dealing with the extension of credit. But in almost all large city markets there seems to be a very definite feeling on the part of the trade that one or two additional regulations are needed. These regulations have not been provided by any agency of government, and in most markets the trade itself has been unable to find a way to enforce them. They deal with hours of selling and with obtaining timely information on supplies available for sale. The management of an organized market by assisting in the enforcement of such regulations as these can bridge the gap between cooperative regulations of the trade and government regulations.

REGULATION OF HOURS OF SELLING

In the present Lower Manhattan market it is practically impossible to enforce any regulation of selling hours. There are several reasons: (1) The market properties are owned by a large number of organizations and individuals, (2) the activities are spread over a very wide area, and (3) the market is located on streets that are open to general traffic. As there is no real market organization, the only way by which any adequate regulation

of selling hours can be established is through voluntary cooperation of the trade, and so far this has been insufficient. Therefore, the selling period in New York, as in many other markets, is very long.

There are two strong reasons why selling hours in a market should be limited. The first is that such long selling periods as now prevail require the employing of workers for a great deal of overtime or the hiring of extra labor, and they force the dealers themselves to work an excessive number of hours. This, of course, increases the cost of operation within the market. A second reason is that unnecessarily long hours of selling tend to disrupt the normal operations of the price-making forces within the market by spreading out the demand rather than concentrating it within a short trading period. This leads to unnecessarily wide price fluctuations and to price uncertainty—a constant source of dissatisfaction and abuse.

Lack of adequate facilities for handling a great volume in a few hours is one of the factors which necessitate a longer trading period than would otherwise be necessary. Buyers must get their supplies back to their places of business by a certain hour to suit the needs of their own customers. If their trucks are likely to be delayed in traffic while getting around the market, or if the market organization is such that they must spend extra hours in buying or loading, they must start at an earlier hour than would be necessary if they were going to an adequate market.

Lack of proper regulation of selling hours is frequently one of the chief causes for complaint among dealers and buyers and among farmers and truckers who bring in produce. Many efforts have been made to remedy this situation. Voluntary agreements have been tried, and legislation has been attempted, but the evil continues to exist. If a market such as that described above is provided in New York in an area where it can be enclosed with a fence, the market management in cooperation with the trade might determine

what selling hours would be most satisfactory, and then, through use of the fence and gates, enforce these regulations in a way that would be to the best interest of the industry. In the minds of some people in the industry the solution of this problem alone would justify the building of a new market.

REGULATIONS DESIGNED TO IMPROVE INFORMATION ON SUPPLIES

A second way in which the management of a unified market can assist the industry through enforcement of regulations is by helping to obtain more complete information on supplies available for sale. One of the most serious problems in the present Lower Manhattan market is the uncertainty regarding total volume of motortruck receipts for each night's market. Trucks may arrive any time after the opening of the market and materially change the supply situation during the course of trading hours. Prices established on the supply that is visible at midnight may be entirely out of line by 4:00 a. m., if numerous trucks have arrived in the meantime. Because of this uncertainty, buyers may delay their purchases, causing a slow and draggy market which is in itself a weakening influence on prices. If early commitments have been made and then prices are forced downward by the arrival of additional supplies, the early buyers have paid too much for their goods and are likely to demand adjustments or refuse to take their purchases. On the other hand, arrivals during the night may be lighter than anticipated, and prices may advance. Then the dealers who made early sales may not have obtained full market value for their products.

In a good market the supplies available for a given night's business should be definitely known before selling begins, and the demand should be focused into a definite selling period. This organization of supply and demand is necessary if the price-making forces in any market are to operate properly. For receipts by rail or boat, advance informa-

tion is available on the quantities and time of arrival, and is posted or otherwise made known before the beginning of the selling period. The same conditions should apply to truck receipts, and this could be accomplished in an enclosed market with regulated hours of admittance of incoming supplies. A dead-line might be established shortly before the hour when selling is to begin, after which incoming loads either would not be admitted for a certain number of hours, or would be admitted only by the imposition of a penalty sufficient to discourage late arrival.

Objection might be raised to such a regulation on the grounds that trucks cannot avoid being late. To a small extent this would be true, due to break-downs or other delays. In nearly all cases, however, truckers could arrive at a market by a given hour if they knew they had to be there to get in or would otherwise be penalized. Truckers know their running time, and could plan their departure from shipping points accordingly, if there were sufficient incentive to do so. This view is supported by findings of the Farm Credit Administration in a study¹⁹ which covered more than 123,000 trips to market by trucks bringing produce to large eastern markets over a period of 1 year. This study showed that on only about one-half of 1 percent of the trips did the trucks arrive at the market later than was planned. Therefore, it seems safe to assume that nearly all truckers bringing produce to the New York market can arrive before a prescribed hour, if they try. Trucks that are engaged in the business of transportation should be expected to put their supplies on the market in time for that night's sale, just as the railroads are, and to the same extent should be held responsible if they fail to do so.

The entrance of incoming truckloads could be limited to certain gateways, and at these

¹⁹ RASMUSSEN, M. P. USE OF MOTORTRUCKS IN MARKETING FRUITS AND VEGETABLES. U. S. Farm Credit Admin., Coop. Div., Bul. 18, 120 pp. 1937. See p. 32.

points it would be possible to collect complete information on the volume of receipts of each commodity. A report could then be released shortly after the dead line, showing total quantity of supplies for each night's market.

The regulations pointed out above are illustrative of the assistance that good management of a market can render the industry. Perhaps few other regulations would be needed at first. But there would be some value in knowing that if in the future the needs of the industry should indicate that some other type of regulation is desirable, the agency exists for enforcing it.

If a unified market is provided whose management can enforce desirable regulations like these, some of the problems that have been causing most serious concern to the trade can be solved—problems that at present seem almost impossible of solution

except through some further governmental action. Regulations that the market management may enforce include those for which the need has not become general enough to require legislative action and those for which there has been some delay in getting desirable legislation enacted. This ability to have the individual market regulated in accordance with its peculiar needs, rather than conform to additional general legislation, would offer a flexible type of control which could be a valuable adjunct to the efficient operation of any particular market.

The preceding sections of this report have pointed out the type of market facility needed in New York City, how it should be equipped and designed, where it might be located, how it should be managed, and what type of regulations may be needed. The following sections show just what financial benefits all this would bring.

Estimates of Savings a Modern Market Would Bring

The principal justification for reorganizing or rebuilding a market is that such a change would cut the costs of distribution through increased marketing efficiency. For this reason, the first test that should be applied to any proposal for a market of the kind described above is, Just how much would it reduce marketing costs? With this question in mind, effort has been made to find out how the costs of distributing through any new market would compare with the present costs of handling through the Lower Manhattan market. To this end estimates have been made of the potential savings that might come through establishing a modern market of the type previously described in each of the three locations analyzed.

In making these calculations, estimated costs for the present Lower Manhattan market are based on the 154,367 carloads sold through the market in the 12-month period from May 1938 through April 1939, and on costs prevailing at that time. For the modern market in each location the estimates are based on sales of an equal quantity. In addition to estimating the savings that would result solely from market lay-out, the computation was continued to find just what effect the location of the market would have on these savings, in order that the net result might show potential savings for a modern market in each of three areas—in New Jersey, in Lower Manhattan, and in western Long Island.

The detailed cost estimates showing rates per carload, quantity to which the charge applies, and the total amount of each item, are presented in table 15 in the appendix. Notes following the table explain the methods used in making the estimates. A summary of the cost figures in that table and of comparative savings in a modern market in each location is given in table 13.

SAVINGS DUE TO SUITABLE MARKET LAY-OUT

From these figures it is evident that most of the savings would accrue from having a good market lay-out rather than from the particular location in which the market might be built. For example, it is shown that if a market were provided where rail receipts could be unloaded directly on the sales floors, and supplies concentrated in the one area with wide streets and other appropriate facilities, there would be in any location a saving of more than \$2,500,000 a year in cartage within the market and an additional saving of about \$600,000 a year in portorage. The centralization of supplies on one group of sales floors located on land would result in savings in unloading costs and pier maintenance of around \$400,000 a year. Furthermore, the provision of the right facilities for expeditiously handling the commodities would make an estimated annual saving of nearly \$1,900,000 in deterioration and spoilage. The spreading of the market over a

TABLE 13.—Summary of estimated annual marketing costs for fruits and vegetables sold through present Lower Manhattan market, from unloading point to metropolitan retail outlets or to trucks of out-of-town buyers, and estimated costs and savings for modern markets at 3 locations

[Cost figures are summarized from table 15]

Item	Item No. in table 15	Present Lower Manhattan market	A modern market in—		
			Lower Manhattan	New Jersey	Long Island
Costs at central market:		1,000 dollars	1,000 dollars	1,000 dollars	1,000 dollars
Cartage (trucking).....	15	4,181	1,553	1,640	1,622
Porterage.....	16	1,340	730	730	750
Unloading and maintenance of piers at present market (paid by railroads); unloading, float-bridge operation and switching at modern markets.....	27	1,225	823	747	845
Waste and deterioration due to inadequate market facilities.....	28	1,852	—	—	—
Time lost by motortrucks due to inadequate facilities:					
Trucks hauling to market.....	29	218	0	0	0
Trucks of buyers.....	30	1,005	0	0	0
Total.....		9,821	3,106	3,117	3,217
Savings in modern markets due to proper market lay-out.....			6,715	6,704	6,604
Rent (Includes \$488,000 at present market paid by railroads. For modern markets the amounts are the estimated costs of amortization, taxes, and administration).....	17, 22	1,888	5,000	1,400	1,400
Increase or decrease in rents in modern markets ¹			+3,112	-488	-488
Margins, excluding cartage, porterage and rent.....	21	9,894	10,061	10,003	10,511
Increase in margins in modern markets ²			167	109	617
Total costs at central markets.....	31	21,603	18,167	14,520	15,128
Total savings in modern markets.....			3,436	7,083	6,475
Costs from central market to metropolitan retail outlets:					
Cartage (trucking).....	37	8,393	8,219	9,160	7,573
Margins, excluding cartage.....	40	6,243	5,893	6,015	4,950
Total.....	41	14,636	14,112	15,175	12,523
Increase or decrease from modern markets to metropolitan retail outlets ¹			-524	+539	-2,113
Total costs from unloading points to metropolitan retail outlets or to trucks of out-of-town buyers.....	42	36,239	32,279	29,695	27,651
Indicated annual savings for modern markets compared with present market.....			3,960	6,544	8,588

¹ Plus (+) or minus (-) denotes an increase or decrease over costs in present market.

² Margins in a central market at each location are assumed to be at the same rate for the same type of transaction as in the present market, but the totals are increased because greater quantities would be sold direct to retailers. There would then be comparable decreases in margins accruing after the produce has left the central market, because of lesser quantities handled by other dealers outside the market.

wide enough area to remove traffic congestion would result in time savings to trucks bringing in supplies and to trucks of buyers of about \$1,200,000 a year.

The above items show that the provision of a modern market efficiently designed and operated, without consideration of location, would yield annual savings of more than \$6,500,000.

SAVINGS DUE TO LOCATION

But these figures cannot be considered final estimates of savings without ascertain-

ing just what effect location would have on the total. In other words, the total savings that would accrue through efficient lay-out might be increased or decreased according to the particular place in which the market is built. If it is built some distance away from the center of consumption, cartage and other handling charges between that market and the retail outlets would be greater than from a centrally located market. Similarly, if it is built on high-priced land, total rental charges that would have to be collected would

be greater than if it were constructed in an area where land can be obtained at a reasonable price.

Thus from a New Jersey location, the costs of handling from the market to the retail outlets would be greater than from either of the other sites because of the greater amount of cartage, and because of the greater quantities of supplies which would be handled by dealers in secondary markets before reaching the retail outlets. These costs from a New Jersey location are estimated to be about \$1,000,000 greater than from Lower Manhattan and \$2,700,000 greater than from western Long Island. Hence, some of the savings within the market in New Jersey would be offset by these higher costs of distribution from the market.

At a location in Lower Manhattan, the rents or cost of amortization of a modern market would be approximately \$3,600,000 more than at either of the other sites, because of the high-priced land on which the market must be built. Therefore, the net saving within a market at this location would be greatly reduced because of these high rental charges.

NET SAVINGS

The estimated net savings resulting from a modern market in each location, compared with the present Lower Manhattan market, are shown in the following tabulation.

