Marketing Research Report No. 966

Los Angeles Wholesale Food Distribution Facilities

Agricultural Research Service
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PREFACE AND ACKNOWLEDGMENTS

This study describes the wholesale food marketing facilities of the city of Los Angeles, Los Angeles County, and Orange County; estimates the costs of handling food through these facilities; and presents plans for modern, efficient facilities.

The conclusions and recommendations of this study are pertinent and useful for Los Angeles food distribution needs both today and in the foreseeable future. The research was conducted and the report written during the years 1968 to early 1972. Data from 1967 were used for comparative purposes. That year was considered to be the base year, because it was the latest for which figures were available before the start of the study. Construction costs were updated to 1971. From this base data, consisting primarily of facts on population, demand for food, and costs of facilities for receiving, handling, and distributing food, projections were made for a wholesale food distribution center that will service the Los Angeles area well into the future.

The highlights of the study—the only one of this type for the City of Los Angeles—were presented at a public meeting in Los Angeles in the spring of 1971. Since then, the data have been used extensively by planning groups and developers.

Grateful appreciation is extended to the many wholesale groups, trade associations, and labor unions who cooperated in furnishing data. Special appreciation is extended those wholesalers who furnished detailed information or served as case study subjects. The cooperation of various departments of the city of Los Angeles is gratefully acknowledged in making this study more meaningful. In particular, appreciation is extended to the members of the Los Angeles City Council, the City Planning Commission, and the Department of Public Works. Special recognition is extended to the members and staff of the City Economic Development Board.

Individuals deserving special mention for their assistance in this study are Willard A. Ridings, former technical adviser to the City Economic Development Board; Howard W. Chappel, president of the Board of Public Works, city of Los Angeles; Michael A. Westerlin, principal economic development coordinator, City Inter-department Committee for Economic Development; and Larry Wilson, chairman of the Food Advisory Committee of the City Economic Development Board and the industry members of his committee.

Professional staff members of the Agricultural Research Service, who assisted in preparing final drafts of this study are Gerald A. Bange, marketing specialist, and Ralph A. Thompson, agricultural engineer. In addition, former staff members Patrick P. Boles, marketing specialist, Allison B. Lowstuter, architect, Robert L. Stahlman, marketing specialist, and Richard L. Straka, industrial engineer, assisted in the technical aspects of the study.

The Bureau of Commercial Fisheries U.S. Department of Interior, is responsible for the information and data provided for the fish and shellfish industry in this study. Carl P. Hoffman, formerly transportation economist, U. S. Department of Interior, collected the necessary information.

This report was prepared under the general supervision of K. H. Brasfield, Agricultural Research Service.

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SUMMARY

Many wholesale food distribution facilities in the Los Angeles area were designed years ago and are not capable of meeting today's needs efficiently. Los Angeles and Orange Counties are two of the fastest growing areas in the country. In a few years, this area will have half again as many people as it has today, and significantly larger volumes of food will need to be moved through the marketing facilities. This rapid rate of population growth is intensifying the pressures on food wholesalers to more efficiently serve the present and future needs of the area. This report analyzes the present wholesale food marketing system and presents guides for constructing an efficient modern distribution center.

In 1967, 538 independent wholesalers and chainstore and affiliated wholesalers were operating in Los Angeles and Orange Counties. Of this total, 244 of these firms could benefit from new facilities. This finding was based on a study of each firm's present location, condition of facilities, handling methods, and potential for expansion.

The percentage of independent and specialized wholesalers determined to be "candidates" varies by commodity classification. Firms needing new facilities range from about 17 percent of the chains and affiliated wholesalers to about 86 percent of the fresh fruits and vegetables wholesalers.

The 244 candidate firms received, handled, and distributed about 2 million tons of food products in 1967. The selected cost of moving food products through these facilities totaled $35,009,600 for an average of $18.24 per ton.

The facilities described in this report are based upon the number of candidate firms and their present volume handled. Facilities suggested for the proposed food center include: (1) 15 multiple-occupancy buildings containing 368 units; (2) 33 single-occupancy buildings; (3) two assembly docks for fresh fruits and vegetables; (4) one public refrigerated warehouse; (5) one central refrigeration plant; (6) direct rail access to four multiple-occupancy and 11 single-occupancy buildings; (7) space for three restaurants; (8) paved areas at least 150 wide between parking medians and building platforms, and service streets at least 80 feet wide; (9) parking areas for 4,400 cars and trucks; (10) expansion areas to permit the construction of additional facilities as needed. The suggested facilities would cost an estimated $62.5 million.

Five representative sites were evaluated as possible locations for the proposed food distribution center. The center would require a total of 470 acres, 341 acres for the recommended buildings and service facilities and 129 acres for other food firms or allied industries or both. Depending on the site selected, the estimated cost of the land (341 acres) ranges from $12.4 to $43.6 million. Thus, the estimated cost of land and facilities for the proposed center ranges from $74.9 to $106.1 million.

Under private financing, the annual revenue required to finance and operate the market, excluding the central refrigeration system, ranges from $8.6 to $12.7 million, depending on the site selected. The average annual rentals (ownership costs) required per square foot of first floor area range from $3.65 to $5.40.

Savings cannot be expected to accrue immediately as a result of the development of the proposed wholesale food distribution center. High rents resulting from high costs of land and facilities, and increased distribution costs more than offset the projected savings in the proposed facilities. These findings are to be expected since constant volumes were assumed. Constant volumes must be assumed in making cost comparisons. As a result, these calculations do not fully reflect the potential savings that will accrue with the handling of increased volumes in the future. Average fixed costs will decline with the handling of increased volumes. Furthermore, if the constant volume assumption is relaxed, the potential for reducing unit handling and

distribution costs in the proposed facilities is much greater than it is in the present facilities.

The greatest opportunity to reduce costs occurs in the handling operations. To achieve maximum efficiency, proper use of materials-handling equipment, including forklift trucks, pallets, pallet racks and handtrucks, is necessary. Operating in modern facilities with up-to-date layouts provides an effective means for achieving the most efficient use of materials-handling equipment.

Several benefits to the community can be expected from the development of a wholesale food distribution center. The center would provide for (1) an increased tax base, (2) localization of market traffic, enabling better control of traffic, (3) expeditious enforcement of health, fire, and policing regulations, (4) increased employment for semiskilled labor, and (5) a stimulus to the area's economic development.

INTRODUCTION

Problems Relating to Urban Food Markets

Wholesale food marketing facilities in many cities throughout the country no longer meet the needs of producers, wholesalers, retailers, and consumers. Food distribution costs have risen in many urban areas because of obsolete facilities and rapid population growth.

Many facilities were designed and constructed years ago with few subsequent changes. Facilities and handling methods still used by some wholesalers were designed for a period when food was transported by horse and wagon. Such facilities cannot be expected to serve satisfactorily the increasing population in urban areas. Population growth has increased the demand for food and contributed to the congestion, blight, and housing shortage within many cities.

Many food wholesalers have remained in their present market areas because they are convenient to buyers and sellers. In general, these market areas have grown without any special planning. Other firms have scattered and serve community or regional areas. Many of these scattered facilities are new; they were designed specifically for handling food.

Background of the Los Angeles Study

Many groups, including trade organizations, labor unions, and food industry representatives, expressed growing concern about problems in the Los Angeles food marketing system to the Mayor's City Economic Development Board.

After making a brief study, the board decided that "the wholesale handling of food in the Los Angeles area, during its growth, has incorporated many inefficiencies." The conclusions of this review were presented to the Mayor and the City Council.

In 1967, with concurrence of the City Council, the Mayor requested the Agricultural Research Service, United States Department of Agriculture, to make a comprehensive study of the present wholesale food distribution facilities. After an intensive review, all wholesale food firms in Los Angeles and Orange Counties were included in the study.

Los Angeles and Orange Counties, comprising nearly 5,000 square miles, are two of the fastest growing areas in the country. In a few years this area will have half again as many people as it has today and significantly larger volumes of food will need to be moved through the marketing facilities. This rapid rate of population growth in the Los Angeles area is intensifying the pressures on food wholesalers to serve more efficiently the needs of the area. With approximately eight million people, these two counties encompass 41.8 percent of the total population of California.

The study area is bounded on the north by Kern County, on the east by San Bernadino and Riverside Counties, on the south by San Diego County and the Pacific Ocean, and on the west by Ventura County and the Pacific Ocean.

Purposes of and Procedures for the Study

This study was conducted to analyze the present wholesale food marketing system in the Los Angeles area and to determine if improvements in the system are possible. To achieve this objective, data were gathered relating to the costs and operating methods of present facilities.

In the beginning, the present marketing system was analyzed. Then, the cost of developing a new food distribution center was estimated. Thus, the amount of land, types of facilities, costs of construction, and probable operating expenses were determined.

The data relating to the amount of each commodity received by the wholesalers and the costs of handling the products from point of initial receipt through the various wholesale channels were obtained by personal interviews and selected time studies. These data were based on calendar year 1967, the latest year for which data were available at the time of the study. Additional information needed for analyzing the marketing system and for determining the need for a wholesale food distribution center was obtained from many sources: Shippers; railroad officials; labor union officers; personnel of the city, county, and State governments; trade associations; Market News Service of the USDA; inspectors of the Bureau of Fisheries; U.S. Department of Interior; and others connected with the wholesale food industry in the area.

Scope of the Study

This study was concerned with 538 selected corporate chainstores and affiliated wholesalers and independent wholesalers of fresh fruits and vegetables, meat and meat products, poultry and eggs, frozen foods, manufactured dairy products, groceries, and fish and shellfish.[1]

The total tonnage of hard cheese, butter, and other manufactured products handled by fluid milk processing plants was included. The tonnage of fluid milk products, cottage cheese, ice cream, and related products was excluded. Slaughtering plants, brokerage firms, and firms that retailed more than 50 percent of their volume were not included in this study.

THE PRESENT MARKET

History of the Los Angeles Market

Before 1900, the city of Los Angeles maintained a small circular plaza where farmers sold their products. This plaza was located at the intersection of the present Sunset Boulevard and Los Angeles Street.

After 1900, many wholesalers took over the selling function of the farmers by selling for those farmers who had discontinued coming to the market.

These wholesalers outgrew the plaza facilities and citizens demanded their removal because they were a "public nuisance." In the early 1900's, the city leased improved facilities for these wholesalers at Ninth and Los Angeles Streets, which became known as the Hughes Market.

The rapidly growing city soon overtaxed this market. Wholesalers also needed railroad facilities conveniently located because a growing percentage of food items arrived by rail. Consequently, the city leased a larger area at Third and Central Streets. Because wholesalers were reluctant to move to the new market, a group of leading distributors formed the Los Angeles Marketing Company. In 1903, they assumed the lease of the Third Street Market.

In 1909, the Los Angeles Marketing Company exchanged its property at Third Street for some land owned by the Southern Pacific at Sixth and Alameda Streets, where they developed the Sixth Street Market.

Because of disagreements among wholesalers, several wholesalers broke away from the Los Angeles Marketing Company and formed the City Market Company of Los Angeles. They opened their own facilities at Ninth and San Pedro Streets, which is still operating.

Inadequate facilities again generated a need for the Los Angeles Marketing Company to secure a better location. In 1918, the Los Angeles Marketing Company built new facilities at Seventh and Central Streets. It failed to meet interest charges on bonds issued to cover the construction, however, and the Los Angeles Union Terminal Company, a subsidiary of the Southern Pacific Railroad Company, took over both the ownership and management of the market. This is the present Los Angeles Terminal Produce Market.

During the 1930's, a significant but futile attempt was made to move the City and Terminal Markets to Vernon, a part of the Central Manufacturing District. At that time, several large meat processors were in Vernon because of its proximity to the slaughterhouses. The Santa Fe Railroad, which had no track connections with the City or Terminal Markets, invested a large amount of money in carefully planned market facilities near the stockyards. This new market attracted only a few firms because of opposition from the owners of the other markets. Therefore, no further efforts were made to attract additional tenants. Today, these buildings are occupied by various wholesale and commercial enterprises.

During the 1950's, the growth of population and subsequent increase of food volume put a severe strain on the two major markets in the area. As a result, the Los Angeles Central Wholesale Market at Ninth and Central Streets was developed.

Description of Present Food Distribution Facilities

In the Los Angeles area are five major market areas where groups of food wholesalers are located (fig. 1). These markets are the Los Angeles Terminal Produce Market (Terminal Market), City Market Company of Los Angeles (City Market), Los Angeles Central Wholesale Market (Central Market), Vernon, and Los Angeles Municipal Fish Market (San Pedro Market). In addition, several wholesale firms are scattered within the area. These firms are classified as being in "other areas" in this study.

Terminal Market

The Los Angeles Terminal Produce Market (fig. 2) was built in 1918 to replace inadequate marketing facilities. It is owned and operated by the Los Angeles Union Terminal Company, a subsidiary of the Southern Pacific Railroad Company. The Los Angeles Terminal Produce Market is currently valued at about $2,750,000 by the State Board of Tax Equalization.

Confined in the center of a light industrial area at Seventh Street and Central Avenue, this market has excellent access to all the major highways and freeways. It is the only major wholesale market with direct rail service

[1] Food wholesalers are classified as either independent or corporate chainstores (chains) and affiliated wholesalers. Independent wholesalers are individual firms that have one or more wholesale facilities and sell directly to outlets that they do not own or control. Corporate chainstores and affiliated wholesalers include corporate chains, voluntary groups, and retailer-owned warehouses that generally handle a complete line of food products and exercise some control over the operations of retail stores.

FIGURE 1.—Location of the five major food markets serving the Los Angeles area.

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FIGURE 2.—Los Angeles Terminal Produce Market.

or house tracks and is within three blocks of the Southern Pacific and the Santa Fe Railroads' team tracks (rail-to-truck unloading areas). The market is bounded on the north by Seventh Street; east, by Alameda; south, by Eighth Street; and west, by Central Avenue. In this study the Terminal Market includes wholesalers in the immediate neighborhood. It is the largest wholesale produce market in Southern California and houses 34 percent of the total fresh fruit and vegetable wholesalers in the Los Angeles area.

The market has two public refrigerated warehouses, two grocery wholesalers, two fish and shellfish wholesalers, 45 produce wholesalers, and several corporate chainstore and affiliated wholesaler shipping docks.

Most of the wholesalers here operate in three multiple-occupancy buildings, having a combined length of 2,500 feet. These buildings are divided into units 10 feet wide by 80 feet deep on the first floor and 10 feet wide by 40 feet deep on the mezzanine. Most wholesalers use more than one unit. Two buildings have basements, freight elevators, rear platforms, and house tracks. Unloading and loading are done at street level.

The third multiple-occupancy building is directly across the court from and facing the other two. The first floor of this building has store units that are 10 by 40 feet each. The second floor contains over 100 offices that are used by independent brokers and others connected with the produce trade. This building has no house tracks. Unloading and loading are done at street level.

The buildings surround a courtyard where metal framed sheds containing 420 stalls are located. Each stall is 12 by 14 feet.

The terminal market facilities, generally, are constructed of wood with concrete columns and studs and stucco partitions with wood wainscoting. As these buildings are old and deteriorating, insurance rates are high. Some wholesalers have installed concrete floors; however, most of the units have wooden floors. Thus, only very light materials-handling equipment can be used, which are generally only two-wheel clamp trucks.

Most wholesalers in the market maintain their own refrigeration equipment, but lack of refrigerated space often necessitates split operations. Some wholesalers must transport much of the food manually from their primary facility to their refrigerated warehouses in the vicinity of the market or to portable refrigerated facilities in sheds located in the courtyard.

On the fringe of the market are several large multistory concrete buildings that are owned by the railroad. Two grocery firms and a public refrigerated warehouse are housed in two of these buildings. In addition, there is a covered assembly dock 80 by 245 feet that is used to assemble and load merchandise onto trucks. Several converted one- and two-story warehouses near the railroad-owned facilities are used by fresh fruits and vegetables and fish and shellfish firms. A small two-story public refrigerated warehouse is located in this market area.

The narrow streets in the Terminal Market (fig. 3) resulted from the

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FIGURE 3.– Narrow congested streets in the Terminal Market.

construction of farmers sheds in the market courtyard. Traffic congestion often results in delays to incoming and outgoing trucks, particularly between 5 and 6 a.m. when business is at its peak. Parking space within the market is minimal, and parking is a problem for both customers and employees. Additional space can be rented, however, in surrounding areas by the wholesalers and employees.

Sanitation is not a serious problem. Streets are cleaned and washed regularly, and garbage is removed daily. A limited number of public toilet facilities are available.

City Market

The City Market Company of Los Angeles is a privately owned corporation founded in 1908 by a group of growers and shippers. It is at Ninth and San Pedro Streets and occupies approximately 10 acres. The facilities within this produce market, designed for the handling and warehousing methods that were in use during the early 1900's, have not been changed materially since their construction.

The market is bounded on the north by Ninth Street; east, by San Pedro Street; south, by 12th Street; and west by Wall Street. It also includes those wholesalers in the immediate neighborhood.

This wholesale market is the second largest in Los Angeles and contains 43 fresh fruits and vegetables wholesalers, 32 percent of wholesalers in the area. The present value of the market property is estimated at about $3 million by the county assessor.

This market has excellent access to the major freeways. It is not served directly by rail and must depend on team tracks located about 1.5 miles from the area for rail receipts.

Because of the limited space available in the market, some wholesalers have additional facilities outside the market boundaries. These facilities range from one-story warehouses to old converted stores and garages. Several assembly docks are in the vicinity, a few of which are owned by the market.

Most of the wholesalers are in five multiple-occupancy street-level buildings with brick structural bearing walls, reinforced concrete columns, heavy timber construction, and concrete floors. These facilities make up the nucleus

of the market. These buildings form a courtyard containing about 350 open produce sheds that were built by individual wholesalers on a cooperative basis (after the market was built). These sheds, containing 70,000 square feet, are divided into 8- by 25-foot units.

The units in four buildings are 10 by 40 feet. The front of each unit opens onto the market courtyard or selling area and the rear, onto the sidewalk surrounding the market. Most units are provided with a mezzanine office. One building has a partial second floor, which provides offices for management and food brokers.

The fifth building has units that are 10 by 100 feet with openings and mezzanine offices similar to those in the other buildings. The ceilings in this building are high enough to allow high stacking of produce, but wooden floors prevent the use of forklift equipment. One firm has provided a platform to assist in loading and unloading operations.

Most wholesalers lack platforms at the front or rear of their facilities and use the sidewalks for loading and unloading (fig. 4). As a result, the sidewalks and the streets surrounding the facilities are cluttered with merchandise most of the time.

Platform lifts, which elevate a two-wheel clamp truck and its handler to truck-bed height, and an elevator arrangement, which permits a truck to be physically lowered to street level, are used as a substitute for platforms in unloading and loading operations (fig. 5). Even with this equipment, products still are handled with clamp trucks.

Refrigerated facilities are provided by the individual firms. Occasionally, firms maintain their refrigerated facilities in the courtyard sheds or in buildings located near the market. This has resulted in split operations and added to the congestion in the courtyard.

The movement of produce from the market would be a serious problem were it not for a comparatively modern, covered shipping dock on Wall Street, one block from the main yard. The dock contains 26 receiving and shipping stalls, 9 by 70 feet, an icing shed, and offices on the second floor. The platform has 18,200 square feet and is used by various wholesalers on a rental basis. In addition to this facility, four other shipping docks are in the area with a total of 30,400 square feet. These facilities are used extensively by shippers who buy in the market and assemble products for shipment.

Congestion is a major problem at certain times of the year. Like the other market areas, there is no room for expansion and the traffic in the surrounding area grows worse each year. The combination of market and nonmarket traffic results in congestion and confusion and tends to discourage potential customers.

The market management attempts to maintain adequate sanitation and security. Trash and garbage are removed twice a day. The public restrooms are inadequate. Special security officers are hired by the market management.

Central Market

The Central Wholesale Market, developed during the 1950's as a result of the inability of new firms to find available space within the Terminal and City Markets, is located at Eighth and Central Streets, diagonally across from the Terminal Market. It is owned and managed by a private real estate firm and has an assessed valuation of more than $1 million.

The market is bounded on the northeast by East Eighth Street; on the southeast by South Central Avenue; on the southwest by East Olympic Boulevard; and on the northwest by Kohler Street.

The market consists of several disconnected buildings of masonry construction. A platform at truck-bed height serves one building, while the others are served by either truck-bed height entrances or the pavement in front of the facility. A single firm may occupy a building, or several firms may occupy the same building with street entrances. Access to the market is provided by five entrances from arterial streets.

This market is more diversified than either the Terminal or the City Market. Firms operating within its bounds consist of two grocery firms, one egg firm, one dairy firm, three fish and shellfish firms, 13 produce firms, and several light industrial firms.

The Central Wholesale Market has excellent access to the major freeways. While it is not served directly by rail, it is close to both Southern Pacific and Santa Fe team tracks.

Vernon

Vernon is an incorporated industrial city about 4 miles south of downtown Los Angeles. Vernon, opened in 1923, is the original development of the Central Manufacturing District, Inc. In 1962, 320 acres were occupied by 235 firms.[2]

While Vernon is not an organized market, it contains 33 wholesale meat firms and is an important source of meat and meat products within the area. Most of the 33 meat wholesalers are located in or adjacent to the following boundaries: West, Alameda Street; north, West 25th Street; east, Long Beach Freeway; and south, Randolph Street.

Most of the meat firms operate in buildings of masonry construction. Nearly all operations are performed on the first floor level, although some basements are used for fabricating meat. Where basements are used, elevators and conveyors transport the product to and from the working area. Ceilings are usually 12 feet high with meat rails suspended from them. Most of the wholesalers have loading platforms at truck-bed height with meat rails used to move product to and from unloading areas. Several firms have house

[2] URBAN LAND INSTITUTE. CENTRAL MANUFACTURING DISTRICT, INC., LOS ANGELES. Technical Bulletin No. 44. Los Angeles. 1962.

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FIGURE 4.—Food handling can be difficult without platforms.

tracks, but with the exception of piggyback shipments, they receive very few products by rail. Most firms lack adequate area for expansion and many lack sufficient refrigerated space. Traffic congestion and inadequate parking space are problems in this market.

San Pedro Market

The Los Angeles Municipal Fish Market, or San Pedro Market, was opened in 1951. Covering an area of over 2 acres, the facilities are located between Signal Place and the Main Channel of the Port of Los Angeles and are adjacent to a pier (fig. 6). The market, which consists of a two-story building with outside dimensions of 80 feet by 420 feet, contains 12 fish and shellfish firms. The building is divided into 12 units with approximately 2,800 square feet on each floor. The first floor is used for freezers and coolers, for processing, and for a small sales office. The first floor ceiling is 16 feet high and the second floor, 12 feet. The second story is used mainly for storage and general office space. The units open onto a 24-foot wide apron between the building and the channel. Power hoists unload fish from vessels onto this apron. An entrance on the opposite side of the building, for access

from Signal Place, has a loading platform extending the length of the building. It is 18 feet wide and tailgate high.

The building is masonry with ample water and sewerage connections. A cooperatively owned central refrigeration plant supplies the refrigeration. The building is owned by the Port Authority of Los Angeles. The rent includes security services by the Harbor Police, building insurance, maintenance, and repairs. Space for parking is ample and apparently traffic is not congested during the peak hours between 7:00 a.m. to 12 m.

Other Areas

Over two-thirds of the 538 food firms studied are outside the previously defined market areas. In the "Other Areas" are 32 fresh fruit and vegetable firms, 90 meat and meat products firms, 77 poultry and egg firms, 62 manufactured dairy products firms, 54 grocery firms, 23 frozen food firms, 19 fish and shellfish firms, and 24 corporate chainstore and affiliated wholesaler warehouses.

Most of the fresh fruit and vegetable firms receive their supplies directly from the Terminal and City Markets in downtown Los Angeles. Most of them are located in buildings that were originally designed for other purposes.

The meat and meat products wholesalers located outside the Vernon area have facilities that range from antiquated to modern. Many smaller wholesalers do not have loading platforms; some have very limited meat-rail facilities; and others lack space for expansion. These firms often rent secondary facilities or use public refrigerated warehouses. In addition,

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FIGURE 5.— Platform lifts (*A*) and levelators (*B*) are sometimes used where platforms are not available.

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FIGURE 6.—San Pedro Market showing dockside unloading facilities.

substantial renovation is needed by many to meet the new Federal meat inspection requirements.

Poultry and egg facilities in the Los Angeles area range from poor to excellent. Some firms lack sufficient space for processing products and for storing packaging material, while others may have discontinued processing and have surplus space. Many firms also use secondary facilities located some distance from the primary facility.

The dairy products firms also have facilities ranging from poor to excellent. Some are in buildings that were originally constructed for purposes other than food handling. Such a location makes the handling of food awkward and costly. Other facilities are relatively new, functional, and efficient. Others are no longer located near the areas where the greatest volume of their product is distributed.

The facilities used by the frozen food firms range from buildings originally designed for other purposes to functionally designed one-story facilities. The smaller firms use two-wheel clamp trucks to move their commodities; the larger and more modern ones have incorporated sophisticated materials-handling equipment. In general, frozen food firms are hindered by a lack of expansion area.

The facilities used by the grocery firms range from large four-story buildings in the downtown area to new single-level warehouses in suburban industrial parks. Materials-handling practices usually are determined by the type of building used by a warehouse. Firms using multistory facilities stack merchandise on the floor and use manual-handling methods in combination with a limited number of forklift trucks and pallets. Slow freight elevators and low ceilings in these buildings prevent the extensive use of pallet racks.