Lower Manhattan:	
Savings in lay-out.....	\$6,715,000
Savings from market to retailers..	524,000
Total savings.....	<u>7,239,000</u>
Increase in rents.....	3,112,000
Increase in margins.....	167,000
Total increases.....	<u>3,279,000</u>
Net savings.....	<u>3,960,000</u>
New Jersey:	
Savings in lay-out.....	6,704,000
Savings in rent.....	488,000

New Jersey—Continued.

Total savings.....	<u>\$7,192,000</u>
Increase in margins.....	109,000
Increase from market to retailers..	539,000
Total increases.....	<u>648,000</u>
Net savings.....	<u>6,544,000</u>
Long Island:	
Savings in lay-out.....	6,604,000
Savings in rent.....	488,000
Savings from market to retailers..	2,113,000
Total savings.....	<u>9,205,000</u>
Increase in margins.....	617,000
Net savings.....	<u>8,588,000</u>

These figures show that large total savings are possible in the wholesale handling of fruits and vegetables in New York through the construction of modern and adequate facilities and the use of up-to-date marketing methods. These savings would be large compared with present costs regardless of where the market is located but, principally because of the relative distances from buyers and the cost of land, there is considerable variation in the savings that can be made in each of the three locations. In considering the importance of a saving of about \$8,500,000 in the cost of wholesale marketing in New York, it must be remembered that this is a saving through reorganization of only a part of the total marketing channel—the part involved in handling supplies between the city limits and the retail outlets. Such a saving is about one-fifth of the present costs of the wholesale distribution with which this report is concerned. Undoubtedly, additional savings could be made in the costs of retailing, but that problem is beyond the scope of this study. If plans could be evolved whereby savings could be made in other parts of the marketing system comparable to the savings pointed out in this report as possible in wholesale operations, total savings from the general improvement in market efficiency would be very great.

These potential savings in the wholesale marketing costs would amount to an average of about \$56 per car for each carload handled in a market on Long Island, about \$42 a car for a market located in New Jersey, and about \$26 a car for a modern market located in Lower Manhattan.

The estimated annual savings for a modern market in Lower Manhattan is nearly \$4,000,000, but the rent or cost of amortization, and taxes and administration for a market in that area, would amount to about \$5,000,000 a year. This would be practically prohibitive, for most of this rent, amounting to about \$32 per carload, would have to be paid by the trade, whereas the savings in other expenses would be shared by shippers, buyers, and others.

In the following paragraphs a break-down is shown of the probable costs of operation through a modern market built in each of the three locations, compared with present costs of handling.

COMPARISON OF COSTS WITHIN THE MARKET AT VARIOUS MARKET SITES

Marketing costs from unloading points until arrival at retail outlets can be divided fairly well into those accruing within the market and those arising between the market and the retail outlets (table 13). Costs at the market site, with the exception of rent or cost of amortization, taxes, and administration, are not greatly different for modern markets at any of the three locations. With a good arrangement of stores, sale platforms, and other facilities, and with wide streets and ample space for loading motortrucks, the cost of moving the produce within the market, including unloading, cartage, portage, and time lost by trucks on account of facilities, would be approximately the same regardless of the location of the market. The cost of these items, according to table 13, would total \$3,106,000 in a modern market in Lower Manhattan, \$3,117,000 in a market in New Jersey, and \$3,217,000 in a Long

Island market. Present cost of these items is \$7,969,000.

Waste or spoilage attributable to outmoded and inadequate facilities estimated at nearly \$1,900,000 would not occur in a modern market in any of the three locations.

Total annual rents or amortization, taxes, and costs of administration, in either New Jersey or Long Island would be about \$500,000 less than in the present market, and \$3,600,000 less than for a modern market in Lower Manhattan. (It has been assumed that the cost of land and facilities at the modern markets would be amortized in 25 years through annual payments shown in table 16. After that time, necessary annual payments would include only taxes, administration, insurance, and upkeep.)

Margins other than cartage, portage, and rent at modern markets in New Jersey and Lower Manhattan would differ slightly from these costs in the present market, but for the Long Island site they would be more than \$600,000 greater than at present because of the estimated larger quantities that would be sold directly to retailers in that location. This would mean that some of the jobbing functions now performed in the outlying markets probably would be performed in the central market, and that even though total margins within this market would be somewhat increased, such an increase would be more than offset by a decrease in margins accruing after the produce has left the central market. The large sum of about \$10,000,000 for margins (excluding cartage, portage, and rent) is made up of such items as wages, salaries, brokerage and commissions, bad debts, office expenses, communications and travel expenses, light, heat, inspection, and storage. With good facilities and proper organization there would probably be savings in some of these items such as wages of salesmen and office expenses. But as the amounts that might be saved in this way are speculative, no estimates of savings on these items are included.

COMPARISON OF COSTS BETWEEN THE
MARKET AND RETAIL OUTLETS FOR
VARIOUS MARKET SITES

A market that is centrally located and easily accessible can serve the surrounding area with lower distribution costs than one that is poorly located. Within certain limits as to distance it is more economical to move supplies from the central market directly to retailers than to move them from the market to a jobber and then to retailers.

A new market on the site of the present Lower Manhattan market would obviously bring little saving in cartage to retail outlets. Cartage costs from a market in New Jersey would be nearly \$950,000 greater than from Lower Manhattan, but from a market near the center of consumption in Long Island such costs would be about \$650,000 less than from the Manhattan location. The total difference between the New Jersey location and the Long Island location in this item is estimated to be about \$1,600,000 a year. This includes cartage on supplies moved

through jobbers and chain stores as well as on those that move directly to retailers.

Total charges paid to jobbers outside the central market would also be lowest for the Long Island site. Although the margin per carload charged by these jobbers in the outlying markets is estimated to remain the same as at present, it is believed that with a modern market centrally located, a larger proportion of total supplies would be sold directly to retailers than the quantity now being sold in this way. This accounts for the lower estimated amount of the total charges of jobbers outside the market and explains why, if the market is located on Long Island where it would be convenient for the largest number of retailers, savings in jobbers' margins would be greater than at any other location.

In the appendix is a section entitled "Supplementary cost considerations" which shows how the costs of terminal services, and of transportation between shipping points and the market, would vary for the three locations considered for a modern market.

HOW THE SYSTEM CAN BE IMPROVED

By Whom Should the Market Be Built?

After a plan has been developed for improving the market of any city the next question that arises is, How to put this plan into effect? A report like this one is of little value unless it is followed by concrete action. The plan outlined in the previous pages is entirely practicable and can be accomplished if the people most concerned really want to do something about it. The agency making this study has reached the end of its authority when it has studied the situation and made recommendations for a proper improvement program. Some other agency will have to take the initiative in accomplishing the results.

It has already been pointed out that the improvement of a market the size of that in New York is a matter of concern to many growers, wholesalers, jobbers, and retailers, as well as railroad companies, trucking companies, bankers, property owners, real estate promoters, industries allied with the distribution of fruits and vegetables, and several agencies of government. With so many and varied interests involved and a large expenditure of funds required, most individuals, regardless of their convictions as to the need for the improvements, must take the marketing system as they find it. The changes described call for group action, and that is difficult to achieve. Therefore, before any concrete improvement can be made, some agency will have to be found that can build the market.

The first question that arises when attention is turned to the possibility of constructing a new market is, By whom should the market be financed and controlled? In most cases, markets have been established by whatever agency was ready and willing to advance the funds, and as a general rule the agency was willing to advance funds only because the provision of these facilities would give it a definite advantage in competition with others, or would give it a large income on the investment. The agency advancing the funds has usually dictated at least some of the important features of the market operation. Such dictation naturally has not always been for the interest of the produce industry as a whole nor for the general welfare. Hence, it may be said that market facilities should not be financed by any agency which will thereby be in a position to dictate and enforce arbitrary regulations designed in the interest of special groups rather than for improving market efficiency.

In short, any new market that may be built in New York for handling fruits and vegetables, from the viewpoint of the ideal, should not be controlled by railroads, by any restricted group of dealers, by a particular organization of farmers, or by any individual promoter. If the provision and financing of the facilities could be separated from control of operations and if exorbitant rents would not be charged, it would make little difference who did the actual financing and con-

struction. But in practice it has been difficult, if not impossible, to bring about such separation.

A market of the type that is needed in New York will be almost a monopoly so far as facilities go. That is, if the market is successful, dealers and buyers will have to use the facility whether they wish to do so or not. There are several logical consequences. When the market is once established as a going concern, it is a very safe financial investment—its income is more or less steady and dependable. It becomes very important that the ownership be prevented from exploiting the industry in a way that a pure monopoly would be in a position to do. That is, certain safeguards should be thrown around it, for the market is a public service.

It would seem reasonable then to conclude, regardless of what agency constructs and finances it, there should be definite assurance that: (1) The market will be properly located, designed, and equipped; (2) duplicating and unnecessary facilities will be prevented; (3) the money will be spent wisely to provide for real needs in order that the increased efficiency will not be offset by high cost of the facility; and (4) the use of the facilities will be controlled in the real interest of the industry and the public.

With these purposes in mind it appears that the market could be built (1) by a private corporation subjected to certain regulations, or (2) by a public corporation set up by governmental agencies for the specific purpose of establishing and operating the market.

PRIVATE CORPORATION WITH CERTAIN REGULATIONS

If the market is to be established by a private corporation, whose stockholders are the general public or even the produce dealers, and if such facilities are to be given a monopoly right, or if they are to become a monopoly in the natural course of events, there should be some definite provision to insure that the owners of such facilities

will not exact exorbitant rentals or impose arbitrary and undesirable regulations, and that they will keep the facilities in a good state of repair. Without such protection the produce industry and the public is left at the mercy of some organization which may have no interest in either the industry or the public. A market of the importance of that in New York is broadly affected with public interest. In this way it is somewhat similar to grain elevators, public warehouses, stockyards, or even electric power companies.

One way to insure proper protection for both the owners of the facilities on the one hand and the produce industry and the public on the other would be to have those facilities declared to be public utilities. As this method has not been tried in the fruit and vegetable industry, to appraise its probable success would be difficult. However, it is argued that by such action the owners would be assured that unnecessary competing markets would not be built and the produce industry and the public would be protected against exorbitant rentals, inadequate equipment, and arbitrary regulations. Such a method of establishing a market should not only enable private enterprise to supply better facilities but should result in fairer treatment and more consideration for each of the groups interested in the marketing of fruits and vegetables. On the other hand, in the case of other public utilities, it has sometimes been difficult to achieve satisfactory regulation and to effect improvements that are needed to provide for changing conditions. It should be emphasized that the public-utility status, if used, should apply to the use of the facilities only and should not extend to the actual operations of buying and selling produce.

PUBLIC CORPORATION OR "MARKET AUTHORITY"

The second way by which a market can be established is by a public corporation brought into existence by agencies of government. New York State has already set up

such corporations to build markets in other parts of the State. In general it may be said that a public corporation of this type, commonly called a market authority, should possess about the same powers as those possessed by a private corporation except that it should be run in the interest of public welfare rather than for private gain.

The device of a public corporation set up for some specific purpose is widely used in the provision of public facilities in various parts of the United States. The States of New York and New Jersey several years ago set up such a public corporation called the Port of New York Authority. This corporation has built a number of bridges and tunnels in the New York area and has operated them on a self-liquidating basis, making such charges for their use as was necessary to pay for them within a reasonable period of time. Similarly, the States of Pennsylvania and New Jersey set up a public corporation, known as the Delaware River Bridge Commission, to build and finance a bridge across the Delaware River between Philadelphia and Camden. This commission makes such charges for the use of the bridge as are necessary to pay for it within a specified period. The Legislature of the State of Virginia has recently passed a bill making it possible for public corporations to be chartered for the building of markets in the large cities of that State. Many other illustrations could be given of the public corporation in actual use.

In most States private corporations are given charters and are brought into existence under general laws. It seems reasonable to suppose that there could not be any serious objection to one or more governmental agencies passing legislation to set up a public corporation to serve the interests of a large area in the provision of facilities for handling its food. If private corporations designed for the sole purpose of earning a profit are desirable, can there be an objection to setting up a public corporation to provide a facility on a self-liquidating basis to serve the general welfare?

ADVISABLE POWERS AND LIMITATIONS OF A MARKET AUTHORITY

It has already been mentioned that a public corporation, or market authority, in most respects would be similar to a private corporation and have similar powers and duties. More specifically, such a market authority should have the following powers: (1) To acquire such land or other real estate as may be necessary for the provision of a market facility, and in this connection have the right of eminent domain; (2) to plan, lease, construct or cause to be constructed, any facilities that are deemed necessary for the successful operation of the wholesale market; (3) to borrow funds in some stated amount from any agency, public or private, from which loans may be available on reasonable terms, pledging as security for such loans the revenues to be derived from the market with the expressed understanding that no obligations incurred by such an authority shall be an obligation of the State, city, or any of the other governmental agencies that may join in the setting up of this authority; (4) to select and employ a capable market manager and such other employees and officials as shall be necessary to administer the affairs of the corporation; (5) to accept grants-in-aid or free work; (6) to lease the facilities to various elements of the industry who may wish to use them in the buying and selling of the products handled; (7) to sue and be sued; and (8) to dispossess tenants for nonpayment of rent and for habitual failure to abide by regulations. Any other powers that may seem desirable could be given to the market authority in the act of the governmental agencies that establish it.

Along with granting the powers to the authority, it might be well to place certain definite limitations upon it. For instance, the authority might be authorized to prevent and deny the right to permit: (1) Any discrimination against the sale on the market of any perishable farm product because of

the type of operator or area of production; (2) any use of the funds of the market for any purpose other than for the support, necessary expansion, and operation of the market; (3) the use of any of its funds to build additional markets in any other part of the New York area.

Legislation setting up a market authority would also deal with such points as how the directors are to be selected, what their term of office shall be, how the rentals and charges shall be fixed, how funds shall be handled, the audit and publication of accounts, and any other requirements that are deemed necessary.

If such an authority is provided it should be managed by a nonpolitical board which should be empowered to consider proposals made by the trade and others, conduct such research as is necessary in developing a comprehensive program for market improvement, and have the power to put such a program into operation. This board of directors should adequately represent the various governmental agencies that are concerned with the New York market, as well as the various interests in the produce industry that are involved in its operation.

Such an authority might well be set up by joint action of the city and State of New York, the State of New Jersey, and perhaps the Federal Government. The interest of the city of New York is obvious. The States of New York and New Jersey are vitally concerned because the market is an outlet for large quantities of produce raised on the farms of those States and because most of the receipts of the market are distributed to inhabitants in these 2 States. Because the New York market is an important outlet for growers in about 40 additional States, and is an important price-making mechanism for supplies that do not even move through it, some effort should also be made in the setting up of the authority to protect the interests of people in other parts of the United States outside of New York and New Jersey. Since it is impossible for each of these many States to participate directly in the setting up of the

market authority, probably some Federal participation would be a satisfactory substitute.

ADVANTAGES OF THE MARKET AUTHORITY METHOD OF ESTABLISHING A MARKET

The provision of a market through a market authority would have certain advantages over the building of the market by a private corporation or directly by some governmental agency. In general, it may be said that the public corporation would combine the advantages of corporate management with the necessary safeguards of public interest. More specifically, some of the advantages possessed by the market authority method are as follows:

(1) A public corporation properly set up and adequately representing the various interests concerned with the market would probably satisfy all the various elements that must be brought together in order to establish and operate a satisfactory market. A number of people are afraid of private ownership of the facility, but at the same time object to the market being built and operated by some political agency. The authority composed of a nonpolitical board, jointly set up by several independent governmental agencies with representation chosen from the industry, seems to be the most promising method of meeting these objections.

(2) In financing an undertaking of this type it is usually necessary to obtain about one-third of the total cost in cash or its equivalent before the remaining two-thirds can be borrowed. The public corporation would have several ways of obtaining this original cash and would have a number of sources from which it could borrow the additional two-thirds. The amount to be put up as cash might be obtained by such methods as (a) appropriation of funds by the various governmental agencies setting up the authority, such appropriations being more nearly secondary liens on the market than outright gifts; (b) grants from various

Federal agencies; (c) services of relief labor; and (d) free work rendered by various agencies of the Government. During recent years, a number of markets have been partially financed in one or more of the above ways. In borrowing the remaining two-thirds of the cost of the market, the public corporation would be able to obtain funds in the same way that they could be obtained by private corporation, and in the past it would have been able to borrow from some Federal agencies that did not make loans to private corporations.

(3) The setting up of a public corporation might make it possible to finance the market even though various governmental agencies decided against appropriating any funds for the purpose. However, the chance of the market being developed would be greatly enhanced by some appropriation or governmental loan. At least, a public corporation of this type would have several methods of attempting to finance the market.

(4) A proposal of this type should be satisfactory to the taxpayers since it does not necessarily place any burden on them. Any loan that might be made would have as security only the revenues to be derived from the market, and so would be repaid by the users of the market rather than by taxpayers who may not have a particular interest in it.

(5) A public corporation of this type would give the continuing kind of management that is necessary to make any business undertaking a success and which would be necessary if funds are to be borrowed on favorable terms. The corporation would be nonpolitical and nonprofit with the understanding that none of its revenues could be diverted to other uses.

(6) The board of directors of the corporation should consist of men who are fully acquainted with problems of marketing and who could give the facility a sound business management. An informed management of this kind would greatly enhance the probability of the successful operation of the market.

(7) Such a corporation giving representation to various groups in the industry and to the city of New York, the State of New York, the State of New Jersey, and people in other States or the Federal Government, would tend to bring about the cooperation of all marketing agencies, the city and civic organizations, and political bodies. This would be a long step toward the possible successful operation of the market.

Because of these advantages, unless some private corporation will take the initiative in providing a market, at the same time subjecting itself to proper regulations, probably the most practicable and feasible approach to the problem in New York would be the establishing of a public corporation or market authority. Such action would, of course, require legislation by the various governmental bodies concerned. In order that this legislation might be uniform and as well prepared as possible, a committee might be appointed by the Mayor of New York City, the Governors of the States of New York and New Jersey, and the Secretary of the United States Department of Agriculture, for the purpose of formulating plans and reaching decisions as to what is the best approach to the problem of getting the new market built and in operation. In setting up this committee care should be taken to see that it adequately represents growers, members of the trade, consumers, and any other groups that are concerned.

The appointment of such a committee would make it possible to start specific and concrete action without unnecessary delay. Definite responsibility would be placed on this group for finding a way to bring about the necessary market-improvement program in New York. Whenever such a committee, once appointed, is functioning in an effort to bring about the needed market reorganization, the research agencies will, of course, be willing to cooperate so that their research may be translated into action that will bring general public benefit.

HOW THE SYSTEM CAN BE IMPROVED

Operating Expense and Sources of Revenue in a New Market

ANNUAL EXPENDITURES

Approximations of the costs of developing a complete market on reasonably priced land and of the annual expenditures for operation and amortization (as outlined in previous sections of this report) are as follows:

Cost of market:	
Land.....	\$6, 000, 000
Buildings and facilities.....	8, 000, 000
Total.....	<u>14, 000, 000</u>
Annual expenditures:	
Amortization (\$14,000,000 in 25 years at 4 per cent).....	900, 000
Management, maintenance, taxes, etc.....	500, 000
Total.....	<u>1, 400, 000</u>

This amount for both operation and amortization of a new complete market would be about one-half of a million dollars less than the total rent now being paid in the Lower Manhattan market.

SOURCES OF REVENUE

In a new complete market there would be four general classes or groups of facilities from which revenue might be derived to pay the costs of operation and amortization. These are: (1) Stores, (2) sale platforms, (3) offices, auction rooms, etc., and (4) a farmers' market.

Each of these groups should yield a return based partly upon original cost and partly upon use of the facility in relation to the other parts of the market. It would not be

expected that the railroad yards and team tracks in themselves would yield a direct cash return to cover the cost of the land area on which they are built. They are essential adjuncts to other parts of the market, and most of their cost should be charged against the other facilities. But yards and team-track facilities are a necessary part of rail-transportation service, and must be provided by a terminal-operating agency, whether this agency be the railroad itself or a separate company that performs the terminal services. An allowance to the market-operating agency should therefore be made by the rail lines for each car handled through this market terminal, similar to the allowances received by existing private terminals in the New York harbor.

The buildings and structures in the market (store units, separate offices, sale platforms, and farmers' market) should yield a return proportional to expenditure and carrying charges. Specific store and office space would be rented outright for stated periods of time. The rental value of stores might not be uniform throughout the entire market, as some sections and locations might prove to be more advantageous than others. Some system should be adopted which would provide for a scale of rentals in accordance with the demand for different locations.

Sale platforms, for the display, sale, and delivery of products arriving by any means of transportation, would be used jointly or in common by different agencies. They might be used for auction or for private sale of goods arriving by rail, boat, or truck.

Charges for space on these platforms should therefore be based on amount or extent of use, such as per car, per ton, or per square foot of platform for each selling period. The method of collecting these charges might vary between receipts by different methods of transportation, according to prevailing rates, customs, and methods.

Rail transportation of fresh fruits and vegetables has long included special depots, piers, or terminals in large cities, where such products could be unloaded. But these terminals are more than mere delivery points—they are also primary marketing places. As the products are highly perishable, and must be sold as promptly as possible after being unloaded with the minimum amount of handling, the practice has developed of selling them on the spot where they are unloaded. Such terminal facilities have long been furnished as a part of the transportation service of the rail lines, and included in the special freight or express rates at which these perishable products are hauled. Much the same conditions also apply to deliveries by boat lines.

Motortruck transportation of fruits and vegetables, on the other hand, has developed with almost no inclusion of terminal facilities. The trucks have furnished practically no terminals of their own, but have gone directly to the dealers' stores or places of business. In other words, the dealer has furnished the terminal, and has received nothing but actual transportation from the truck. The entire system of truck transportation of these products and of truck-haul charges has been based upon these conditions. Truck transportation has offered an advantage, for it has enabled the dealer to get merchandise directly to his store without added delivery charges from some other unloading point; but the fact remains that the receiver of truck shipments has himself furnished a facility which for other methods of transportation has been provided by the carrier.

Platform space would be needed in a complete market for unloading and display of

auction products, and presumably for concentration and private sale of other commodities as well. The business of many dealers is somewhat seasonal, as they specialize in certain items, or in the products of certain shipping districts. One firm may have only a few cars a day during much of the year, but may jump to a daily volume of 15 to 20 carloads of seasonal products such as strawberries, asparagus, cantaloups, new potatoes, or peaches. Such a firm could hardly afford to maintain all the year a store large enough to handle this peak volume of a few weeks. Instead, the heavy receipts might be handled on the sale platforms.

There is also a strong desire on the part of most receivers to concentrate all offerings of certain seasonal commodities, such as strawberries, cantaloups, or peaches, at one point for a special daily sale at a specified hour. Here all supply and demand can be focused for a fast movement of the extremely heavy volume of these products when at the height of their season. Such a sale should be open to all receipts, of course, regardless of the method of transportation.

Whether to be paid by carrier, receiver, or shipper, a uniform charge should be made for the use of space on the sale platforms for products arriving by any form of transportation.

Based upon original costs and relative use of the market as a whole, the revenues needed to meet an annual expenditure of \$1,400,000 might be prorated to the various groups of facilities in something like the following proportions:

Store units.....	\$800,000
Sale platforms.....	350,000
Offices, auction rooms, etc.....	250,000
	<hr/>
Total.....	1,400,000

A farmers' market should likewise yield a total net return sufficient to pay operation and amortization charges on the land and facilities. As stated before, requirements for the farmers' market have not been included in these estimates of market area and costs.

Summary of Conclusions

In view of the facts and analysis presented in this report, it is recommended that a new, complete, modern wholesale fruit and vegetable market be constructed. Several sites have been discussed in detail, including a New Jersey location and a modernization of the present Lower Manhattan market. After analyzing the advantages and disadvantages of each, it is recommended that the new market be built at the western end of Long Island on some site between the Williamsburg Bridge and the Queensboro Bridge. In this market dealers should be permitted to make sales of any number of packages they wish. Other uses should be found for the present Washington Street market area and the produce piers, so that dealers can dispose of their property in this location on some equitable basis and move into the new market.

The new market should consist of modern store units complete with offices and basements, additional offices for members of the industry who do not operate stores, platform space for unloading, display, and sale of goods not handled through stores, auction sales rooms, team-track yards, streets at least 100 feet wide, parking area for trucks, space for a cold-storage plant, and probably a farmers' market, all enclosed with a fence. The initial construction should be held to the minimum of actual needs, with plans and provisions for expansion when, and if, it is proved to be necessary.