Firms with modern facilities make extensive use of powered handling equipment and pallet racks. Insufficient space is prompting many firms in multistory buildings to consider relocating. (fig. 7).

Most of the fish establishments serving the area are near the Central Market in downtown Los Angeles. Others are in the Wilmington or Long Beach area. Many firms would like to expand at their present location.

All corporate chainstores and affiliated wholesalers operate single-story warehouses and use modern materials-handling equipment. The firms are not concentrated in any one location but are scattered throughout Los Angeles and Orange Counties. The need for new warehousing facilities among the 24 corporate chainstores and affiliated wholesalers is limited to those firms whose facilities are too small to handle their present volume and who are unable to expand at their present location.

Tenure Status and Space Utilization

Eighty-three wholesalers require more than one facility to maintain their operations. Their facilities are classified as primary and secondary. Primary facilities are used for daily operations and secondary facilities, generally, are used only for storage. Secondary facilities may be located adjacent to the primary facility or several miles away. The tenure status of only the primary facility was recorded.

Table 1 gives the tenure status and space utilization of 500 of the 538 firms studied. Data were not included for 27 fluid milk processing plants, eight dairy wholesalers, and three poultry and egg wholesalers. Of the 500 firms, 209 own a total of 10,385,400 square feet of floor area and 291 rent 2,558,600 square feet, for a total of 12,944,000 square feet of floor area for primary

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FIGURE 7.—Congested storage areas result from insufficient space.

TABLE 1. — Tenure status and space utilization of 500 food firm facilities by commodity and market area, Los Angeles, 1967

Type of firm and market area	Primary facilities, tenure status				Space occupied			
	Owner		Renter		Primary facility		Secondary facilities	Total space
	Number	Space	Number	Space	First floor	Other floor		
		1,000 square feet		1,000 square feet	1,000 square feet	1,000 square feet	1,000 square feet	1,000 square feet
Independents:								
Fresh fruits and vegetables:								
Terminal Market	4	37.3	41	374.2	246.9	164.6	144.3	555.8
City Market	3	51.7	40	208.9	163.5	97.1	101.5	362.1
Central Market	0	0	13	21.9	19.9	2.0	0	21.9
Other areas	10	72.1	22	190.1	248.6	13.6	5.0	267.2
Total	17	161.1	116	795.1	678.9	277.3	250.8	1,207.0
Meat and meat products:								
Vernon area	14	260.5	19	283.3	516.3	27.5	25.0	568.8
Other areas	41	641.8	49	309.7	820.1	131.4	19.1	970.6
Total	55	902.3	68	593.0	1,336.4	158.9	44.1	1,539.4
Poultry and eggs, all areas[1]	48	411.2	27	221.0	590.0	42.2	49.0	681.2
Frozen foods, all areas	12	149.9	11	94.5	228.2	16.2	23.2	267.6
Manufactured dairy products, all areas[1]	10	699.5	18	102.7	752.1	50.1	25.8	828.0
Groceries, all areas	34	882.4	24	471.6	977.7	376.3	96.2	1,450.2
Fish and shellfish:								
San Pedro	0	0	12	67.2	33.6	33.6	0	67.2
Other areas	13	249.2	11	56.3	276.9	28.6	32.6	338.1
Total	13	249.2	23	123.5	310.5	62.2	32.6	405.3
Total independents	189	3,455.6	287	2,401.4	4,873.8	983.2	521.7	6,378.7
Corporate chainstores and affiliated wholesalers	20	6,929.8	4	157.2	7,052.0	35.0	135.0	7,222.0
Grand total	209	10,385.4	291	2,558.6	11,925.8	1,018.2	656.7	13,600.7

[1] Tenure and space information excludes 27 fluid milk processing plants, 8 dairy wholesalers, and 3 poultry and eggs wholesalers.

facilities. An additional 656,700 square feet of floor area is contained in secondary facilities. Of the total 13,600,700 square feet of area occupied within the primary and secondary facilities, fresh fruit and vegetable firms occupy 8.9 percent; meat and meat products firms, 11.3 percent; poultry and egg firms, 5 percent; frozen food firms, 2 percent; manufactured dairy products firms, 6.1 percent; grocery firms, 10.6 percent; fish and shellfish firms, 3 percent; and corporate chainstores and affiliated wholesalers, 53.1 percent.

Of the total area used in the primary facilities, 11,925,800 square feet, or 92 percent, is first-floor level. All other floor levels in the primary facilities account for 8 percent, or 1,018,200 square feet.

Volume of Food Handled

Table 2 shows the total volume of food handled by type of food firm, market location, and type of receipt. The volume handled by corporate chainstores and affiliated wholesalers is combined into one tonnage figure and includes all types of food commodities.

The total volume of direct receipts and interwholesaler transfers handled by 538 independent wholesalers and corporate chainstores and affiliated wholesalers was 7,459,500 tons. This included the tonnage of food moved through wholesale facilities and corporate chainstores and affiliated wholesalers warehouses, but excluded the volume that bypassed wholesale facilities and was shipped directly to retailers and institutions from producing areas. Direct receipts, the volume of food received by wholesalers directly from the food manufacturers and producing areas, represent 6,591,000 tons, or 88 percent of the total volume handled. Interwholesaler transfers, the volume of food that is moved between wholesalers within the area, represent 868,500 tons, or 12 percent of the total volume handled.

Independent wholesalers handled 2,994,400 tons, or 40 percent of the total volume of food, as compared with 4,465,100 tons, or 60 percent by corporate chainstores and affiliated wholesalers. The total volume of food handled by independent wholesalers consisted of 84 percent direct receipts and 16 percent interwholesaler transfers as compared with corporate chainstores and affiliated wholesalers with 91 percent direct receipts and 9 percent interwholesaler transfers. Most of the interwholesaler transfers by independent wholesalers were between each other, while those by corporate chainstores and affiliated wholesalers were usually between independent wholesalers and their warehouses.

Fresh fruit and vegetable wholesalers handled a total volume of 1,307,500 tons of which 86 percent was in direct receipts and 14 percent in interwholesaler transfers. Wholesalers in the three fresh fruit and vegetable markets handled 83 percent of the total volume of fresh fruits and vegetables; the remaining 17 percent was handled by wholesalers in other areas. Of the total direct receipts, the three fresh fruit and vegetable markets account for 88 percent and the other areas accounted for over 50 percent of the interwholesaler transfers.

Meat and meat products wholesalers handled a total volume of 609,700 tons, of which 72 percent was in direct receipts and 28 percent in interwholesaler transfers. Wholesalers located in the Vernon Market handled

TABLE 2. — Total volume of food handled by 538 firms, by type of firm, location, and type of receipt, Los Angeles, 1967

Type of firm and market area	Direct receipts	Inter-wholesaler transfers	Total volume handled
	1,000 tons	1,000 tons	1,000 tons
Independents:			
Fresh fruits and vegetables:			
Terminal Market	639.7	54.9	694.6
City Market	341.0	23.5	364.5
Central Market	7.5	12.0	19.5
Other areas	134.6	94.3	228.9
Total	1,122.8	184.7	1,307.5
Meat and meat products:			
Vernon area	285.5	112.0	397.5
Other areas	153.1	59.1	212.2
Total	438.6	171.1	609.7
Poultry and eggs, all areas	322.8	11.8	334.6
Frozen foods, all areas	63.6	[1] 41.6	105.2
Manufactured dairy products, all areas	239.0	42.5	281.5
Groceries, all areas	300.2	19.8	320.0
Fish and shellfish:			
San Pedro Market	6.0	.4	6.4
Other areas	28.5	1.0	29.5
Total	34.5	1.4	35.9
Total independents	2,521.5	472.9	2,994.4
Corporate chainstores and affiliated wholesalers	4,069.5	395.6	4,465.1
Grand total	6,591.0	868.5	7,459.5

[1] Included over 41,000 tons of fresh fruits and vegetables.

65 percent of the total volume of meat and meat products, while the remaining 35 percent was handled by wholesalers scattered throughout the area. Of all the independent food groups, meat and meat products wholesalers had the second highest percentage of their total volume involved in interwholesaler transfers.

Poultry and eggs wholesalers handled a total volume of 334,600 tons, of which 96 percent was in direct receipts and 4 percent in interwholesaler transfers. This was the smallest amount of interwholesaler transfers for the independent food groups.

Frozen foods wholesalers handled a total volume of 105,200 tons, of which 60 percent was in direct receipts and 40 percent in interwholesaler transfers. This was the largest amount of interwholesaler transfers for the independent food groups.

Manfactured dairy products wholesalers handled a total of 281,500 tons, of which 85 percent was in direct receipts and 15 percent in interwholesaler transfers.

Grocery wholesalers handled a total of 320,000 tons. Direct receipts accounted for 94 percent of total tonnage, and interwholesaler transfers accounted for the rest (6 percent).

Fish and shellfish wholesalers handled a total volume of 35,900 tons, of which 96 percent was in direct receipts and 4 percent in interwholesaler transfers. Wholesalers located in the San Pedro Market handled 18 percent of the total volume of fish and shellfish; the remaining 82 percent was handled by wholesalers scattered throughout the area.

Method of Transportation for Direct Receipts

The total volume of direct receipts was unloaded at wholesalers, facilities, corporate chainstores and affiliated wholesalers' warehouses, team tracks, boat piers, air terminals, or public warehouses. From point of receipts that were other than the wholesale facilities, these receipts were moved by cartage firms or wholesalers' trucks to the wholesalers' facilities.

Table 3 shows the volume and percentage of direct receipts by commodity, location, and method of transportation. The total volume of direct receipts by independent wholesalers was 2,521,500 tons, of which 85 percent was received by truck, 12 percent by rail, and 3 percent by boat and air.

The total volume of direct receipts by independent fresh fruit and vegetable wholesalers was 1,122,800 tons. Of this volume, 88 percent was received by truck, 8 percent by rail, and 4 percent by boat and air. Truck shipments accounted for 86 percent of the direct receipts at the Terminal Market, 87 percent at the City Market, and practically 100 percent at the Central Market and other areas.

TABLE 3.—Volume and percentage of direct receipts of food by 538 firms, by commodity, location, and method of transportation, Los Angeles, 1967

Type of firm and market area	Truck		Rail[1]		Boat and air		Total	
	1,000 tons	Percent	1,000 tons	Percent	1,000 tons	Percent	1,000 tons	Percent
Independents:								
Fresh fruits and vegetables:								
Terminal Market	552.5	86	59.9	10.0	27.3	4	639.7	100
City Market	295.3	87	23.7	7	22.0	6	341.0	100
Central Market	[2]7.5	100	0	0	0	0	7.5	100
Other areas	134.1	100	.6	0	0	0	134.6	100
Total	989.4	88	84.2	8	49.3	4	1,122.8	100
Meat and meat products:								
Vernon area	250.3	88	35.1	12	0	0	285.5	100
Other areas	110.6	72	41.1	27	1.4	1	153.1	100
Total	360.9	82.3	76.2	17.4	1.4	0.3	438.6	100
Poultry and eggs, all areas	312.7	97	4.9	1	5.2	2	322.8	100
Frozen foods, all areas	62.6	98	.7	1	.3	1	63.6	100
Manufactured dairy products, all areas	174.6	73	53.3	22	11.1	5	239.0	100
Groceries, all areas	205.4	68	71.1	24	23.7	8	300.2	100
Fish and shellfish:								
San Pedro Market	3.9	64	0	0	2.2	36	6.0	100
Other areas	24.7	87	0	0	3.8	13	28.5	100
Total	28.6	83	0	0	6.0	17	34.5	100
Total independents	2,134.2	85	290.4	12	97.0	3	2,521.5	100
Corporate chainstores and affiliated wholesalers	3,141.0	77	923.7	23	4.9	0	4,069.5	100
Grand total	5,275.2	80	1,214.1	18	101.9	2	6,591.0	100

[1] Includes team track, house track, and piggyback.

[2] Includes boat and air receipts to prevent disclosure of confidential data.

The total volume of direct receipts of meat and meat products was 438,600 tons. Of this volume 82.3 percent was received by truck, 17.4 percent by rail, and 0.3 percent by boat and air. In the Vernon area where the largest volume of meat and meat products were handled, trucks delivered 88 percent of the direct receipts and railroads, 12 percent. Wholesalers located outside the Vernon area received 72 percent of their direct receipts by truck, 27 percent by rail, and 1 percent by boat and air.

Direct receipts of poultry and eggs amounted to 322,800 tons. Of this volume, 97 percent was received by truck, 1 percent by rail, and 2 percent by boat and air.

Of the 63,600 tons of frozen foods received, 98 percent was received by truck, 1 percent by rail, and 1 percent by boat and air.

Direct receipts of manfactured dairy products amounted to 239,000 tons. Of this volume, 73 percent arrived by truck, 22 percent by rail, and 5 percent by boat and air.

Direct receipts of groceries amounted to 300,200 tons. Of this volume, 68 percent arrived by truck, 24 percent by rail, and 8 percent by boat and air.

Direct receipts of fish and shellfish wholesalers amounted to 34,500 tons. Of this volume, 83 percent was received by truck and 17 percent by boat and air. Of all the food groups, the fish and shellfish wholesalers in the San Pedro Market received the highest percentage (36 percent) of direct receipts by boat and air. Wholesalers located outside the San Pedro Market received 87 percent of their direct receipts by truck and 13 percent by boat and air.

Corporate chainstores and affiliated wholesalers, which include all commodities, received 4,069,500 tons of direct receipts, of which 77 percent was received by truck, 23 percent by rail, and a negligible amount by boat and air. These wholesalers received a larger percentage of their direct receipts by rail than the independent wholesalers.

Evaluation of Present Facilities and Methods

Many wholesale food distribution facilities in the Los Angeles area are modern and efficient. Their costs of handling and marketing operations reflect these efficiencies. Other wholesale facilities in the area, however, are outdated and inefficient. Most of the defects in the wholesale marketing of food in Los Angeles are directly or indirectly attributed to these inefficient facilities. Use of many inefficient wholesale food facilities is costly to wholesalers, producers, and consumers.

For most food commodities inadequate facilities, split operations and markets, traffic congestion, and poor access to arterial streets contribute to higher costs of marketing food. To serve an expanding market adequately and maintain a competitive position, firms must be willing to make necessary adjustments. This can be achieved by constantly seeking improved facilities and handling methods.

Inadequate Facilities

Many wholesale food facilities are unsuited for the operations being performed in them. Some food firms lack sufficient work, storage, and refrigeration space, which often necessitates the use of secondary facilities. Many firms cannot expand because space is unavailable or costs are prohibitive. Some firms, on the other hand, fail to utilize fully all their space, which adds to their costs of operations.

Working conditions in some firms are poor. Many firms have tried to improve employees working conditions and welfare facilities. However, welfare facilities often depend on a firm's ability to make such space available. Since some firms lack sufficient space, their welfare facilities frequently are inadequate.

Processing operations are carried on by many firms in their present facilities in crowded areas. Insufficient space or an inability to meet code requirements, or both, have caused many firms to abandon such operations.

The structural design of many facilities is such that it prohibits the use of proper materials-handling equipment. Firms with wood floors or variations in floor levels often are not able to use heavy equipment. Firms in buildings with low ceilings are prevented from high stacking of products and supplies (fig.8). Such restrictions result in excess use of unskilled labor for tasks that could be done more efficiently by semiskilled equipment operators at lower cost.

Many facilities are crowded inside either because of poor layout or because the wholesaler has outgrown his facility. To alleviate this problem, some firms use the basement or floors above the first floor operating area. These levels often are served by inadequate stairways or slow freight elevators. Other firms have acquired secondary facilities often several miles from the primary ones.

Some firms have no platforms or ones that are of improper heights to accommodate the vehicles using them. Firms without platforms must use sidewalks or adjacent ground-level space for loading and unloading operations (fig. 9). In facilities where floors are at street level, many wholesalers use mechanical devices such as elevators or platform lifts.

Housetracks are available, generally, to firms that are heavy users of rail services. Other firms must make use of team tracks or piggyback unloading areas, often some distance from their facilities. If team tracks are used, cartage must be paid or trucks consigned to pick up merchandise. If

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FIGURE 8.—Low ceilings prevent the extensive use of pallet racks.

piggyback unloading is used, delay can be a problem. In either operation, the acquisition of merchandise can be time consuming and expensive.

Many wholesalers lack sufficient parking areas for customers and employees. At some firms, both customers and employees park their automobiles near the platform, which frequently interferes with the loading of delivery trucks (fig. 10). This problem has been partly alleviated by granting special parking privileges. Some firms have private parking areas. However, the competition for available space creates parking problems in areas adjacent to many wholesale firms. As a result of this situation and security problems, many buyers no longer visit the market.

The Split Market

When wholesale food facilities are at separate locations, both buyers and sellers cannot conduct their business efficiently, resulting in needless higher costs. Buyers must often visit more than one market to satisfy their needs, and find it difficult to compare prices and quality and to assemble their merchandise.

Wholesalers operating in two or more facilities must duplicate many handling functions. Common services, such as public storage warehouses, trash collection, and security, are more expensive in manpower and equipment because of duplication in the various markets. A consolidated market would eliminate much of this duplication.

Traffic Congestion

Traffic congestion is generally a problem in the various market areas and often a problem in areas surrounding many scattered facilities (fig. 11). Congestion in market areas results in delays to incoming and outgoing vehicles, double parking, and general traffic confusion. Overtime pay and added time to complete delivery often results.

Some firms have their deliveries made at night to avoid daytime traffic problems. Buyers often avoid those firms located in highly congested areas or lacking sufficient parking space, preferring to deal with firms better located.

Poor Access to Arterial Streets

The Los Angeles freeway system expedites delivery of food products to the various sections of the metropolitan area. Time is often lost, however, in getting to and from the highways. Many arterial streets are too narrow for maneuvering large trucks, resulting in costly and needless delays.

Firms That Would Benefit From New Facilities

Of the 538 independent and chainstore and affiliated wholesalers operating in the study area, 244 of them would benefit from new facilities (table 4). These firms were selected on the basis of their present location, condition of facilities, handling methods, and available area for expansion. Firms needing new facilities are called candidate firms, while firms not needing new facilities are called noncandidate firms in this study.

The percentage of independent wholesalers selected as candidates varies by type of firm. Those firms needing new facilities range from about 17 percent of the chains and affiliated wholesalers to about 86 percent of the fresh fruits and vegetables wholesalers.

Candidate firms have almost 5,000 employees (table 5). Of the 244

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FIGURE 9.—Sidewalks or adjacent ground-level areas are used for loading operations.

candidates, 177 rent and 67 own their facilities, and 48 firms use secondary facilities. Of the 3,578,500 square feet of floor area used by candidate firms, 10 percent is in secondary facilities. At various times of the year, 109 of the firms use public warehouses.

Flow of Commodities Through Candidate Firms

Direct receipts and interwholesaler transfers.—The flow of food commodities through the 244 candidate firms is shown in figure 12. Direct receipts by candidate firms amounted to 1,548,400 tons by truck, 210,000 tons by rail, and 65,600 tons by boat and air for a total of 1,824,000 tons. Since not all firms in the study area were determined to benefit from new facilities it has been assumed that a portion of candidate receipts by transfer came from noncandidate firms. Transfers from noncandidate to candidate firms represent additions to the volume received, handled, and distributed by candidate firms. Thus, the volume available for distribution by candidate firms is equal to the sum of direct receipts plus transfers from noncandidate firms.

Wholesalers were questioned concerning the volume each received as transfers from other wholesalers. To determine the volume candidate firms received as transfers from noncandidate firms, the proportion of total transfers received by candidates originating from noncandidate firms had to be estimated. Transfers between wholesalers were assumed to be evenly dispersed and in direct proportion to the percentages of candidates and noncandidates in each type of firm.

As shown in appendix table 20, it was determined that of the 277,200 tons candidate firms received by transfer, 182,100 tons were transfers from candidate firms and 95,100 tons were transfers from noncandidate firms. Thus, the sum of direct receipts plus transfers from noncandidate firms

TABLE 4. — Candidate firms as a percentage of all firms, Los Angeles, 1967

Type of firm	Total firms in study area	Candidate firms	
		Total	Percentage of total firms in area
	Number	Number	Percent
Independents:			
Fresh fruits and vegetables	133	114	86
Meat and meat products	123	22	18
Poultry and eggs	78	21	27
Frozen foods	23	11	48
Manufactured dairy products	63	18	29
Grocery products	58	30	52
Fish and shellfish	36	24	67
Corporate chainstores and affiliated wholesalers	24	4	17
Total or average	538	244	45

amounted to 1,919,100 tons. This is the tonnage that candidate firms had available for distribution.

Volume handled.—The tonnage handled by candidate firms is the sum of direct receipts, transfers from noncandidates, plus transfers from other candidates. Thus, the total volume handled amounted to 2,101,200 tons (fig. 12). Of this volume fresh fruits and vegetables firms handled 1,202,600 tons; meat and meat products firms, 100,000 tons; poultry and egg firms, 75,500 tons; frozen food firms, 65,200 tons; manufactured dairy product firms, 59,100 tons; grocery firms, 158,500 tons; fish and shellfish firms, 22,700 tons; and chainstores and affiliated wholesalers, 417,600 tons.

Distribution.—As shown in figure 12,[3], 1,476,600 tons of the total volume of direct receipts and candidate transfers were distributed within the area, 244,800 tons were distributed outside the area, and the remaining 197,700 tons were picked up by customers at the food firms' facilities and carried to unknown areas. The volume shown as distributed in this report includes transfers from candidates to noncandidates. To treat these transfers

[3] Does not include the volume picked up by customers that might have gone to this area.

TABLE 5. — Summary of data, 244 candidate firms, Los Angeles, 1967

Type of firm	Total firms	Employees	Firms using public warehouses	Primary facility				Secondary facilities	Total space occupied
				Tenure status		Space occupied			
				Firms renting	Firms owning	First floor	Other floors		
	Number	Number	Number	Number	Number	1,000 sq. ft.	1,000 sq. ft.	1,000 sq. ft.	1,000 sq. ft.
Independents:									
Fresh fruits and vegetables	114	1,711	60	99	15	554.2	271.7	245.4	1,071.3
Meat and meat products	22	580	12	18	4	137.8	171.0	25.5	334.3
Poultry and eggs	21	395	12	8	13	148.9	10.8	5.9	165.6
Frozen foods	11	325	9	4	7	111.6	15.0	2.4	129.0
Manufactured dairy products	18	276	5	13	5	132.0	23.2	20.0	175.2
Grocery products	30	800	8	19	11	494.4	279.5	25.8	799.7
Fish and shellfish	24	626	3	14	10	230.9	27.9	32.6	291.4
Total	240	4,713	109	175	65	1,809.8	799.1	357.6	2,966.5
Corporate chainstores and affiliated wholesalers	4	273	0	2	2	612.0	0	0	612.0
Grand total	244	4,986	109	177	67	2,421.8	799.1	357.6	3,578.5

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FIGURE 10.—Parked motor vehicles often interfere with operations.

separately would be of little value since the cost of shipments to retailers or to noncandidates are approximately the same.

Of the total tonnage distributed, 26 percent went to the east-central area, 15 percent to the southeast area, 12 percent to the Orange County area, and 47 percent to the remaining eight areas.

The distribution areas (fig. 13) that received the largest volume from each of the commodity groups were San Fernando Valley with 16 percent of groceries; west central Los Angeles with 23 percent of poultry and eggs and 24 percent of frozen foods; east central Los Angeles with 60 percent of fresh fruits and vegetables, 21 percent of manufactured dairy products, and 22 percent of fish and shellfish; and Orange County with 22 percent of meat and related products and 40 percent of all commodities from corporate chainstores and affiliated wholesalers.

Methods.—Of the 1,919,100 tons distributed by candidate firms, approximately 86 percent was delivered in their trucks, customers picked up 10 percent, and commercial cartage firms delivered 4 percent (table 6).

All food firms, except manufactured dairy products firms, delivered most of their volume in their trucks. About half the volume of manufactured dairy products was picked up at the firms' facilities by customers.

Type of customers.—As shown in table 7, of the total volume of 2,101,200 tons handled by candidate firms, institutional outlets, restaurants, and retail stores received 47 percent; corporate chainstores and affiliated wholesalers, 23 percent; other wholesalers, 13 percent; and other types of firms, 17 percent.[4]

Over 75 percent of the volume of poultry and egg and frozen food wholesalers and over 50 percent of the volume of meat and meat products and grocery wholesalers were sold to institutions, restaurants, and retailers; 37 percent of the volume of fresh fruits and vegetables wholesalers was sold to corporate chainstores and affiliated wholesalers; and 46 percent of the volume of manufactured dairy products wholesalers was sold to other wholesalers (most of which was sold by two firms).

[4] Includes volume received by unidentified customers.

PN-2789

FIGURE 11.—Many streets on which firms deliver products are not designed to handle the number of vehicles using them.

Cost of Handling and Distributing Food Through Present Facilities

Costs were estimated for moving commodities from points of initial receipt to the firms' facilities, handling at facilities, other facility costs, and distribution. These costs are shown in table 8.

The charges for moving commodities from the point of initial receipt to the firm's facilities included cartage, interwholesaler transfers, and avoidable delays. These costs totaled $1,939,600, or averaged $0.97 per ton.

Cartage costs consisted of loading commodities into trucks from commercial warehouses, team tracks, piers, or airports and hauling them to the firms' facilities. In the Los Angeles area, the cartage function was performed by commercial cartage firms or by the receiving firms using their own trucks.

Costs of interwholesaler transfers included costs of truck and driver, except in some organized market areas where handtrucks were commonly used. Where handtrucks were used, only labor charges were allocated.