The market should be a union terminal, open to all means of transportation, where supplies can be unloaded directly on the sales floors, thereby reducing cartage to a minimum. The railroad operations in the market should be conducted either by a common operating company representing all rail lines or by some type of organization similar to the private terminals in the harbor area. This operating company would handle switching from float bridges or rail connections to the market, and perform terminal handling operations such as are now performed by the railroads at their own produce piers. This company should receive an allowance from the carriers in payment for the performance of this terminal service, this allowance to cover not only the actual terminal handling operations but also a part of the maintenance and amortization charges for sale platforms. Such charges should be so adjusted that total cost of operations to the railroads would be no more than the present costs, which include maintenance and rent of the produce piers. Rail operations to and from the market should include provision for diversion of carlot shipments on all connecting lines, both to other terminals or warehouses within the city, and to points beyond.

It is believed that a centralized market in this area, if built and regulated along the lines recommended in this report, would make annual savings in distribution costs of about \$8,500,000, after allowance has been

made for maintenance of the market and amortization of the investment over a period of 25 years. This estimate is based on the following expected savings on particular items: Cartage within the market, \$2,500,000; portorage within the market, \$600,000; time lost, because of congestion within the market, by trucks moving supplies to and from the market, \$1,200,000; cartage between the market and retail outlets \$800,000; rent on market facilities, \$500,000; pier maintenance and cost of unloading, \$400,000; margins of dealers (primarily in secondary markets), more than \$600,000; and unnecessary deterioration and spoilage, about \$1,900,000.

At the time the survey was made, it was estimated that such a new market could be built at a total cost of about \$14,000,000, including the purchase of a suitable site on Long Island.

The market might be constructed either by a private corporation with public-utility status and properly regulated, or by a public corporation or market authority. Since it is not known that any private corporation is interested in building a market under these conditions, probably the most feasible and practicable approach would be the establishment of a market authority by the city of New York and the States of New York and New Jersey, with some Federal participation representing the interests of people who live outside these two States. This market authority should be governed by a non-political board, empowered to consider proposals made by the trade and others, develop a comprehensive program for market improvement, and put such a program into operation.

The market authority should make more detailed plans and specifications for the market than are presented in this report; select the site; be empowered to borrow necessary funds, to acquire land, and to build new facilities. It should also be authorized to lease the stores or other facilities to the proper operating parties, thereafter exer-

cising general supervision of them; enforce such regulations as may be required by the trade, the city, and others; and from time to time make such improvements and changes as are necessary to maintain the efficiency of the market. This authority would not buy and sell produce but would merely provide satisfactory facilities in which private business would operate.

The management of the new market should be empowered to enforce regulations that will protect the consumer, the dealer, and the farmer, and that will promote efficiency. It is not possible to estimate the amount of benefits that would come from such management, but it is believed that they would be very great. At present the lack of regulation of hours of selling and the lack of timely information on supplies available for sale tends to disorganize the market and to cause wide variations in prices, which are harmful to everyone. Proper management of the new, centralized terminal would make prices more stable. As New York City price quotations are followed closely in many parts of the country, because of the importance of that market, this would have an important national effect.

The Department of Agriculture, with the issuance of this report, has gone as far as it can at present in the effort to bring about improved methods of handling fruits and vegetables in the Nation's largest city. It has no authority to put into effect the changes suggested here. To the end that definite results may be accomplished, it is suggested that a committee representing the various elements in the industry, as well as the various governmental agencies concerned, be appointed to work out plans for a definite action program. This Department will be in a position to do further work in developing the details of market location, lay-out, and management, in cooperation with any duly constituted agency which may be created to carry out plans for market improvements in New York City.

FRUIT AND VEGETABLE MARKETS OF NEW YORK CITY

Appendix

Detailed Tabulations of Receipts, Distribution, and Marketing Costs, with Explanatory Notes

TABLE 14.—Receipts and distribution of fruits and vegetables sold through Lower Manhattan wholesale market, New York City, based on records for the 12-month period May 1938–April 1939, and estimated annual receipts and distribution from modern markets located in Lower Manhattan, New Jersey, and Long Island

Item	Present market in Lower Manhattan	A modern market in—		
		Lower Manhattan	New Jersey	Long Island
Receipts:				
Rail receipts at market site:	<i>Carloads</i>	<i>Carloads</i>	<i>Carloads</i>	<i>Carloads</i>
Floated.....	63,850	69,375	0	75,995
Not floated.....	0	6,620	83,030	1,000
Rail receipts at team tracks other than at market site:				
In Manhattan:				
Floated.....	3,700	0	0	0
Not floated.....	6,620	0	0	0
In New Jersey.....	3,649	1,824	1,824	1,824
Trucked from Brooklyn.....	1,000	1,000	500	0
Boat receipts.....	31,978	31,978	31,978	31,978
Wholesale truck receipts:				
From New England and Long Island.....	7,843	7,843	6,667	7,843
From other States.....	35,727	35,727	30,368	35,727
Total.....	154,367	154,367	154,367	154,367
Distribution:				
Direct to retailers in—				
Manhattan.....	16,347	17,982	13,895	17,823
Bronx.....	4,677	5,145	3,975	8,049
Brooklyn.....	11,809	12,990	10,038	20,232
Queens.....	5,789	6,368	4,921	9,035
Richmond.....	540	594	540	540
Metropolitan New York.....	1,328	1,461	1,129	1,759
Long Island, excluding Brooklyn and Queens.....	1,544	1,698	1,312	1,845
Metropolitan New Jersey.....	4,631	5,094	13,893	4,631
Total.....	46,665	51,332	49,703	63,914

TABLE 14.—Receipts and distribution of fruits and vegetables sold through Lower Manhattan wholesale market, New York City, based on records for the 12-month period May 1938–April 1939, and estimated annual receipts and distribution from modern markets located in Lower Manhattan, New Jersey, and Long Island—Continued.

Item	Present market in Lower Manhattan	A modern market in—		
		Lower Manhattan	New Jersey	Long Island
Distribution—Continued.				
To jobbers in—	<i>Carloads</i>	<i>Carloads</i>	<i>Carloads</i>	<i>Carloads</i>
Central market.....	41,679	44,246	43,350	51,170
Other Manhattan.....	14,762	13,127	17,214	13,286
Bronx.....	13,489	13,021	14,191	10,117
Brooklyn.....	19,460	18,279	21,231	8,037
Queens.....	984	405	1,852	738
Richmond.....	634	580	634	634
Metropolitan New York.....	4,310	4,177	4,509	3,879
Long Island, excluding Brooklyn and Queens.....	3,009	2,855	3,241	2,708
Metropolitan New Jersey.....	14,409	13,946	5,147	14,409
Total.....	71,057	66,390	68,019	53,808
To chain stores in metropolitan area.....	18,290	18,290	18,290	18,290
To out-of-town buyers.....	18,355	18,355	18,355	18,355
Total distribution from market.....	154,367	154,367	154,367	154,367

EXPLANATORY NOTES ON TABLE 14

As indicated in column 1, 154,367 carloads were sold through the present Lower Manhattan market from May 1938 through April 1939. This includes about 36,500 car-

loads delivered from the piers to the trucks of out-of-the-market buyers.

Quantities sold in the present market direct to retailers in various boroughs, to jobbers in the market and in each borough, and to chain stores and out-of-town buyers, were estimated from sample analyses of dealers, and auction sales.

It was assumed that the same total number of carlots would be sold annually through each modern market as through the present market, but that there would be some shifts in methods of receipt and in distribution among the various boroughs, and in the proportions sold to jobbers and to retailers.

The assumption was that for a modern market in Lower Manhattan, team-track receipts in Manhattan that are now trucked to the market, and that part of the New Jersey team-track receipts now sold through Lower Manhattan, would be floated to the market site. Similar assumptions were made for the Long Island site. If the market were in New Jersey, it was assumed that 15 percent of the motortruck receipts now coming to Lower Manhattan would go direct to outlying jobbing markets in New York. This decrease of 6,535 carloads might be compensated for by additional rail receipts now received in the metropolitan area but not sold through Lower Manhattan market.

For a modern Lower Manhattan market, with traffic congestion eliminated, sales direct to retailers were estimated as 10 percent greater to each borough than through the present market. Sales to jobbers outside the central markets were decreased by the same quantities.

For the New Jersey market, sales direct to retailers were estimated as 15 percent less than at the present market for all New York boroughs, because of longer distances and tunnel and ferry tolls, but for metropolitan

New Jersey they were estimated as 200 percent greater than at the present market. Compensating changes were made in estimated sales to jobbers in the various boroughs.

For the Long Island site, it was assumed that the distribution to jobbers in the Wallabout district would be entirely eliminated, and that the 11,423 carlots now sold to Wallabout jobbers would be sold as follows: 8,423 carloads direct to Brooklyn retailers and 3,000 carloads direct to Queens retailers. Sales to jobbers in Queens and in the Bronx would be reduced 25 percent as compared with present distribution. The distribution through jobbers in other boroughs and metropolitan areas, except metropolitan New Jersey and Richmond, would be reduced 10 percent. Compensating changes by boroughs were made in sales direct to retailers.

Estimates of sales direct to jobbers in the central market were obtained as follows. The distribution study of dealers' records indicated that 27 percent of the 154,367 carloads, or 41,679, were sold to jobbers in the present market. For a modern Manhattan market with the elimination of congestion, it was assumed that sales direct to retailers would be increased 10 percent (or by 4,667 carloads) to 51,332 carloads. Of this increase it was estimated that all of the auction products included and about one-third of the non-auction products (about 55 percent of the total of 4,667 or 2,567 carloads) would be distributed to retailers through jobbers in the central market. Thus 41,679 plus 2,567 equals 44,246, the quantity shown as distributed through jobbers in the modern Manhattan market. Similarly, by adding 55 percent of the estimated increase in sales direct to retailers for the New Jersey and Long Island markets, the quantities sold through jobbers located in each of these markets were obtained.

TABLE 15.—Estimated wholesale city marketing costs for 154,367 carloads of fresh fruits and vegetables sold through present Lower Manhattan market, New York, during May 1938–April 1939, and estimated annual costs for equal quantities assumed to be sold through modern central markets at 3 specified locations

Item No.	Item	Present market in Lower Manhattan						A modern market in—								
		Lower Manhattan			New Jersey			Lower Manhattan			New Jersey			Long Island		
		Carloads	Cost per car-load	Amount	Carloads	Cost per car-load	Amount	Carloads	Cost per car-load	Amount	Carloads	Cost per car-load	Amount	Carloads	Cost per car-load	Amount
		Number	Dol-lars	1,000 dollars	Number	Dol-lars	1,000 dollars	Number	Dol-lars	1,000 dollars	Number	Dol-lars	1,000 dollars	Number	Dol-lars	1,000 dollars
1	COSTS FROM ARRIVAL TO BUYERS TRUCKS IN CENTRAL MARKET															
	Cartage:															
	From Manhattan team tracks:															
	Floated.....	3,700	41	152	0	0	0	0	0	0	0	0	0	0	0	0
	Not floated.....	6,620	41	271	0	0	0	0	0	0	0	0	0	0	0	0
	From New Jersey team tracks.....	3,649	45	164	1,824	35	64	1,824	25	46	1,824	40	73	1,824	40	73
	From Brooklyn.....	1,000	35	35	1,000	30	30	500	40	20	20	0	0	0	0	0
	From auction floor to central market stores, rail receipts.....	8,000	41	328	8,000	30	240	8,000	30	240	8,000	30	240	8,000	30	240
	From piers to central market stores, non-auction rail receipts (for modern markets from team tracks or sale platforms to jobbers' stores).....	31,350	36	1,129	8,000	25	200	8,000	25	200	8,000	25	200	10,000	25	250
	Auction samples from boat piers to auction floor (450 carloads of samples).....	15,000	3	45	15,000	3	45	15,000	4	60	15,000	3	45	15,000	3	45
	From boat piers to central market stores, auction sales.....	6,000	46	276	6,000	35	210	6,000	40	240	6,000	37	222	6,000	37	222
	From boat piers to central market stores, non-auction sales.....	13,978	41	573	13,978	30	419	13,978	35	489	13,978	32	447	13,978	32	447
	Intra-market cartage (catch-car-man):															
	Rail and boat receipts.....	4,487	25	112	4,487	12	54	4,487	12	54	4,487	12	54	4,487	12	54
	Truck receipts.....	11,764	25	294	11,764	12	141	11,764	12	141	11,764	12	141	11,764	12	141
	O. C. delivery or corresponding charge, auction sales:															
	Rail receipts.....	18,000	20	360	18,000	5	90	18,000	5	90	18,000	5	90	18,000	5	90
	Boat receipts.....	12,000	20	240	12,000	5	60	12,000	5	60	12,000	5	60	12,000	5	60
	Pierhead delivery, mostly non-auction rail receipts.....	6,500	31	202	0	0	0	0	0	0	0	0	0	0	0	0
	Total cartage from unloading point to and in the central market (items 1 to 14).....	1127,498	33	4,181	185,503	18	1,553	185,003	19	1,640	185,003	19	1,622	186,503	19	1,622
	Porterage in central market: Rail, boat, and truck receipts.....	134,000	10	1,340	146,000	5	730	146,000	5	730	146,000	5	730	150,000	5	750
	Rent for stores and offices used by fruit and vegetable industry (excluding rent of railroad piers paid by railroads): For modern markets amounts are estimated costs of amortization, taxes, administration, etc.....	154,367	9	1,400	154,367	32	5,000	154,367	9	1,400	154,367	9	1,400	154,367	9	1,400
	Margins in central market excluding cartage, portorage, and rent:															
	Auction and auction receivers' commissions and charges.....	45,000	43	1,935	45,000	43	1,935	45,000	43	1,935	45,000	43	1,935	45,000	43	1,935
	Wholesale receivers' commissions or margins.....	109,367	48	5,250	109,367	48	5,250	109,367	48	5,250	109,367	48	5,250	109,367	48	5,250
	Central market jobbers' margins.....	41,679	65	2,709	44,246	65	2,876	43,350	65	2,818	51,170	65	3,326	51,170	65	3,326
	Total margins in central market excluding cartage, portorage, and rent (items 18, 19, and 20).....	196,046	50	9,894	198,613	51	10,061	197,717	51	10,003	205,537	51	10,511	205,537	51	10,511