Avoidable delay consisted of actual delay time encountered by trucks within the market area in delivering commodities to firms' facilities. These delays were generally caused by traffic congestion or a lack of unloading space. Costs of avoidable delay were truck and driver costs and were applied to the volume affected.

Transportation costs for direct receipts, except for avoidable delay, were not included in this report.

Handling costs at the facilities consisted of costs of unloading trucks and railcars, handling within the facilities, and loading trucks. These costs totaled $14,364,500 and averaged $6.84 a ton.

Costs of unloading incoming vehicles consisted of labor costs for moving

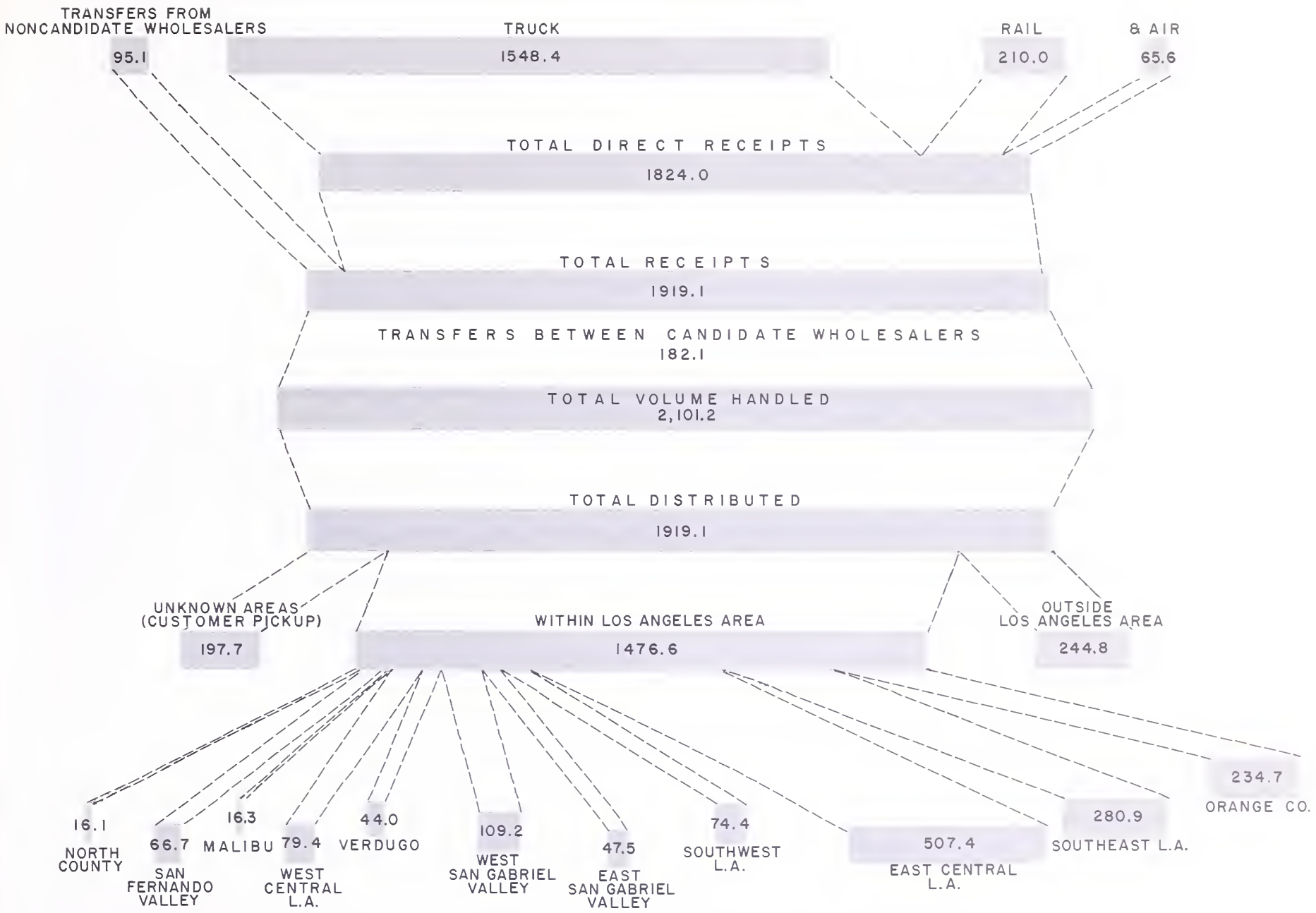


FIGURE 12.—Flow of commodities (in 1,000 tons) through candidate firms.

TABLE 6. — Method of distributing food by 244 firms needing new facilities, Los Angeles, 1967

Type of firm and commodity group	Method of distributing products							
	Delivered by wholesalers		Picked up by customers		Delivered by cartage firms		Total distributed	
	1 000 tons	Percent	1,000 tons	Percent	1,000 tons	Percent	1,000 tons	Percent
Independents:								
Fresh fruits and vegetables	876.7	82	139.0	13	53.5	5	1,069.1	100
Meat and meat products	70.2	75	13.1	14	10.3	11	93.6	100
Poultry and eggs	67.3	90	6.7	9	.7	1	74.8	100
Frozen foods	34.9	97	.4	1	.7	2	36.0	100
Manufactured dairy products	17.9	31	[1] 31.7	55	8.1	14	57.7	100
Groceries	141.4	92	7.7	5	4.6	3	153.7	100
Fish and shellfish	17.0	75	2.5	11	3.2	14	22.7	100
Total	1,225.4	82	201.1	13	81.1	5	1,507.6	100
Corporate chains and affiliated wholesalers (all commodities)	411.5	100	0	0	0	0	411.5	100
Grand total	1,636.9	86	201.1	10	81	4	1,919.1	100

[1] Includes 1 firm that had a large volume of customer pickup.

receipts of all types from truck or house tracks to their storage location in the facility. These costs included labor costs and labor charges for "swampers," who were hired by truckers to aid in unloading the trucks.

Handling costs within the facility consisted of the labor costs of order assembly and rehandling.

Costs of truck loading consisted of labor cost for moving products from the order assembly area into the delivery trucks. If truck drivers assisted in the loading, their labor was included as part of the loading cost.

Other costs associated with the facilities consisted of costs of public storage warehouses, handling equipment, facility rental, facility services, and waste, theft, and deterioration. The cost of these items totaled $8,992,300 and averaged $4.28 per ton.

Many wholesalers used public storage warehouses because of insufficient space and occasional large purchases. The cost of storage in public warehouses was determined by wholesalers' estimates.

Handling equipment costs consisted of the annual ownership and operating expenses of the equipment, exclusive of labor, used in facility-handling operations.

Facility rental costs consisted of the annual rent paid by the wholesalers for the use of their facilities. Rental included facility maintenance and repairs, refrigeration equipment maintenance, and real estate taxes. For wholesaler-owner facilities, the annual rental value of their facilities was estimated by the owners.

Costs of facility services consisted of costs for electricity, security services, garbage and trash collection, and extermination services. Although these items are associated with the building, their costs are additional to rental costs.

Costs of waste, theft, and deterioration consisted of the value of products lost in wholesaling operations. The reduction in the value of salvage products was included as part of the deterioration cost.

FIGURE 13.—The distribution areas within Los Angeles and Orange Counties.

TABLE 7. — Types of firms receiving food distributed and transferred by 244 candidate firms, Los Angeles, 1967

Type of firm and commodity group	Type of customer								Total volume handled	
	Institutions, restaurants, and retailers		Corporate chainstores and affiliated wholesalers		Other wholesalers		Other types of firms[1]			
	1,000 tons	Percent	1,000 tons	Percent	1,000 tons	Percent	1,000 tons	Percent	1,000 tons	Percent
Independents:										
Fresh fruits and vegetables	280.6	23	446.5	37	182.8	15	292.7	25	1,202.6	100
Meat and meat products	54.3	54	11.1	11	24.4	25	10.2	10	100.0	100
Poultry and eggs	58.7	77	3.4	5	4.2	6	9.2	12	75.5	100
Frozen foods	60.3	92	.2	1	.6	1	4.1	6	65.2	100
Manufactured dairy products	12.5	21	11.1	19	[2]27.2	46	8.3	14	59.1	100
Groceries	109.3	69	3.8	2	22.3	14	23.1	15	158.5	100
Fish and shellfish	6.4	28	6.4	28	5.1	23	4.8	21	22.7	100
Total	582.1	34	482.5	29	266.6	16	352.4	21	1,683.6	100
Corporate chainstores and affiliated wholesalers	417.6	100	0		0		0		417.6	100
Grand total	999.7	47	482.5	23	266.6	13	352.4	17	2,101.2	100

[1] Includes volume received by unidentified customers.

[2] Includes 2 firms that had a large volume distributed to other wholesalers.

The distribution cost of moving food products to the 11 subdivisions of the study area was $9,713,200, or averaged $6.58 per ton. Included in this cost are costs for vehicle ownership and operation, unloading, and drivers' personal time. Distribution costs outside the area were not determined.

The selected costs of moving food products through the 244 candidate firms totaled $35,009,600, for an average of $18.24 per ton. These costs included charges for receiving, handling, and distributing all food products. The costs of customer pickup and distribution outside the area were beyond the scope of this study.

As shown in table 21 the cost of wholesale marketing varied widely by commodity classification. Specialized operations resulted in an average cost of $87.01 per ton for fish and shellfish, as compared with $12.16 per ton for fresh fruits and vegetables. Efficient facilities, modern handling methods, large orders, and up-to-date delivery methods allowed corporate chainstores and affiliated wholesalers to receive, handle, and distribute their products at an average cost of $8.66 per ton.

HOW THE WHOLESALE FOOD MARKET CAN BE IMPROVED

The wholesale food distribution system of the Los Angeles area can be improved by constructing a completely new group of marketing facilities organized, planned, and designed specifically for the handling of food. This food distribution center should provide space for all types and kinds of food wholesalers and related groups. The common needs of wholesale food firms for land and facilities, direct rail service, and good access to highways can be satisfied by a consolidated market. With enough food firms concentrated in one area, common needs such as public warehouses, refrigeration, banks, office space, and truck service centers could be provided at minimum cost. The quality of food products could be better maintained with modern and up-to-date facilities and handling techniques.

This section of the report discusses the points that should be considered in planning and constructing a new wholesale food distribution center for the Los Angeles area. The proposed facilities are based on the number of

candidate firms and the volume they handle. Acreage requirements and a layout of the proposed food distribution center are developed. Several representative sites with sufficient acreage are evaluated, and initial investment costs for land and facilities are estimated. Methods of financing such a project are described. The total annual revenue required to operate the food center is computed, and from this figure, average rentals are developed. The costs of handling food through the food center are estimated and compared with costs of handling in present facilities. Benefits to the industry, which cannot be measured in dollars, also are discussed.

Planning a Wholesale Food Distribution Center

In planning a wholesale food distribution center, many factors should be considered. Some of these factors are design, technology, arrangement, location, cost, and management of the center. In addition, auxiliary facilities should be available.

The buildings in the center should be designed to meet the requirements of each type of wholesaler. They should provide ample space for unloading, processing, storage, sales, assembly, and loading.

Technological changes are occurring in the food industry. Therefore, each type of wholesale unit should be simple and functionally designed so that it can be modified to meet future needs.

In developing a wholesale food distribution center, the facilities on the site should be carefully arranged to provide for efficient distribution of food products. Wholesalers of the same commodity should be grouped together. Firms having a shopping trade should be located where the traffic generated by their operations would least interfere with the flow of other market traffic. Service facilities, such as a public refrigerated warehouse and a central

TABLE 8. — Estimated volume and selected annual cost of receiving, handling, and distributing food by 244 firms needing new facilities, Los Angeles, 1967[1]

Type of firm and commodity group	Cost of moving commodities to wholesalers' facilities			Handling cost at facilities			Other costs of facilities			Distribution cost			Total selected costs	Cost per ton[3]
	Volume	Per ton	Total	Volume	Per ton	Total	Volume	Per ton	Total	Volume[2]	Per ton	Total		
Independents:	1,000 tons	Dollars	1,000 dollars	1,000 tons	Dollars	1,000 dollars	1,000 tons	Dollars	1,000 dollars	1,000 tons	Dollars	1,000 dollars	1,000 dollars	1,000 dollars
Fresh fruits and vegetables	1,069.1	.73	776.4	1,202.6	4.51	5,426.1	1,202.6	3.50	4,213.1	729.7	3.55	2,589.3	13,004.9	12.16
Meat and meat products	93.6	3.27	306.5	100.0	11.28	1,127.5	100.0	8.91	890.9	79.9	20.66	1,651.1	3,976.0	42.48
Poultry and eggs	74.8	1.31	98.1	75.5	8.27	624.3	75.5	5.30	400.1	59.4	18.24	1,083.7	2,206.2	29.49
Frozen foods	36.0	3.38	121.8	65.2	14.31	933.0	65.2	4.85	316.2	33.4	20.54	686.0	2,057.0	57.14
Manufactured dairy products	57.7	1.00	57.9	59.1	13.95	824.3	59.1	6.96	410.8	19.5	23.05	449.4	1,742.4	30.20
Groceries	153.7	2.52	386.9	158.5	17.15	2,717.7	158.5	8.73	1,383.1	127.9	15.62	1,998.3	6,486.0	42.20
Fish and shellfish[4]	22.7	4.55	103.2	22.7	32.40	736.9	22.7	26.04	591.1	15.3	35.55	543.9	1,975.1	87.01
Total or weighted average	1,507.6	1.23	1,850.8	1,683.6	7.36	12,389.8	1,683.6	4.87	8,205.3	1,065.1	8.45	9,001.7	31,447.6	20.86
Corporate chainstores and affiliated wholesalers (all commodities)	411.5	.22	88.8	417.6	4.73	1,974.7	417.6	1.88	787.0	411.5	1.73	711.5	3,562.0	8.66
Grand total	1,919.1	.97	1,939.6	2,101.2	6.84	14,364.5	2,101.2	4.28	8,992.3	1,476.6	6.58	9,713.2	35,009.6	18.24

[1] These costs are shown in greater detail in appendix table 21.

[2] Excludes customer pickup at facilities and distribution outside study area.

[3] Based on volume initially received.

[4] Handling costs include processing costs.

refrigeration plant, should be placed where they can serve the entire market conveniently.

Several factors must be considered when selecting a location for a food distribution center. The site must be accessible by rail and major highways. In addition, it should be located near the center of population to reduce the delivery time and to minimize distribution costs.

In appraising the cost of land for a food center, the acquisition cost and the cost of placing the land in condition to build must be considered. Sufficient land must be allocated at the outset for future expansion.

Sound management is essential to efficient operation of a food distribution center. The management should have power to see that health, traffic, and policing regulations are enforced. However, wholesalers who operate within the market should be allowed the maximum degree of individuality within the framework of good business practices.

In addition to the wholesale food distribution facilities, auxiliary facilities should be available. Restaurants, public restrooms, trash disposal facilities, and service facilities for motor vehicles should be included. Additional space should be provided for banks, offices, management, inspection service, telegraph service, brokers, barber shops, and other supplementary organizations or related industries interested in locating in the center. Adequate parking is essential and should be provided.

Proposed Facilities for a Wholesale Food Distribution Center

The facilities described in this report are based on the number of candidate firms and their present volume of food handled. In addition, space has been provided for future expansion. To prevent overbuilding, the actual number of facilities constructed should be based upon the space required by tenants who sign firm leases. Caution is needed to prevent overbuilding and to insure a high rate of occupancy of facilities.

Two types of buildings would be needed. They are multiple-occupancy buildings for small-volume dealers and single-occupancy buildings for large-volume dealers.

Multiple-occupancy buildings consist of rows of store units for individual dealers with a single-floor operating area and a mezzanine. These units are a standard size (30 by 100 feet) so that a single unit will meet the needs of a small dealer and two or more will meet the needs of larger dealers. Thus, a larger dealer might have from two to five units, depending on his volume. Such a building provides the advantages of economies in construction while meeting the demand for a multiuse facility to handle food commodities. Recommendations for space given here are based upon the volume handled by candidate firms. Temporary or removable partitions are recommended between units to allow for future expansion or consolidation of firms. Specific recommendations for multiple-occupancy buildings and layouts are given later in this report.

Firms needing more than five units for their operations and those requiring specialized facilities usually can be accommodated more satisfactorily in single-occupancy buildings designed for their specific needs. The square footage of the single-occupancy buildings needed is provided in the master plan. The specific design of these buildings has been left to the individual tenant's requirements.

Facilities are planned for 244 wholesalers. These wholesalers received, handled, and distributed about 2 million tons of food products in 1967. Table 9 gives, by type of firm the number of firms, their present volume, and facilities they need. The following items are included in the proposed plan.

1. 15 multiple-occupancy buildings containing 368 30-by 100-ft. units.
2. 33 single-occupancy buildings.
3. 2 assembly docks for fresh fruits and vegetables.
4. 1 public refrigerated warehouse.
5. 1 central refrigeration plant.
6. Rail tracks direct to four multiple-occupancy and 11 single-occupancy buildings.
7. Space for three restaurants in multiple-occupancy buildings.
8. Paved areas at least 150 feet wide between parking medians and the building platforms to permit trailer parking and a free flow of traffic, streets between buildings in remaining areas at least 80 feet wide.
9. Parking areas for 4,400 cars and trucks.
10. Areas for expansion as well as areas for additional or allied facilities as needed.
11. Office building for market management, brokers, service industries, and others desiring space in the market.

Single-Occupancy Buildings

A total of 33 single-occupancy buildings have been provided, ranging in area from 10,000 to 100,000 square feet. Firms handling large volumes or performing a specialized operation where a large amount of floor area is required are best accommodated in single-occupancy buildings. These buildings generally are designed to the specifications of the tenant. Figure 14 shows an artist's conception of the exterior of a single-occupancy building.

Multiple-Occupancy Buildings

Certain basic features usually are incorporated in the multiple-occupancy buildings. Figure 15 shows section views of the three basic types of units recommended for the multiple-occupancy buildings discussed in this report. These buildings could be of tilt-up concrete construction.

PN-2790

FIGURE 14.—Artist's conception of a single-occupancy building.

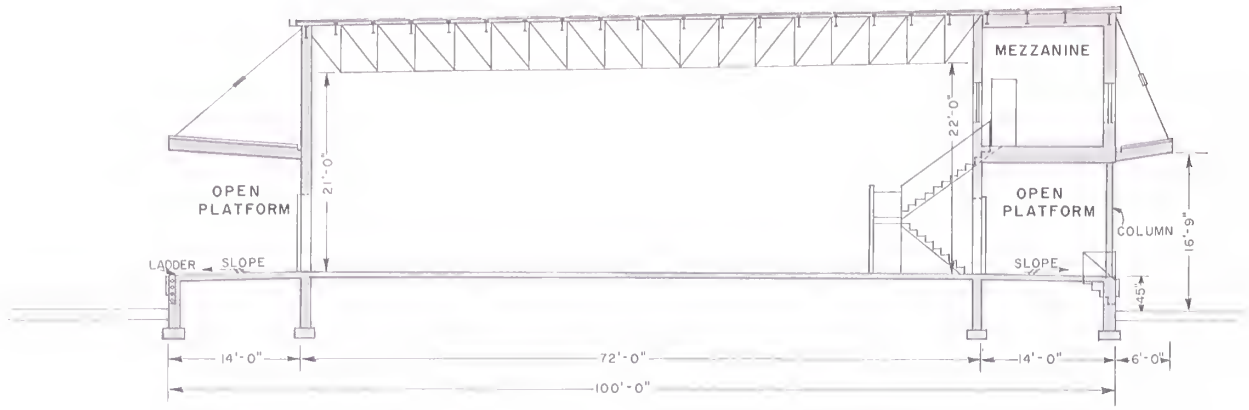
A multiple-occupancy building is several hundred feet long and 100 feet deep, with concrete platforms extending along the front and rear of the building. The enclosed part of most buildings is 72 or 86 feet deep depending on whether the front platform is enclosed. In some buildings, the 100-foot depth may be completely enclosed. The roof of the building is supported by steel trusses spaced on 30-foot centers. The building may be divided into 30-foot-wide units with floor to roof waterproof partitions. These partitions may be removed if a wholesaler needs additional units. The indoor area has a clear ceiling height of about 25 feet between trusses, except where mezzanines are located.

Access steps and entrances to the building should be available at frequent intervals along the platforms. The front platform or loading area is 45 inches high, while the rear platform is either 45 or 55 inches high, depending on the method or methods of receipt. Platforms may be open or closed. All open platforms are 14 feet wide and have a minimum 1/8-inch slope per foot to the streets for drainage.

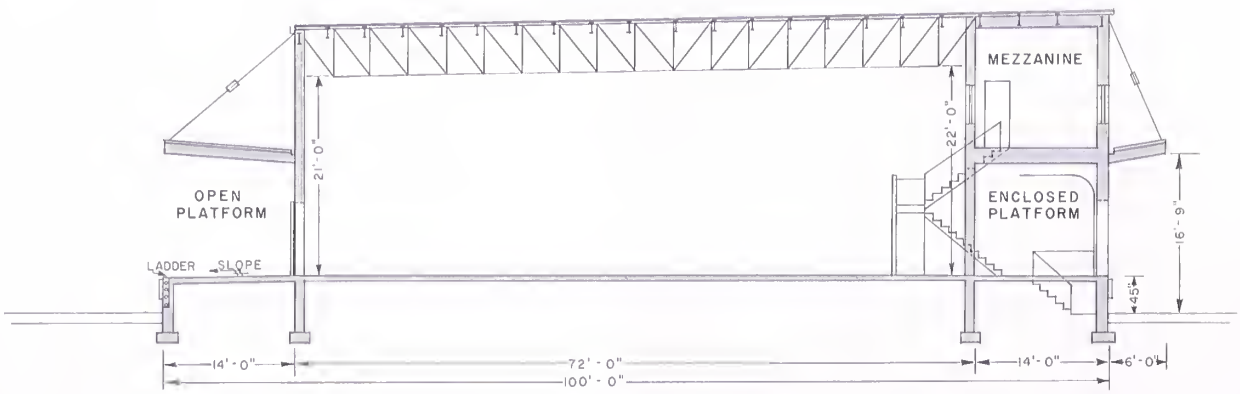
Vertical rubber bumper strips should be attached to the edge of the platforms, except where docks seals are used, to protect them from damage by impact by trucks. A canopy, extending 6 feet beyond the front platform and 16 feet 9 inches above the ground, would provide protection to workers and merchandise during inclement weather. The front platform is used for receiving trucks and loading out, while the rear platform is used for receiving trucks and railcars and transferring merchandise among dealers. If the facility is directly served by rail, tracks should be recessed in the pavement to permit access by trucks and to facilitate cleaning operations.

The platforms and floors in the building are on the same level. Surfaces of the main floors and platforms should be made of nonskid concrete, reinforced, with a minimum 1/8-inch slope toward drains. They should be capable of supporting a live load of 400 pounds per square foot. Freezer floors require subslab preparation or a crawl space to prevent frost heaving, which is caused by the formation of ice below the floor. Heaving can be prevented by adding heat to the soil or fill material beneath the floor insulation. Air ducts, electric heating elements, or pipes through which a nonfreezing liquid is recirculated can be used for this purpose.

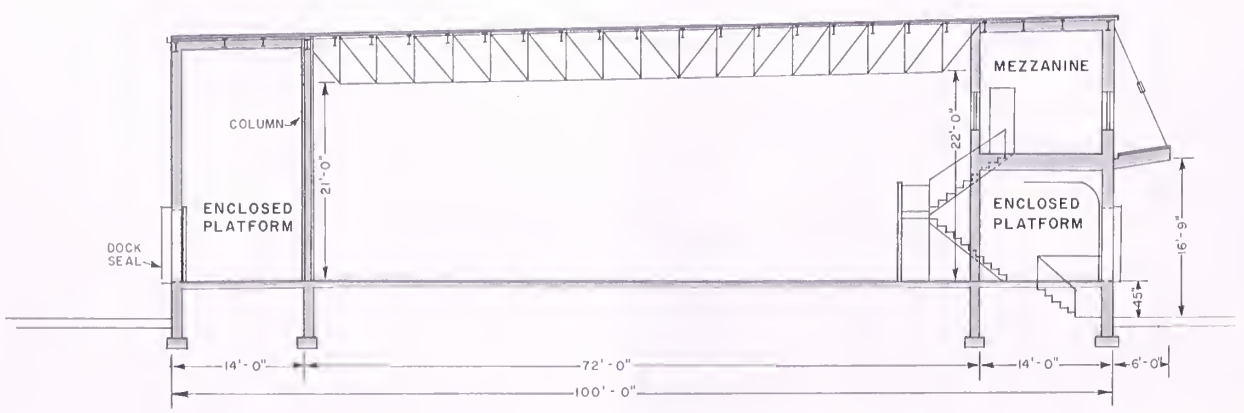
A 14-foot wide mezzanine with a floor-load capacity of 125 pounds per square foot extends the entire length of the front of the building. The



UNIT WITH BOTH PLATFORMS OPEN



UNIT WITH PLATFORMS OPEN AND ENCLOSED



UNIT WITH BOTH PLATFORMS ENCLOSED

FIGURE 15.—Section view of the three types of multiple-occupancy buildings.

mezzanine can be used for offices and welfare facilities. Meat and meat products firms, however, should have expanded mezzanines for heavy storage with a floor-load capacity of 350 pounds per square foot. Figure 16 shows an artist's conception of the three types of multiple-occupancy buildings.