TABLE 15.—Estimated wholesale city marketing costs for 154,367 carloads of fresh fruits and vegetables sold through present Lower Manhattan market, New York, during May 1938–April 1939, and estimated annual costs for equal quantities assumed to be sold through modern central markets at 3 specified locations—Continued

Item	Item No.	A modern market in—												
		Present market in Lower Manhattan			Lower Manhattan			New Jersey			Long Island			
		Carloads	Cost per car-load	Amount	Carloads	Cost per car-load	Amount	Carloads	Cost per car-load	Amount	Carloads	Cost per car-load	Amount	
COSTS TO RAILROADS AND TRUCKS HAULING TO MARKET														
Costs to railroads from end of rail haul to market:														
Switching, float-bridge operation at New Jersey side, and floating and return of empty cars.....	44	67,550	13	878	69,375	13	902	0	0	0	0	0	14	1,064
Refloating of cars not unloaded on first trip across river.....	45			81										0
Costs at market site absorbed by railroads (items 22 and 27).....	46	63,850	27	1,713	75,995	11	823	88,030	9	747	76,995	11	845	
Total costs to railroads from end of rail haul to market.....	47	1 67,550	40	2,672	1 75,995	23	1,725	83,030	9	747	1 76,995	25	1,909	
Costs to trucks hauling to market from entrance to tunnels or ferries to market and return:														
Tunnel and ferry tolls and mileage costs between tunnels or ferries and market:														
From west of Hudson River.....	48	35,727	5	179	35,727	5	179	30,368	0	0	35,727	7	250	
From east of Hudson River.....	49	7,843	0	0	7,843	0	0	6,667	5	33	7,843	0	0	
Value of time lost due to inadequate market facilities (item 29).....	50	43,570	5	218	43,570	0	0	37,035	0	0	43,570	0	0	
Total costs to trucks hauling to market from entrance to tunnels or ferries to market and return.....	51	1 43,570	9	397	1 43,570	4	179	1 37,035	1	33	1 43,570	6	250	

¹ These are not the totals of the carloads given in items preceding the totals.

² Does not include value of time which buyers' trucks would normally spend in the market, and which is not attributable to traffic congestion or lack of loading space.

EXPLANATORY NOTES ON TABLE 15

The locations of modern markets for which costs are compared are (1) at or near the present Lower Manhattan market, (2) in New Jersey between Greenville and the entrance to the Lincoln Tunnel, and near the Hudson River, and (3) in the western end of Long Island, near the Brooklyn-Queens boundary line. The so-called modern markets are considered to have adequate facilities as outlined in this report under "Kind of facilities needed." The modern market in Lower Manhattan (as well as those in New Jersey and Long Island) is assumed to be on approximately 85 acres of land. The Manhattan site would include frontage on the Hudson River for float bridges, so that cars could be switched from the floats to the market.

The cost estimates for the present market are for the 154,367 carloads which were sold through the market from May 1938 through April 1939. The number of carloads received at various railroad and boat piers and team tracks are based on records of the Agricultural Marketing Service (table 14). The distribution from the market to jobbers and retailers in the various boroughs, to chain stores, and to out-of-town buyers is based on information supplied by dealers and handlers (table 14). It was assumed that 154,367 carloads would be sold through each market, but for each market it was necessary to make assumptions as to the distribution (table 14 with explanatory notes).

In this analysis the cost of floating the cars across the river is considered to be a transportation cost. Costs after arrival at the market, including rent and maintenance of piers at the present market and unloading, are considered costs of marketing in New York even though paid by the railroads. All costs accruing from arrival at the market (or at team tracks or boat piers of receipts sold through the market) until the products reach the retail outlets or trucks of out-of-

town buyers, are included in the wholesale marketing costs, although part of these so-called wholesale marketing costs, such as cartage to retail outlets, are a part of the retailers' expenses.

EXPLANATORY NOTES BY ITEMS—PARAGRAPH NUMBERS CORRESPOND TO ITEM NUMBERS IN TABLE 15

1. The cartage rate of \$41 per car is a weighted average, using Market Truckmen's Association published rates per package to the market from railroad tracks north of Fourteenth Street, average number of packages per car, and approximate number of cars of each principal commodity trucked to market from Manhattan team tracks. Most of the so-called cartage in the market area is truck hauling, although some horse-drawn carts are used.

2. See item 1.

3. The rate per carload to the present market is an average based on current rates. For a modern Manhattan market, through elimination of traffic congestion and reorganization, this cost would probably be reduced to \$35 per carload. The rate to a modern New Jersey market, through reduction of distance and elimination of tolls, was estimated at \$25 per carload. Because of the longer distance the rate to Long Island was estimated at \$40 per car. It was assumed that one-half the quantity trucked to the present market would be trucked to each modern market. The other half would come to the market by rail.

4. This quantity of 1,000 carloads is from Brooklyn team tracks and Wallabout farmers' market. Cartage from Brooklyn is approximately \$35 per carload. For some products it is higher, and on others, as potatoes in full carloads, it is lower. Differentials in rates to modern markets in Manhattan and New Jersey are due to elimination of congestion and to tolls. Variations in quantity taking this haul are in accordance with estimated receipts at the markets shown in table 14.

5. The rate of \$41 is a weighted average of auction products from the railroad piers to the present market, using published rates. For each modern market the rate was considered at \$30 per carload because of elimination of congestion and reorganization of facilities. The charge applies on 8,000 carloads moved through stores in the markets (26,000 auction rail receipts, minus 18,000 delivered O. C.).

6. The rate of \$36 is a weighted average (table 19). For the modern markets in Manhattan and New Jersey it was assumed that about one-fourth of 31,350, or 8,000 carloads, would move to jobbers' stores in the market from sale platforms or team tracks at a cartage rate of \$25 per carload. For Long Island, jobbers in the market would presumably handle a larger quantity, and it was estimated that 10,000 cars would be trucked to stores.

7. It was estimated that 15,000 of the 18,000 carloads of boat receipts sold at auction required a charge for trucking samples from the boat pier to the auction display room and return. The charge of \$3 per carload at the present market is based on a rate of 10 cents each way on 15 packages out of each carload. Generally this charge is paid by the steamship companies. The rate to New Jersey was considered as \$4 per carload, because of tunnel and ferry tolls.

8. The 6,000 carloads represent the difference between the total boat receipts of 18,000 carloads of auction products and the 12,000 carloads delivered O. C. The rate of \$46 is an approximate average for auction products. Rates from boat piers to modern markets are based on the present rate corrected for distance, tunnel and ferry tolls, and elimination of market congestion.

9. The 13,978 carloads are the remainder when 18,000 carloads of boat auction receipts are subtracted from total boat receipts of 31,978 carloads. The \$41 rate per carload is an approximate average for non-auction products from the boat piers. Rates to

modern markets are estimates obtained as described in item 8.

10. The distribution survey indicated that 27 percent of the rail and boat receipts of 110,797 carloads were sold to jobbers in the present market. It was estimated that 15 percent of these, or 4,487, were trucked from store to store. The customary charge for trucking from store to store ("catch-car-man" service) in the market is 5 cents per package, or about \$25 per carload. For each of the modern markets it was assumed that the same quantity would be trucked from store to store but that the rate per carload would be approximately one-half of the present rate, or \$12 per carload.

11. It was estimated from the distribution survey that 27 percent of the truck receipts of 43,570 carloads or 11,764 carloads, took the catch-car-man charge. (For rates see item 10.)

12. The average O. C. delivery charge at the present market, obtained by weighting the published rates per package by the approximate number of packages of each auction product sold, is \$20 per carload. This charge is paid by out-of-the-market auction buyers whose trucks are driven on the piers for their purchases. They have their loads checked by the trucking concern handling the deliveries to ascertain that the identical lots purchased are actually loaded. It was estimated that a charge of \$5 per carload for checking service would be necessary in the modern markets. The distribution study of auction sales indicated that 68 percent of the sales were O. C. delivery, and the quantity to which the O. C. charge is applied—18,000 carloads—is approximately 68 percent of the total auction sales of rail receipts of 26,000 carloads.

13. See item 12 for methods of estimating rates and quantities.

14. The figure of 6,500 carloads is based on information supplied by truckmen as to percentage of the rail receipts of each commodity which now take pierhead delivery. Some of the principal commodities were cantaloups, peaches, and tomatoes. Included in this

quantity are tomatoes sold at auction, amounting to approximately 1,000 carloads. The charge of \$31 per carload is a weighted average, using the published cartage rates for pierhead delivery and the estimated quantities of each commodity handled in that manner. At modern markets, it is assumed that this practice would be eliminated.

16. Information from wholesale dealers indicated that the portorage in the present market averaged about \$10 per carload. This includes wages of regularly employed porters and extra porters. For each modern market \$5 per carload was allowed, as opinions of members of the New York trade were that one-half of the portorage per carload could be saved with adequate facilities. The 30,000 carloads of O. C. delivery plus 6,500 pierhead delivery were not moved through the market, and these quantities were subtracted from the total receipts of 154,367, leaving 117,867 cars. However, some of the cars sold within the market had double portorage costs, and the total number of carloads on which portorage accrued was figured as 134,118. For each of the modern markets the O. C. sales of 30,000 carloads were deducted from the total, leaving 124,367 carloads. To this were added one-half of the intra-market sales estimated for each location, as it was estimated that one-half of these intra-market sales would take two portrages. For method of estimating intra-market sales to jobbers in each market see notes on table 14. Total estimated intra-market sales to jobbers in terms of carloads were: for modern Manhattan 44,246; for New Jersey 43,350; for Long Island 51,170.

17. Rent paid by the fruit and vegetable industry at the present Lower Manhattan market, including rental value on properties owned by occupants, is \$1,400,000 per year according to the 1939 survey. This is made up of \$1,140,000 for fruit and vegetable stores and selling space and facilities other than piers. Rental value of other offices used by the industry, including offices of brokers, auction receivers, truckmen, etc.,

was \$260,000. In addition, the railroads pay about \$488,000 annual rent for piers for fruit and vegetable use (item 22).

The figures on estimated annual costs of amortization, taxes, and administrative expenses for modern markets at three sites are based on certain assumptions. Since actual locations of the 85-acre tracts are not specified, the estimates for the costs of the new markets are necessarily only approximations.

The assumptions on which the estimated costs are based are as follows:

(a) The approximate average assessed value of land and improvements in each general area is assumed as the cost of the tract on which the market is to be built, as assessments in New York and New Jersey are supposed to be at the full value of land and improvements. It is assumed that costs of acquiring the properties would be less than 5 percent of the assessed value, and some allowance has been made for this in the estimated value for each area.

(b) The assessed value per square foot is for land within property lines. It is assumed that 65 percent of the land area, or on the average about 28,300 square feet per acre, is within property lines.

(c) The salvage value of the present buildings at each site is assumed to be sufficient to cover costs of their removal. The cost of \$8,000,000 for modern buildings and facilities on an 85-acre site, as described in the section called "Kind of facilities needed," is based partly on estimates of the New York City Department of Public Markets for a typical wholesale market in Brooklyn, and in part on the costs for similar type of structures in other cities.