Description of Proposed Facilities

Fresh fruits and vegetables.—The 114 fresh fruits and vegetables firms require one single-occupancy building containing 40,000 square feet of first floor area; four multiple-occupancy buildings containing 160 units, or 480,000 square feet of first floor area; and two assembly docks containing a total of 78,400 square feet. Each multiple-occupancy building is 1,200 feet long and 100 feet deep; 72 feet of which is enclosed. The remaining 28 feet are used for front and rear platforms. Two multiple-occupancy buildings are served by two sets of rail tracks at the rear. These rear platforms are 55 inches high to coincide with the usual height of floor racks in refrigerated cars.

Each individual unit contains 2,160 square feet of enclosed first floor area and 840 square feet of front and rear platform area. All units will have a mezzanine for an additional 420 square feet.

In the suggested multiple-occupancy building (fig. 17), the first floor interior of the facility has been divided into three sections: Cooler area; nonrefrigerated storage area; and order assembly and display area. Three rows of pallet racks are along one side of the cooler and two rows are on the opposite side to provide slots for 105 pallets.

The nonrefrigerated storage area has a pallet rack arrangement similar to that in the cooler area. It has a capacity of 81 pallet slots.

The front of each unit contains space for order assembly and displaying products. Two overhead doors provide access to the interior from the open-front platform.

In addition to the multiple- and single-occupancy buildings, two 560- by 70-foot shipping docks are provided with a overhead clearance of 20 feet. Twenty-eight 20-foot wide-operating areas can be provided in each of these facilities. A continuous 22-inch-high step along the front dock, 45 inches high from the pavement, permits loading of small trucks. A 6-foot roof overhang provides protection to workers and merchandise during inclement weather.

Meat and meat products.—The 22 meat product wholesalers and processors require 11 single-occupancy buildings and one 630-foot long multiple-occupancy building. The single-occupancy buildings have a total first floor area of 297,000 square feet and the multiple-occupancy building, containing 21 units, has a total first floor area of 63,000 square feet.

An average firm in the multiple-occupancy building requires a totally enclosed double unit. A general layout of a firm processing beef quarters and primal cuts into boneless and portion-controlled cuts is shown in figure 18.

The product would be received directly into the cooler (which is provided with meat rails) at the rear of the unit. Products would be shipped from the enclosed front platform. Doors at the front and rear should be equipped with dock seals to help maintain interior temperature. Packaging supplies received on the front platform would be carted to and from the storage area on the mezzanine with an electric hoist and trolley suspended from the roof members. Heights of the ceiling on the front platform, processing, order makeup, and cooler areas are 12 feet from floor level. Meat rails are placed 7 1/2 feet from the floor and 30 inches apart when parallel as in cooler areas. Meat rails on the front platform and processing areas would be suspended from the ceiling, but in the coolers, they should be supported from the floor. To provide stacking space for future handling of meat in boxes rather than in carcass form, false cooler ceilings should be constructed. Figure 19, shows an artist's conception of the interior view of a wholesale meat firm.

In addition to these items, other requirements needed by these firms are fully covered in guidelines published by the Animal and Plant Health Inspection Service, U.S. Department of Agriculture.[5] Particular attention is directed to floor drains and grease traps, lighting, floors, wall and ceiling materials, and plumbing fixtures.

Poultry and eggs.—The 21 wholesalers and processors of poultry and eggs require one single-occupancy building and two multiple-occupancy buildings. The single-occupancy building has 30,000 square feet of first-floor area and the two multiple-occupancy buildings contain 40 units, totaling 120,000 square feet of first-floor area. One multiple-occupancy building is 540 feet long and the other, 660 feet. Of the overall 100-foot depth, 86 feet is enclosed, with the rest used as an open platform at the rear.

Each unit in the multiple-occupancy buildings contains 2,580 square feet of enclosed first-floor area and 420 square feet of rear-platform area. The standard 420-square foot mezzanine has been expanded by 108 square feet in the poultry unit to provide a total of 3,528 square feet of floor area per unit. Details are shown in figures 20 and 21.

Each egg unit has a 25-foot high ceiling. Three rows of pallet racks are placed along one side of the cooler and two rows on the opposite side, providing 90 pallet slots. The egg unit has a combined processing and assembly area.

In the poultry unit, ice-packed poultry is assumed to be stored only one pallet high to prevent dripping problems. Thus, 26 pallet spaces are available in the cooler. If the poultry is chill packed, however, pallet stacking may be considered.

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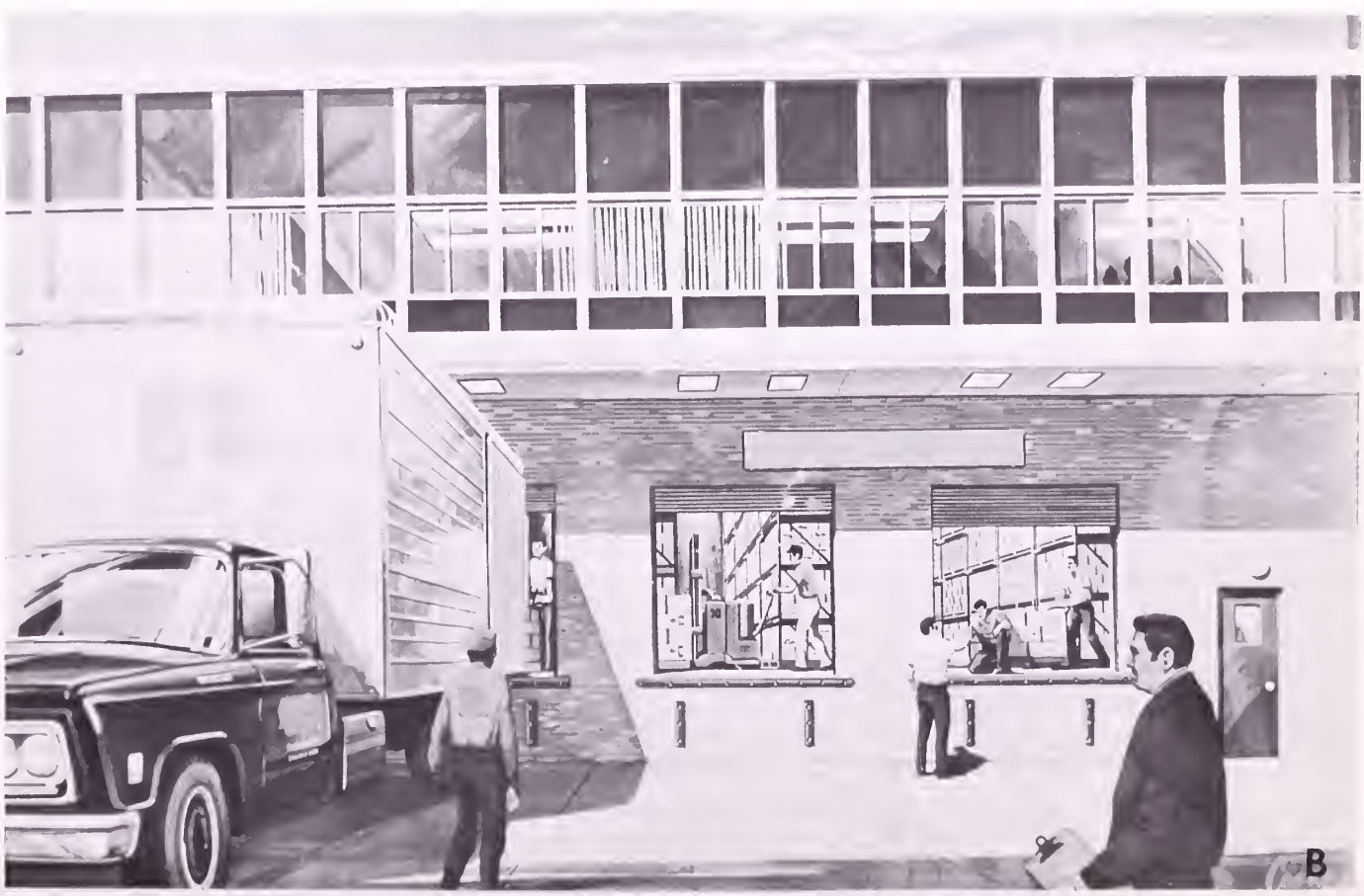
[5] U.S. DEPARTMENT OF AGRICULTURE. U.S. INSPECTED MEAT PACKING PLANTS—A GUIDE TO CONSTRUCTION, EQUIPMENT, LAYOUT. U.S. Dept. Agr., Agr. Handb. No. 191. August 1969.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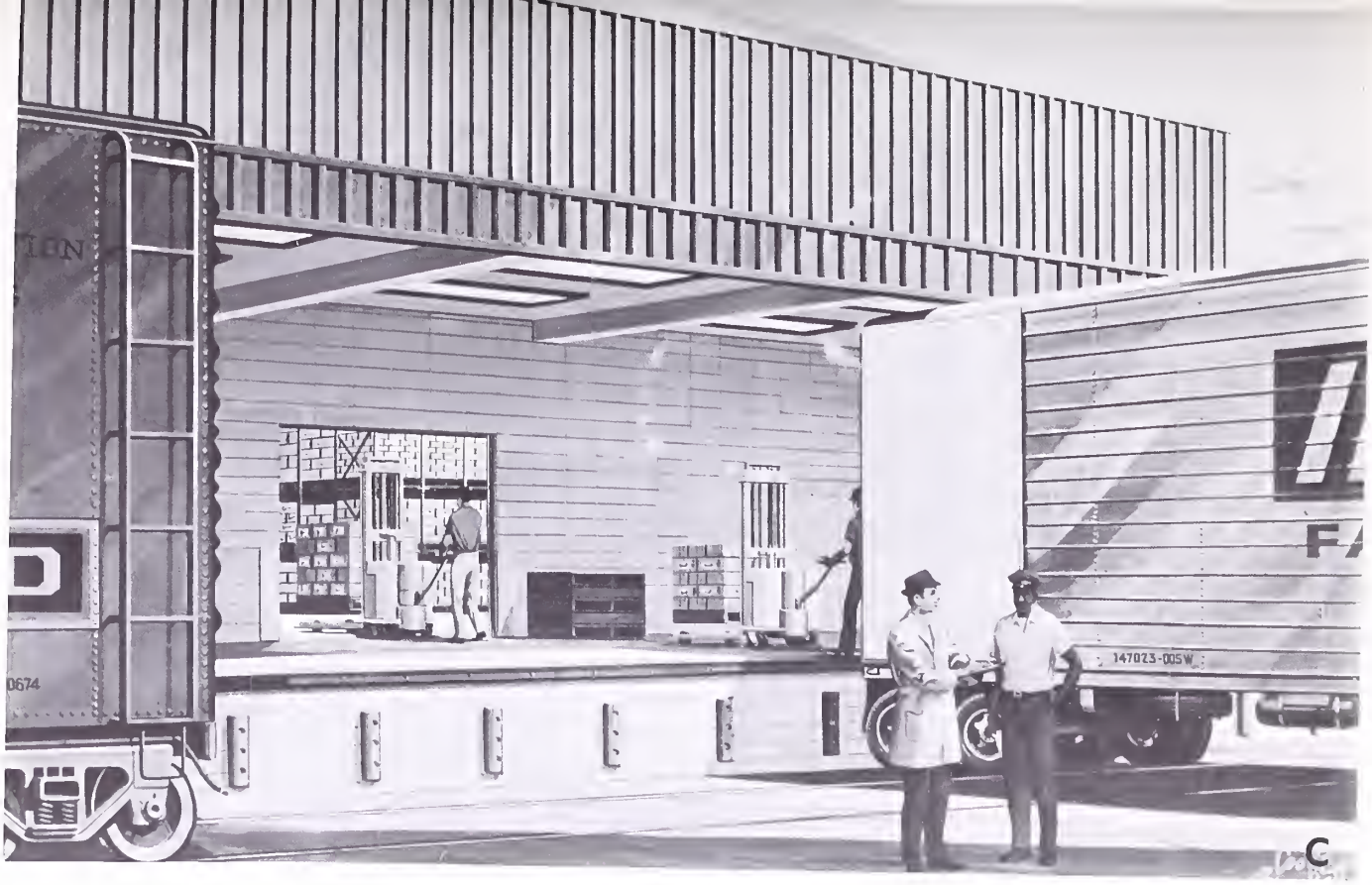