(d) The amortization costs were computed on the basis of amortization in 25 years at 4 percent on the estimated value of land and facilities. This would amount to 6.401 cents per annum on each dollar of cost. In addition, annual taxes were assumed to average 2 percent of the total cost. Charges are also included for administration, insurance, and upkeep (table 16).

TABLE 16.—*Estimated costs of amortization, taxes, administration, insurance, and upkeep for modern markets at three locations*

Item	A modern market in—		
	Lower Manhattan	New Jersey	Long Island
Approximate average assessed value per square foot within property lines for the general area.....	Dollars 20	Dollars 2.50	Dollars 2.50
Approximate assessed value per acre.....	566,000	71,000	71,000
Assumed cost of 85 acres.....	48,000,000	6,000,000	6,000,000
Assumed cost of facilities.....	8,000,000	8,000,000	8,000,000
Total.....	56,000,000	14,000,000	14,000,000
Annual payments required to amortize in 25 years at 4 percent.....	3,585,000	896,000	896,000
Taxes.....	1,120,000	280,000	280,000
Administration and operation.....	100,000	100,000	100,000
Upkeep, insurance, and miscellaneous.....	195,000	124,000	124,000
Total.....	5,000,000	1,400,000	1,400,000

18. The auction and auction receivers' commission and charges, excluding rent, were estimated from information obtained from auction receivers and auction companies. As practically no cartage or portorage applies on the auction goods until after sale, these items did not enter into the computation. On certain commodities many auction receivers made a flat charge of \$25 commission, plus the auction commission of 1¼ percent, with sorting costs also charged back to the consignees. In some instances the selling charge was 5 percent, including auction selling commission. The average sale value per car of auction commodities for the period approximated \$1,100. In the case of auction sellers who had representatives in New York, the approximate expense of the representatives was included, plus sorting charges and the auction commission. The average auction and auction receivers' margin approximated \$43 per car after making a deduction for rent of auction receivers' and shippers' representatives. The amount is intended to include sorting charges of \$3.50 to \$6 per car,

but not the \$2.59 per car for sorting labor which is paid to the railroads and included in unloading charges. The charge per carload of \$43 applies to the 45,000 carloads sold at auction and is considered the same for each location. It would vary from year to year with the price level and other factors.

19. A mimeographed report, A Survey of the Division of the Consumer's Dollar Used in Purchase of Fresh Fruits and Vegetables in New York City, July 31, 1936, published by the Department of Public Markets, Weights and Measures of New York City, contains much information in regard to margins of dealers handling fruits and vegetables. A survey by the Federal Trade Commission entitled "Agricultural Income Inquiry, 1937" also contains much information on marketing costs and margins. Cornell Agricultural Experiment Station Bulletin No. 721, An Economic Study of Fruit and Vegetable Wholesaling and Jobbing Firms in New York City, contains detailed information on costs of wholesalers and jobbers and other cost data. Figures derived from these studies and corrected for prices and conditions applicable to the period of the survey, indicated that non-auction wholesale receivers' commissions or margins, excluding cartage, portorage, and rent paid by the wholesalers, averaged about \$48 per carload. The New York wholesale value per carload for all fruits and vegetables during the period of the survey was approximately \$800. The margin applied to the 109,367 carloads of non-auction products handled through the market. The same rate per carload of \$48, excluding cartage, portorage, and rent, was estimated for each of the 3 locations. There might be some change in the margins at the different locations, but as the principal savings would be in costs of cartage, portorage, and rent, other possible changes in margins are ignored in this estimate.

20. The jobbers' margin (excluding cartage, portorage, and rent) of \$65 per carload was derived from the same sources as indicated for item 19. The statement on receipts

and distribution (table 14) shows the number of carloads handled by jobbers in the present Lower Manhattan market and estimated numbers in the three modern markets.

22. The figure of \$488,000, rent of piers for fruit and vegetable use, is taken from data supplied by the railroads. It is about three-fourths of the total rent of \$640,000 per year for the seven piers on which rail receipts of fruits and vegetables are handled. The piers are: 17—N. Y. C.; 20, 21—Erie; 22—B. & O.; and 27, 28, and 29—P. R. R.

23. Unloading cost at the present market of floated cars is taken from data supplied by railroad officials. To the unloading cost per carload of \$12.75 on the 63,850 carloads has been added the cost of labor for sorting 26,000 carloads of auction rail receipts at \$2.59 per carload and 5,000 carloads of cantaloups and melons at \$2.50 per carload, making a total of \$894,000 for unloading and sorting labor at the present market. The cost for unloading and sorting at modern markets is estimated to be \$7 per carload. The quantities are taken from the distribution study (table 14).

24. Float-bridge operation at the market site of \$2 per carload on cars floated across the river and switched to team tracks is taken from data supplied by the railroads.

25. The cost of \$2 per car for switching is taken from railroad data.

26. The cost of maintenance of piers at the present market is based on information from the railroads and applies to fruit and vegetable space. It includes such items as cleaning, lighting, and administration.

28. In any market, even with modern and adequate facilities, there would be some waste in the process of marketing fruits and vegetables. With the congested conditions and outmoded facilities in the present New York market, there is excessive waste. Jolting and handling on hand trucks, delay, exposure, and extra cartage and handling cause waste or spoilage which would be avoidable with adequate facilities. The Agricultural Income Inquiry, 1937, of the

Federal Trade Commission, pp. 157-161, contains some information on loss through spoilage of fruits and vegetables. This and reports from various sources including several chain stores show that losses from waste or spoilage vary widely, but that 7 percent of the retail sale value would probably be a fair average for New York City under present conditions. For the period of the survey the retail value was approximately \$1,400 per carload, so the spoilage losses would amount to slightly under \$100 per carload. The assumption is that about one-eighth of this spoilage, amounting to \$12 per carload, was due to outmoded facilities and methods in the Lower Manhattan market.

29. The time lost by trucks bringing products to market, because of congestion in the market, was figured at \$5 per carload. This was based on a survey of incoming trucks, made in 1939, which indicated that time lost per truckload due to congestion or lack of unloading space in the market was 2½ hours in summer and 1¾ hours in winter, averaging approximately 2 hours. Considering the time of truck and driver worth \$1.50 per hour, the value of time lost per truckload would be \$3. The survey indicated that loads of incoming trucks on the average were about 60 percent of a carload. The value of time lost per carload was therefore estimated at \$5.

30. The value of time lost by the trucks of buyers, because of traffic congestion in the market and lack of loading space, was estimated at \$10 per carload hauled by retailers, and at \$5 per carload hauled to jobbers and chain stores and taken by out-of-town buyers.

Information on rates of cartage to retailers in each borough was obtained from a survey of 430 representative retailers in Metropolitan New York in the spring of 1939. This indicated an average loss of time in the market of 0.9 hour per trip. At \$1.10 per hour for driver, truck, and helper in some instances, and at an average of 50 packages or one-tenth carload per trip, the value of this

lost time would amount to \$10 per carload.

Information on cartage costs to jobbers in the outlying markets was obtained by interviews and by a survey among buyers in the Washington Street market. This information was checked with data supplied by commercial concerns who hire trucks, and by information from other sources. The loads of these buyers averaged 220 packages, or 44 percent of a carload. The average time lost by a jobber's truck in the Lower Manhattan market because of lack of adequate facilities was 1.4 hours, according to the survey. Figuring the time of driver, truck, and in some instances a helper, at \$1.50 per hour, the value of loss of time per truckload would be \$2.10. At the rate of 2.3 truckloads to one carload, the value of time lost per carload was therefore approximately \$5.

The same value was figured for loss of time by the trucks hauling to chain-store warehouses, and by the trucks of out-of-town buyers—that is, of trucks from outside the metropolitan district.

The quantities to which these rates apply (table 14), value of time lost by the trucks of each class of buyers, and totals, are as follows:

Retailers.....	46,665 carloads at \$10 per carload...	\$466,650
Jobbers.....	71,057 carloads at \$5 per carload....	355,285
Chain stores.....	18,290 carloads at \$5 per carload....	91,459
Out-of-town buyers..	18,355 carloads at \$5 per carload....	91,775
Total.....	154,367 carloads.....	1,005,160

32. Source of information on rates of cartage to retailers is indicated under item 30. The cost per package reported by the retailers for hauling to their stores in their own trucks, together with the average retailer's load from Lower Manhattan of 50 packages, was used in arriving at the estimated cartage per carload of \$37 from the market (not including value of time lost in the market because of traffic congestion and lack of loading space). (See table 17.) The cartage costs from other market sites were also estimated from information obtained in the retailer survey, corrected for extra mileage charges and for tunnel and ferry charges

of 85 cents for a round trip where such charges would be incurred. The quantities estimated as sold direct to retailers in the present market and in the 3 modern markets are shown in table 14.

33. Sources of information on costs to jobbers outside the Lower Manhattan market are indicated under item 30. Rates to each borough were weighted by the estimated number of carloads hauled by jobbers, and the average costs from each market site are shown in table 17. The cost for the present market does not include value of time lost in the market because of traffic congestion and lack of loading space. Tunnel and ferry tolls of \$1.60 round trip for the jobbers' trucks crossing the Hudson River were used in computing rates.

34. The same quantities indicated in item 33 were used in figuring these costs from jobbers to retailers. The rates per carload for the present market and for the modern markets are based largely on the retailers' survey and are weighted averages figured separately for each borough and each market (table 17). That some deliveries are made by jobbers to retailers is taken into consideration; about 15 percent being estimated as the average, but the proportion varies among the boroughs. These deliveries by jobbers are usually at a lower cartage cost than deliveries in the retailers' trucks.

35. The charge of \$35 per carload (not including value of time lost within the market) was based on information supplied by chain stores. Because of additional tunnel and ferry tolls, the charge was estimated at \$40 for a New Jersey site. The quantity 18,290 cars was taken from the distribution table and was assumed to be the same for each site.

36. Cartage from the chain-store warehouses to the stores was estimated at \$42 per carload—the same as the rate shown in item 34.

38. Jobbers' margins in outlying markets, exclusive of cartage, was figured at \$75 per carload from information obtained in various studies mentioned in item 19. Further

information was obtained direct from jobbers, many of whom stated that their gross margin, including cartage from the central market, and in a few instances including deliveries to retailers, was about 20 to 25 cents per package, varying from 15 cents on tomatoes to 30 cents on citrus fruits. This gross margin would be about \$115 per average carload of 500 packages. Subtracting cartage, which averaged about \$40 per car for all purchases including O. C. charges on auction products, leaves \$75 per carload for the margin, excluding cartage. Quantities to which the jobbers' margins apply are the same as shown in item 33.

39. The chain-store margins for wholesaling functions, excluding cartage, were estimated at \$50 per carload for each location. The quantities to which this margin applies are the same as shown in item 35.

44. The cost of switching in New Jersey preparatory to floating the cars to Manhattan was estimated by the railroads at about 17 cents per ton, or about \$2.50 per car. Float-bridge operation on the New Jersey side was estimated at \$2 per car. Cost of floating cars across the Hudson River was estimated at \$8.72 per car from data furnished by the railroads. The total cost per car for switching and float-bridge operation on the New Jersey side, and floating, was estimated at \$13 per carload at the present market and for a modern Manhattan market. For a Long Island site the corresponding cost was estimated at \$14 per carload.

45. The total cost of refloating cars that were not completely unloaded was estimated from data obtained from railroad officials at

\$81,000 for the year. It is assumed that with modern market facilities there would be no refloating.

46. See explanatory notes for items 22 to 26 inclusive.

48 and 49. Motortruck receipts in the Lower Manhattan market for the year were segregated into those originating west of the Hudson River and those originating east of the Hudson River. It was found that approximately 35,727 carloads originated west of the Hudson River and 7,843 originated east of the river. The tunnel, ferry, and intracity mileage of \$5 per carload at the present market site was computed as follows. The survey of incoming trucks indicated round trip tunnel or ferry tolls to average \$1.60. Extra mileage from entrance to tunnels or ferries to market and return was about 5 miles at a cost for truck, driver, and helper of about 30 cents per mile, or \$1.50. The cost per truck was about \$3.10. For a carload, equivalent to $1\frac{2}{3}$ truckloads, the estimated cost was \$5.

The same quantity and charge per carload were estimated for a modern market in Lower Manhattan and the same quantity but a higher charge of \$7, due to extra mileage, was estimated for the Long Island site. For New Jersey, no tunnel or ferry charge was estimated for receipts from west of the Hudson River, but a charge of \$5 per carload for tolls and mileage was estimated for truck receipts from east of the river. The truck receipts from both west and east of the river at the New Jersey site were estimated at 85 percent of those at the present market.

50. See notes on item 29.

TABLE 17.—Estimated cost of cartage (trucking) of fruits and vegetables from present Lower Manhattan market to retailers direct and to jobbers and thence to retailers in various boroughs or districts, May 1938–April 1939, and comparisons with estimated costs for modern markets at specified locations ¹

COST OF CARTAGE DIRECT TO RETAILERS FROM CENTRAL MARKET

Borough or district to which products are trucked from central market	Present market in Lower Manhattan ²			A modern market in—								
				Lower Manhattan			New Jersey			Long Island		
	Car-loads	Cost per carload	Amount	Car-loads	Cost per carload	Amount	Car-loads	Cost per carload	Amount	Car-loads	Cost per carload	Amount
	<i>Number</i>	<i>Dollars</i>	<i>Dollars</i>	<i>Number</i>	<i>Dollars</i>	<i>Dollars</i>	<i>Number</i>	<i>Dollars</i>	<i>Dollars</i>	<i>Number</i>	<i>Dollars</i>	<i>Dollars</i>
Manhattan.....	16,347	35	572,145	17,982	35	629,370	13,895	50	694,750	17,823	35	623,805
Bronx.....	4,677	42	196,434	5,145	42	216,090	3,975	57	226,575	8,049	37	297,813
Brooklyn.....	11,809	35	413,315	12,990	35	454,650	10,038	50	501,900	20,232	33	667,656
Queens.....	5,789	37	214,193	6,368	37	235,616	4,921	52	255,892	9,035	30	271,050
Richmond.....	540	30	16,200	594	30	17,820	540	30	16,200	540	36	19,440
Metropolitan New York.....	1,328	44	58,432	1,461	44	64,284	1,129	59	66,611	1,759	39	68,601
Long Island, other than Brooklyn and Queens.....	1,544	42	64,848	1,698	42	71,316	1,312	57	74,784	1,845	34	62,730
Metropolitan New Jersey.....	4,631	45	208,395	5,094	45	229,230	13,893	33	458,469	4,631	52	240,812
Total.....	46,665	37	1,743,962	51,332	37	1,918,376	49,703	46	2,295,181	63,914	35	2,251,907

COST OF CARTAGE FROM CENTRAL MARKET TO JOBBERS

Manhattan.....	14,762	27	398,574	13,127	27	354,429	17,214	34	585,276	13,286	27	358,722
Bronx.....	13,489	35	472,115	13,021	35	455,735	14,191	42	596,022	10,117	32	323,744
Brooklyn.....	19,460	30	583,800	18,279	30	548,370	21,231	37	785,547	8,037	28	225,036
Queens.....	984	30	29,520	405	30	12,150	1,852	37	68,524	738	25	18,450
Richmond.....	634	30	19,020	580	30	17,400	634	30	19,020	634	35	22,190
Metropolitan New York.....	4,310	37	159,470	4,177	37	154,549	4,509	44	198,396	3,879	34	131,886
Long Island, other than Brooklyn and Queens.....	3,009	35	105,315	2,855	35	99,925	3,241	42	136,122	2,708	36	81,240
Metropolitan New Jersey.....	14,409	35	504,315	13,946	35	488,110	5,147	27	138,969	14,409	37	533,133
Total.....	71,057	32	2,272,129	66,390	32	2,130,668	68,019	37	2,527,876	53,808	31	1,694,401

COST OF CARTAGE FROM JOBBERS TO RETAILERS

Manhattan.....	14,762	42	620,004	13,127	42	551,334	17,214	42	722,988	13,286	42	558,012
Bronx.....	13,489	42	566,538	13,021	42	546,882	14,191	42	596,022	10,117	42	424,914
Brooklyn.....	19,460	42	817,320	18,279	42	767,718	21,231	42	891,702	8,037	42	337,554
Queens.....	984	42	41,328	405	42	17,010	1,852	42	77,784	738	42	30,996
Richmond.....	634	35	22,190	580	35	20,300	634	35	22,190	634	35	22,190
Metropolitan New York.....	4,310	45	193,950	4,177	45	187,965	4,509	45	202,905	3,879	45	174,555
Long Island, other than Brooklyn and Queens.....	3,009	45	135,405	2,855	45	128,475	3,241	45	145,845	2,708	45	121,860
Metropolitan New Jersey.....	14,409	42	605,178	13,946	42	585,732	5,147	42	216,174	14,409	42	605,178
Total.....	71,057	42	3,001,913	66,390	42	2,805,416	68,019	42	2,875,610	53,808	42	2,275,259

¹ See table 14 for quantities used in this table. Cartage rates per carload are estimates based on surveys of retailers, jobbers, and chain-store cartage costs, made in 1939.

² Cartage costs do not include the value of time lost within the Lower Manhattan market because of congestion and lack of loading space.

TABLE 18.—*Summary of marketing costs from arrival in New York City to retail outlets of 47,423 carlots of fruits and vegetables which were not sold through Lower Manhattan wholesale market, May 1938–April 1939*

Item	Quantity to which cost applies	Average cost per carload	Amount
Cartage:			
From team tracks or receivers' stores to retailers, excluding chain-store and farmers' market receipts.....	18,109	55	996,000
To chain-store warehouses from farmers' markets.....	1,010	40	40,000
From chain-store warehouses to stores.....	8,243	42	346,000
From farmers' markets to retail outlets other than chain stores.....	21,071	45	948,000
Total.....			2,330,000
Margins and selling costs, excluding cartage:			
Receivers' and jobbers' margins, excluding farmers' market and chain-store receipts.....	18,109	85	1,539,000
Costs of selling by farmers at farmers' markets, excluding transportation and containers.....	23,081	45	1,038,000
Chain-store margin for wholesaler functions.....	8,243	50	412,000
Jobbers' margin on farmers' market receipts, excluding chain-store sales.....	7,024	75	527,000
Total.....			3,516,000
Total and average.....	47,423	123	5,846,000

EXPLANATORY NOTES ON TABLE 18

CARTAGE

The quantities for each class of haul are from the study of receipts and distribution. The cartage rate of \$55 per carload from team tracks or receivers' stores to retailers was based on an average rate of \$42 per carload for this service. It was estimated that one-third of this quantity of 18,109 carloads took 2 hauls, 1 from team track or store to jobber,

and 1 from jobber to retailer. The other two-thirds was assumed to go direct to retail outlets. In this way an average of about \$55 cartage for the entire quantity was derived. The proportion of farmers' market receipts sold to hucksters, jobbers, and retailers direct was approximately one-third to each class. This estimate is based on information in Cornell Agricultural Experiment Station Bulletin 709, page 53. The chain stores purchased 1,010 carloads in the farmers' market and this was deducted from the 22,081 carloads before dividing the remainder of 21,071 among hucksters, jobbers, and retailers. Cartage cost per carload on the 7,024 carloads sold to hucksters was considered as \$30. On the one-third sold to jobbers the cartage through to the retailer was considered as \$65 per carload. On the one-third sold direct to retailers cartage was considered as \$40. The average of \$45 for the 21,071 carloads was thus derived. Chain-store cartage rates are based on information supplied by chains.

MARGINS AND SELLING COSTS, EXCLUDING CARTAGE

The average jobbers' margin per car on receipts at warehouses or team tracks was considered as \$65. On the assumption that one-third of the quantity was resold to another jobber, the average margin was computed at approximately \$85 per carload. The cost of selling at farmers' markets was derived from Cornell Agricultural Experiment Station Bulletin 709, page 29. The 23,081 carloads includes 1,000 carloads shown in table 15, item 4, in addition to the quantities 21,071 carloads and 1,010 carloads shown in the first part of table 18. The chain-store and jobbers' margins were from the 1939 survey.

TABLE 19.—Computation of average cartage per carload of principal non-auction fruits and vegetables from piers to Lower Manhattan market stores, New York City, 1938

[Illustrates method of computing weighted average cartage rate for various types of haul]

Leading commodity and origin	Domestic unloads	Containers			Cartage		
		Usual type	Per car	Total	Rate per container ¹	Total amount	Average rate per car
	<i>Carloads</i>		<i>Number</i>	<i>Number</i>	<i>Dollars</i>	<i>1,000 dollars</i>	<i>Dollars</i>
Apples, eastern.....	6,568	Bushel basket.....	525	3,448,200	0.07	241	37
Artichokes, California.....	231	Box.....	500	115,500	.06	7	30
Asparagus, all.....	1,134	Crate (1 dozen).....	600	680,400	.06	41	36
Beans, snap, all.....	6,376	Bushel.....	600	3,825,600	.07	268	42
Broccoli, all.....	923	Pony crate.....	500	461,500	.07	32	35
Cabbage, northern.....	2,077	50-pound sack.....	480	996,960	.07	70	34
Cabbage, southern and western.....	2,853	Western crate.....	300	855,900	.125	107	38
Cantaloups, all.....	3,308	Crate.....	312	1,032,096	.08	83	25
Honey Dews, all.....	2,020	do.....	500	1,010,000	.08	81	40
Carrots, all.....	3,425	Western crate.....	300	1,027,500	.125	128	38
Cauliflower, all.....	2,740	Pony crate.....	400	1,096,000	.07	77	28
Celery, all.....	4,512	½ crate.....	350	1,579,200	.08	126	28
Cranberries, all.....	99	¼-barrel box.....	900	89,100	.05	4	45
Cucumbers, all.....	2,715	Bushel.....	450	1,221,750	.07	86	32
Eggplant, all.....	568	1½-bushel crate.....	400	227,200	.07	16	28
Endive, all.....	127	Western crate.....	320	40,640	.125	5	40
Grapes, eastern.....	131	12-quart basket.....	1,200	157,200	.04	6	48
Lettuce.....	7,395	Western crate.....	320	2,366,400	.125	296	40
Onions.....	6,419	50-pound sack.....	500	3,209,500	.07	225	35
Peaches, southern and eastern.....	3,069	Bushel.....	400	1,227,600	.07	86	28
Do.....	3,069	½ bushel.....	800	2,455,200	.06	147	48
Peas, all.....	2,928	Bushel.....	600	1,756,800	.07	123	42
Peppers, all.....	2,809	1½ bushel crate.....	400	1,123,600	.07	79	28
Pears, eastern.....	428	Bushel.....	525	224,700	.07	16	37
Potatoes, New Jersey and south.....	3,432	Barrel.....	180	617,760	.15	93	27
Do.....	3,432	100-pound bag.....	300	1,029,600	.10	103	30
Spinach, all.....	3,440	Bushel.....	700	2,408,000	.07	169	49
Strawberries, all.....	2,031	24-quart crate.....	375	761,625	.10	76	38
Sweetpotatoes, all.....	2,148	Bushel.....	500	1,074,000	.07	75	35
Tomatoes, all.....	7,178	Lug.....	650	4,665,700	.07	327	46
Total.....	87,585			40,785,231		3,193	
Average.....			466		.078		36

¹ From published rates of Market Truckmen's Association, between points south of 14th St. and west of Broadway.

APPENDIX

Supplementary Cost Considerations

The scope of this report has been limited to the wholesale distributive channels through which fruits and vegetables are moved in New York, from arrival at first unloading point until they are delivered to the retail store. A reorganization or relocation of the market would result in some changes in the costs of terminal operations and of transportation between shipping points and the New York market, a brief discussion of which is presented here.

COSTS AND SAVINGS TO RAILROADS

Some savings to railroads in the total cost of their deliveries and terminal operations might be made at a union terminal in any of the three general locations that have been considered. Less platform space would be needed in such a union terminal than the total now maintained on the railroad piers in the Lower Manhattan market, because each of these piers is only partially used during much of the year. The tonnage on some lines is heaviest on southern products during the winter and spring months, whereas the traffic of other roads is heaviest on western or northern receipts during the summer and fall. In a union terminal, the same platform space would be used for all current receipts regardless of incoming road, and therefore less total space would be required for the rail deliveries. Much of the tonnage would also be unloaded directly at the stores in the market, which would still further reduce the requirements of platform space for display and sale.

No attempt has been made to ascertain the actual allowance which railroads should

make for the use of terminal facilities in a union terminal market, but it is assumed that this would be a considerably lower figure than the total of rent and maintenance of all the piers now operated by individual rail lines. For purpose of comparison, an assumption has been made that this might be approximately one-third of the total of present costs which, during the 12 months covered by this report, were \$819,000. This included \$488,000 rental of that portion of the railroad piers used for fruits and vegetables, and \$331,000 for pier maintenance.

Further savings would be effected by an all-land market operation, for railroad officials have stated that it is less expensive to switch cars off the car floats and unload them from tracks alongside a platform than it is to unload them from the car floats.

A market location in New Jersey would save the cost of car floating on all supplies arriving west of the Hudson River, and would therefore effect the greatest total savings to the railroads. But as has been pointed out, more than four-fifths of all these fruits and vegetables are finally consumed east of the Hudson River. If incoming carriers do not deliver those products across the river, the produce must be taken there by some other form of transportation. Railroad freight rates are the same to any of the three locations being considered for the market, and if rail deliveries are made in New Jersey, a large additional expense is required to move these deliveries into New York City. Therefore although a market in New Jersey would effect a saving in transportation cost to the

railroads, it would actually make a material increase in the total costs of delivering these food products to the consumers of metropolitan New York.

TABLE 20.—*Estimated costs to railroads for specified services from end of rail haul to and in the present market, May 1938–April 1939, and comparable costs for modern markets at 3 locations*

[Summarized from table 15]

Item	Present Lower Manhattan market	A modern market in—		
		Lower Manhattan	New Jersey	Long Island
Costs not at market site: Car floating.....	1,000 dollars 959	1,000 dollars 902	1,000 dollars 0	1,000 dollars 1,064
Costs at market site:				
Present market:				
Unloading from car float.....	894			
Rent and maintenance of present private pier stations.....	819			
Modern market:				
Float bridge, switching, and unloading.....		823	747	845
Allowance for use of terminal platforms, in lieu of rent and maintenance of private pier stations ¹		275	275	275
Total ¹	2,672	2,000	1,022	2,184

¹ Based upon an assumed saving of $\frac{2}{3}$ of the present rent and maintenance of private pier stations. The total of these estimated costs would of course depend upon the actual amount of this item.

In analyzing the relative merits of the three locations from the railroad point of view, there is the additional question as to whether, if rail receipts were unloaded in a market in New Jersey, competing methods of transportation might not deliver to points nearer the final consumers to the competitive disadvantage of rail transportation. As this factor is difficult to forecast, the costs and savings to the railroads that have been calculated for each of the proposed locations assume that the railroads will continue to haul the same tonnage as at present and include no forecast as to what effect the location of the market would have on the future volume hauled by railroads.

Approximations of possible costs to railroads for deliveries and terminal services at each of the three sites for a modern market,

compared with present market operations, are included in table 15, and are summarized separately in table 20.

COSTS AND SAVINGS TO MOTORTRUCKS HAULING TO MARKET

Savings would also accrue to motortrucks that haul supplies from producing districts to market, because of savings in time due to availability of adequate space and handling facilities. A survey of the value of time lost because of inadequate facilities in the present market indicated that annual savings of approximately \$218,000 might be made by these agencies if they could deliver their supplies in a modern market rather than to the present inadequate facility.

A site in New Jersey would also effect some net saving to incoming loaded trucks through the elimination of Hudson River tunnel and ferry tolls, because more of the truck receipts arrive from west than from east of the Hudson River. For trucks hauling to the present market, tunnel and ferry tolls and mileage expense between the tunnels or ferries and the market were estimated at \$179,000 for the year of the survey. For a modern market it is estimated that these charges would continue to be \$179,000 a year for the same volume hauled to a Lower Manhattan location, but would be about \$250,000 a year for the Long Island site, and only \$33,000 annually for a site in New Jersey (table 15).

But here again more than four-fifths of these products must be taken across the river anyway, by some form of transportation, and the unloading of incoming truckloads on the Jersey shore to be transferred to other trucks to cross the river would result in a net increase in total costs of distribution. For this reason, it is doubtful whether, over a long period of time, all truck receipts would be handled at a market in New Jersey. Instead, considerable quantities would be likely to go directly to other distributing points within the city, nearer to the retail outlets.

APPENDIX

Location for the New Wholesale Live Poultry Terminal

In considering the possibilities for a location of a central fruit and vegetable market in New York, it is interesting to note the adoption in February 1940 by the Board of Estimate of the city of New York of a site for a wholesale live poultry terminal at the western end of Long Island on Newtown Creek. The recommendation of the City Planning Commission²⁰ regarding that site reads in part as follows:

. . . The purpose of this proposed project is to provide a union terminal for the wholesaling of live poultry where all of the live-poultry activities of the City would be concentrated. At present such activities are conducted partly at the West Sixtieth Street Yards of the New York Central Railroad, in Manhattan, at the City's West Washington Market, in Manhattan, and at other places throughout the City where independent dealers receive direct shipments, mostly by truck.

These activities, as described by the Commissioner of Markets, are at present disorganized, un-directed, and uncontrolled and the business is the prey of many factions which seek a questionable livelihood through profiteering and chiseling. . . .

. . . The Commissioner of Markets, in a communication, dated September 19, 1939, requested the City Planning Commission to hold a hearing on the selection of a site for the proposed market and submitted two areas which had been given particular study by the Department of Markets, one located in the yards of the New York Central Railroad at

about West Sixtieth street, in Manhattan, and the other on the north side of Newtown Creek, west of Dutch Kills Creek, consisting of the southerly part of the yards of the Long Island Railroad, in Long Island City, Queens.

It would be necessary, under existing conditions, for all poultry arriving by rail from the South and West to be floated to the Long Island Railroad float-bridge near the proposed market site. In the case of the railroads with terminals in New Jersey, there is not a physical connection by bridge or tunnel. It is possible for New York Central freight to reach the Long Island site by an all-rail movement via the Port Morris Branch through the Bronx and the Hell Gate Bridge. The barrier in this case is not physical. Freight is not now handled in this way because joint rates between the Long Island and the New York Central do not apply via Hell Gate Bridge, except by a stipulation of the Interstate Commerce Commission that the route can be established under emergency conditions.

Since most of the live poultry now arriving by rail comes to West Sixtieth Street direct without floating, and most of it would have to be floated to the Long Island site if a terminal were established there, this was held to be a serious objection to the latter location. Extremely bad weather, especially in winter, interferes with harbor operations, causing delays in floating freight. There are differences of opinion as to how serious this might be. From the facts brought out it seems clear that there are times when weather conditions delay car floatings and would be harmful to live poultry. In this connection, a suggestion by Mr. Hedden of the Bureau of Commerce, Port of New York Authority, seemed most pertinent. Declaring that the disabilities of the car-float route to the Long Island City site are largely confined to the extreme winter months, he suggested that these might be overcome if the alter-

²⁰ CITY PLANNING COMMISSION. ADOPTION OF AN AREA ON THE NORTH SIDE OF NEWTOWN CREEK, WEST OF DUTCH KILLS CREEK, WITHIN THE FREIGHT YARD OF THE LONG ISLAND RAILROAD COMPANY, BOROUGH OF QUEENS, AS THE SITE WHERE THE PROPOSED WHOLESALE LIVE POULTRY TERMINAL IS RECOMMENDED TO BE LOCATED, AS A PART OF THE MASTER PLAN.

native Hell Gate Bridge route be made available during this season. He advised that any lease arrangement made by the market authorities with either railroad embody a stipulation that the terminal railroad handle connecting line freight to the poultry terminal from float bridges "or other points of interchange at a stipulated switching rate sufficiently low as not to shut out other carriers."

In considering this aspect of the proposed live-poultry market the Commission has been made acutely aware of the disadvantages to consumers arising from the present competitive railroad conditions in handling the necessities of live as well as all kinds of goods in New York City. Because of its monopoly of certain rail facilities in Manhattan, the New York Central Railroad now and for many years has enjoyed a virtual monopoly of that part of the live poultry freight arriving by rail. This has undoubtedly contributed to the diversion of a large part of this business away from the railroads to motortrucks.

To establish a union terminal in Long Island City would not, to the same degree, create a rail monopoly for the Pennsylvania Railroad, since such a terminal would be open to all railroads on the same terms. Yet it would seem that every effort should be made by the market authorities to attempt to equalize conditions as nearly as possible. Certainly some such provision as that suggested by the representative of the Port Authority should be made to assure rail deliveries by the New York Central via Hell Gate Bridge, in case the Long Island City site be selected by the City. This seems necessary to meet emergency conditions in the harbor during extreme winter weather, but a similar arrangement might be made to serve at all times if it actually reduces the time and costs of handling that part of the live poultry coming into the City over the New York Central Lines. Surely the railroads have a common interest in reducing costs to consumers and in preventing the further diversion of business to trucks. The authorities are apparently in agreement that poultry arriving from long distances is in better condition if transported by rail, yet it has been shown that 65 percent of the poultry sold in New York is now brought here by truck.

That the railroads can recover any considerable part of this business in the near future is doubted. At any rate it is necessary, in establishing a live poultry terminal, to provide for trucks which bring in 65 percent of the poultry, and for the many more trucks required in the distribution of the poultry after it arrives at the wholesale market. To accommodate this large amount of trucking, as well as the handling of poultry from freight cars, considerable space is required. In this respect the larger area in Long Island presents obvious advantages. The new facilities to be constructed

should be so arranged as to expedite all the market handling. Since most of the poultry arriving by truck now comes from New Jersey and the south there is some advantage to them in the West Sixtieth Street location, but this is more than discounted, in the view of the Commission, by the fact that most of the slaughterhouses and the actual consumers of live poultry are in Brooklyn and Queens. Those in the Bronx are about equidistant from either site, as are those in Richmond; and since most of the slaughterhouses and retailers in Manhattan are on the east side of that Borough many of them can be reached from Long Island City as readily as from West Sixtieth Street. All of this trucking will be expedited by use of the Queens Midtown Tunnel, to be completed in 1940.

Freight should be carried as near to the centre of the area of distribution as possible before breaking bulk. The Queens site is near the centre of the entire area served and, as has been shown, of the 300 poultry slaughterhouses in the city, 190 are in Brooklyn and Queens, and 50 in The Bronx and Richmond. The Long Island site is also near the population center of the city. . . .

At present 85 percent of the live poultry arriving by truck comes from the south and west and most of it now goes to the West Washington market. For most of this incoming truck traffic the Long Island site is approximately 4 miles farther than the West Sixtieth Street site. For trucks from New England and Long Island the haul is shorter and quicker. For the more numerous wholesaler trucks engaged in distributing the poultry the more centrally located Long Island site shows a marked advantage. It is about 7 miles from the South Bronx to the West Sixtieth Street site, and about an equal distance to the Queens location. The latter is about 4 miles closer to Brooklyn. The actual centre of all the slaughterhouses in the city lies 1.7 miles south and slightly east of the Long Island site and 4.7 miles southeasterly from the West Sixtieth Street site, a difference of 3 miles in favor of the former. The saving due to the shorter haul by wholesaler trucks should be considerable. Any higher costs on incoming poultry, by rail or trucks, would be absorbed by the railroads or by the consigner or shipper. Freight rates for rail deliveries are the same in all parts of the district.

. . . A report, dated June 1, 1939, from the Acting Director of the Bureau of Food and Drugs to the Commissioner of Health, contains the following statements:

. . . The proposal made relative to the railroad property in Long Island City known as the "Sunnyside Yards" seems to be more suitable for the kind of operations as I have proposed since the trend of apartment-house construction in that area is very

remote. In general, the whole area surrounding the "Sunnyside Yards" is exclusively "industrial," and because of the large amount of vacant space in that area, there is ample opportunity for expanding in anticipation of the next 50 years' progress in the poultry industry. . . .

. . . There are larger interests that transcend those of any group. The primary interest is that of the general public, and the consumers of the products to be handled at this proposed terminal. These consumers are entitled to the benefits that will come from a more efficient, economical, and well-regulated market. Producers and shippers have a right to share in any such benefits, as have all railroads and other transportation services.

After considering all the facts and arguments presented to it, the City Planning Commission, pursuant to section 197a of the New York City Charter, hereby approves and adopts, as a site for a

proposed wholesale live-poultry terminal, the area bounded by Dutch Kills Creek, Newtown Creek and the yards of the Long Island Railroad Co., in Queens Borough. This site hereby constitutes a part of the Master Plan. Should this site be designated by the Board of Estimate as the site for a wholesale live-poultry terminal, it is suggested that the Department of Markets or the agency entering into contracts for setting up such a market on this site, incorporate in any lease arrangement with the railroads concerned a stipulation that the terminal railroad shall handle connecting-line freight to the live poultry terminal from floatbridges or other points of interchange at a specified switching rate sufficiently low as not to exclude other carriers; also, that adequate provisions be made for ready access for trucks and other automobiles, other than the single entrance indicated on the tentative plans submitted to the Commission.

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