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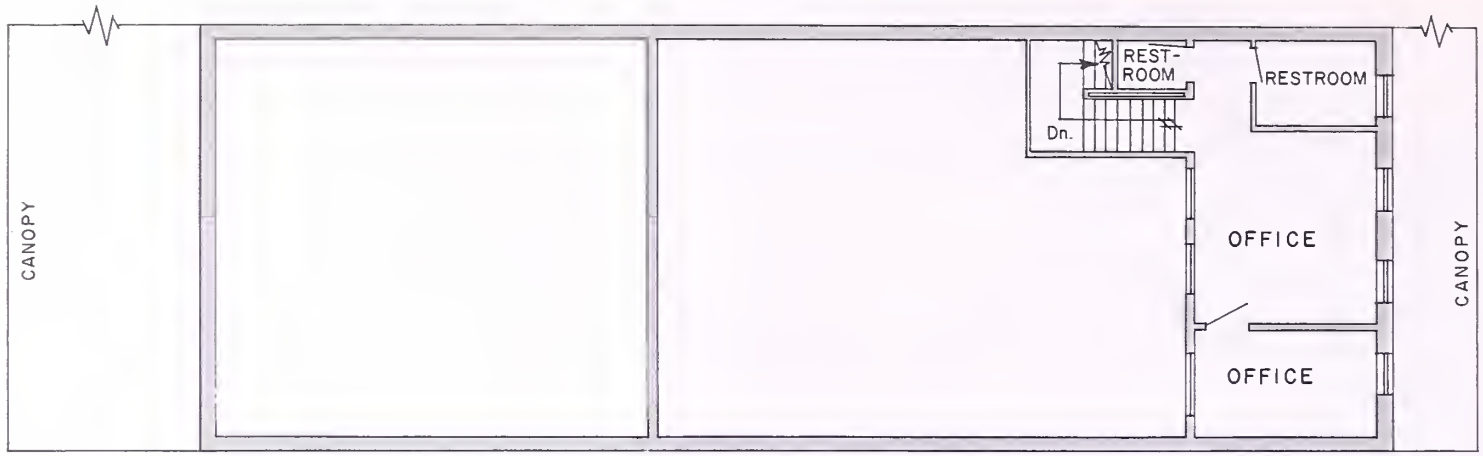
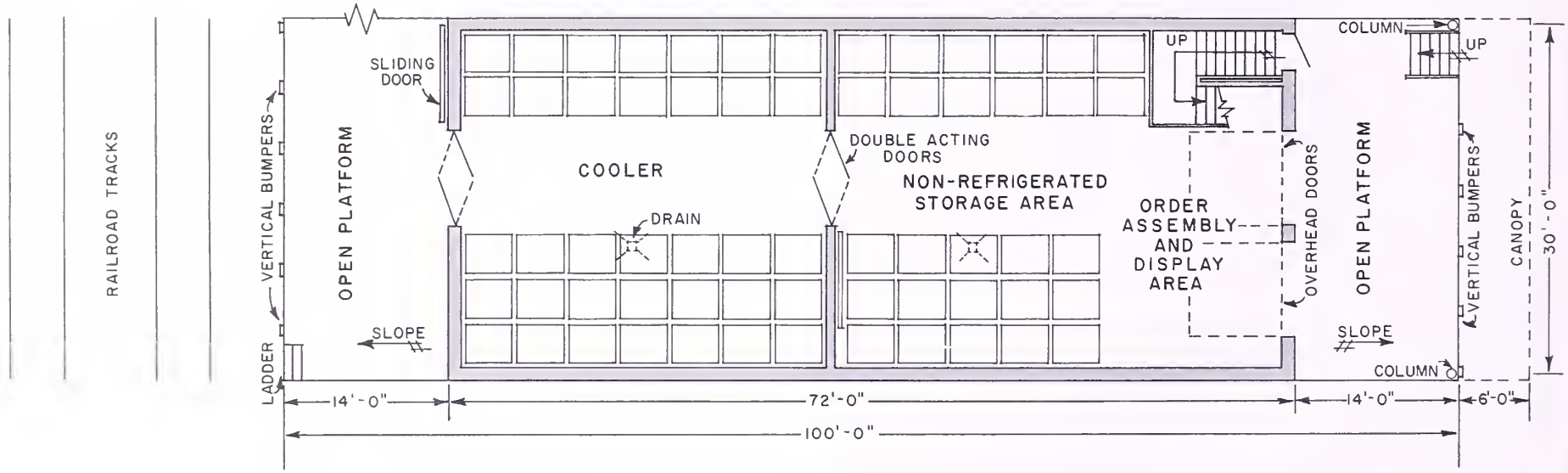
FIGURE 16.—Artist's conception of the three types of multiple-occupancy buildings: *A*, Open front platform; *B*, enclosed front platform; *C*, open rear platform.



MEZZANINE PLAN



FIRST FLOOR PLAN

FIGURE 17.—A layout for a fresh fruits and vegetables firm.

In the processing area of both units, doors and walls must be impervious to water to a height of 6 feet above the floor. Wall surfaces above 6 feet and the ceiling must be smooth finished with a moisture-resistant material.

The sales office has glass panels in three walls to permit monitoring of the various operations. Where necessary, air doors have been provided to prevent insects from entering the processing and order assembly areas. A general office, two restrooms for employees, and a welfare room are on the mezzanine.

All floor drains are vented and have deep seal traps. Grease traps are necessary in the poultry units. Restroom soil lines are separate from the floor drainage system to a point where they are connected outside the building. Details of the poultry facility must comply with U.S. Department of Agriculture regulations for the inspection of poultry and poultry products.[6]

Frozen food.—Two wholesale frozen food firms would be housed in two single-occupancy buildings, and nine others in a 480-foot long multiple-occupancy building, containing 16 units. The single-occupancy buildings have a total of 40,000 square feet of first floor area, and the multiple-occupancy building has 48,000 square feet of first floor area.

Figure 22 shows a suggested layout of a totally enclosed double unit in a multiple-occupancy frozen food building.

The front of the double unit has four overhead doors with dock seals. Each double unit has an access door for pedestrians at street level that opens to stairs leading to the first floor or mezzanine. The rear of this unit has two vertical-powered insulated freezer doors with dock seals. These vertical-powered doors are 45 inches from street level.

The interior of this unit provides high density racked storage from the rear of the unit to the edge of the mezzanine. The area under the mezzaine is used for shipping and order assembly. An office area is adjacent to the mezzanine stairway. Two 8- by 8-foot insulated sliding doors with complementary air doors provide access into the freezer part of the unit. The entire first floor should be provided with special protection against frost heaving. All floors and ceilings should be insulated.

Manufactured dairy products.—The 18 wholesalers and processors of manufactured dairy products require four single-occupancy buildings containing 145,000 square feet of first floor area, and two multiple-occupancy buildings containing 34 units, or 102,000 square feet of first floor area. The one multiple-occupancy building is 600 feet long and the other, 420 feet. Eighty-six feet of the overall 100-foot width is enclosed with the rest used as a 14-foot-wide open platform at the rear. A unit contains 2,580 square feet of enclosed first floor area and 420 square feet of open platform area. In the suggested interior layout for a dairy wholesale unit (fig. 23), the standard mezzanine has been expanded to 620 square feet to provide additional office and welfare space.

Pallet racks are provided in the 25-foot high cooler for storing 66 pallet loads of product. An 8-foot wide aisleway is provided between the rows of pallet racks to permit operating materials-handling equipment. The dry storage area adjacent to the cooler provides two rows of pallets racks for storing up to 30 pallet loads of products or supplies. Shelves are provided in the cooler for storing speciality items. A 12-foot high freezer containing 150 square feet of floor area is located within the cooler. Shelves are installed along the freezer walls for storing products.

In the dairy-processing unit (fig. 24), the standard mezzanine has been expanded to 920 square feet. Restrooms and other employee welfare areas are provided on this level.

Sufficient pallet racks are provided in the dry storage area for storing 57 pallet loads of product or supplies. An 8-foot-wide aisleway is provided between the rows of pallets to permit operating materials-handling equipment. The cooler located next to the shipping area provides space for storing either palletized or racked products. A 7-foot-wide aisleway provides space for handling the products.

Grocery products. The 30 grocery wholesalers require five single-occupancy buildings and two multiple-occupancy buildings. The single-occupancy buildings contain a total of 196,100 square feet of first-floor area. The multiple-occupancy buildings contain 48 units, or a total of 144,000 square feet of first-floor area. One multiple-occupancy building is 570 feet long and the other, 870 feet. Each is 100 feet deep, of which 86 feet is enclosed. Both buildings have open rear platforms, 45 inches high, extending the length of the buildings. All buildings are served directly by rail.

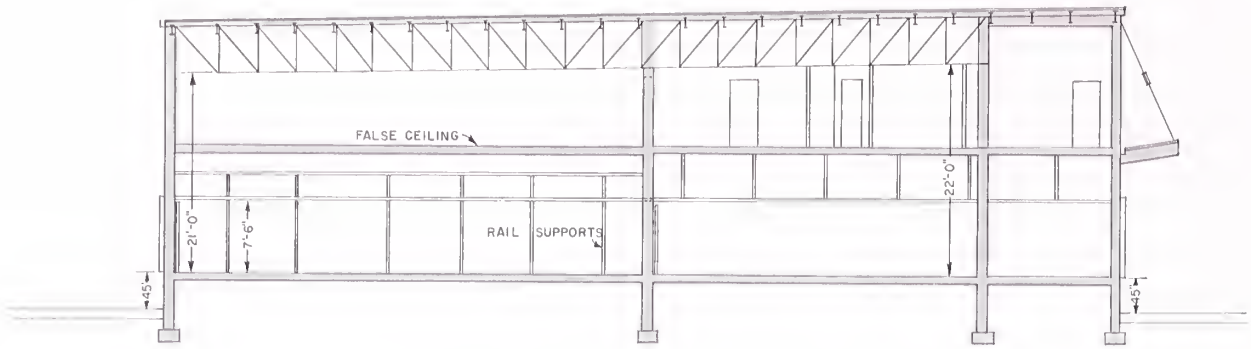
Each unit of the multiple-occupancy buildings contains 2,580 square feet of enclosed first-floor area, 420 square feet of open rear platform, and 420 square feet of mezzanine area. The total area per unit is 3,420 square feet.

The suggested interior layout of a double unit is shown in figure 25. Conventional pallet racks, designed for 40- by 32-inch pallets, are arranged in this space. Using this configuration, a maximum of 855 pallet slots would be available. The pallet racks would be arranged five tiers high, with the three bottom pallets partly loaded and used for selection and two fully loaded pallets on top for reserve.

Fish and shellfish.—The 24 fish and shellfish firms require five single-occupancy buildings containing 215,000 square feet of first-floor area and three multiple-occupancy buildings containing 49 units, or 147,000 square feet of first-floor area.

Two multiple-occupancy buildings are 510 feet long and the third, 450 feet. Eighty-six feet of the depth of a unit is enclosed, with the remaining 14 feet used as an open rear platform. A unit contains 2,580 square feet of enclosed area, 420 square feet of open platform area, and 420 square feet of mezzanine

[6] U. S. DEPARTMANT OF AGRICULTURE. REGULATIONS GOVERNING THE INSPECTION OF POULTRY AND POULTRY PRODUCTS. U.S. Dept. Agr., Animal and Plant Health Inspection Serv., Poultry Division, March 1, 1968.



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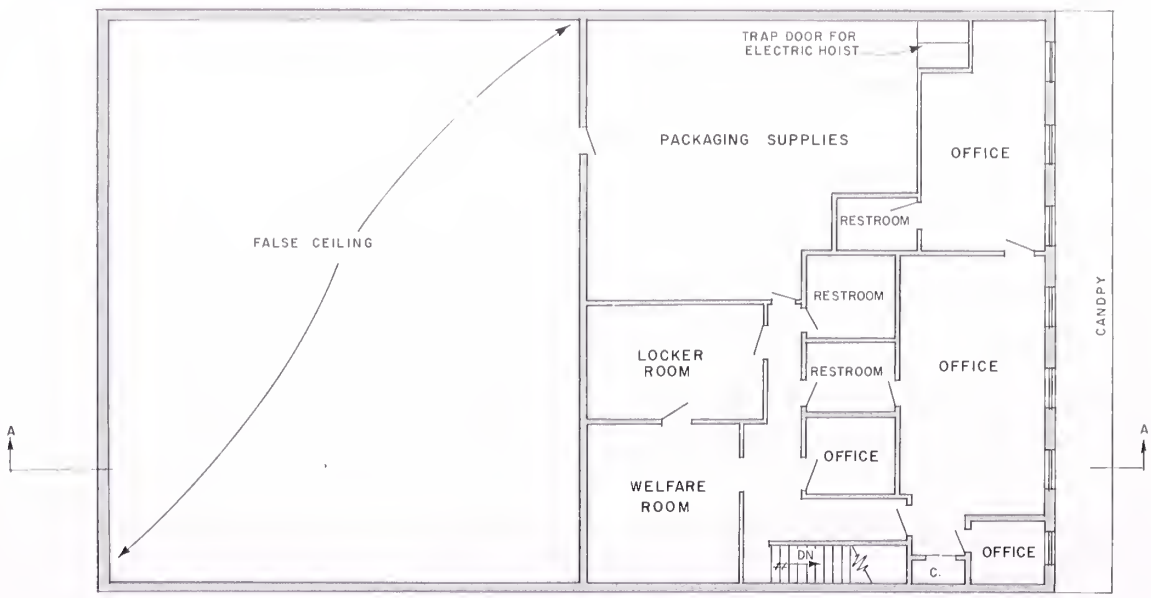
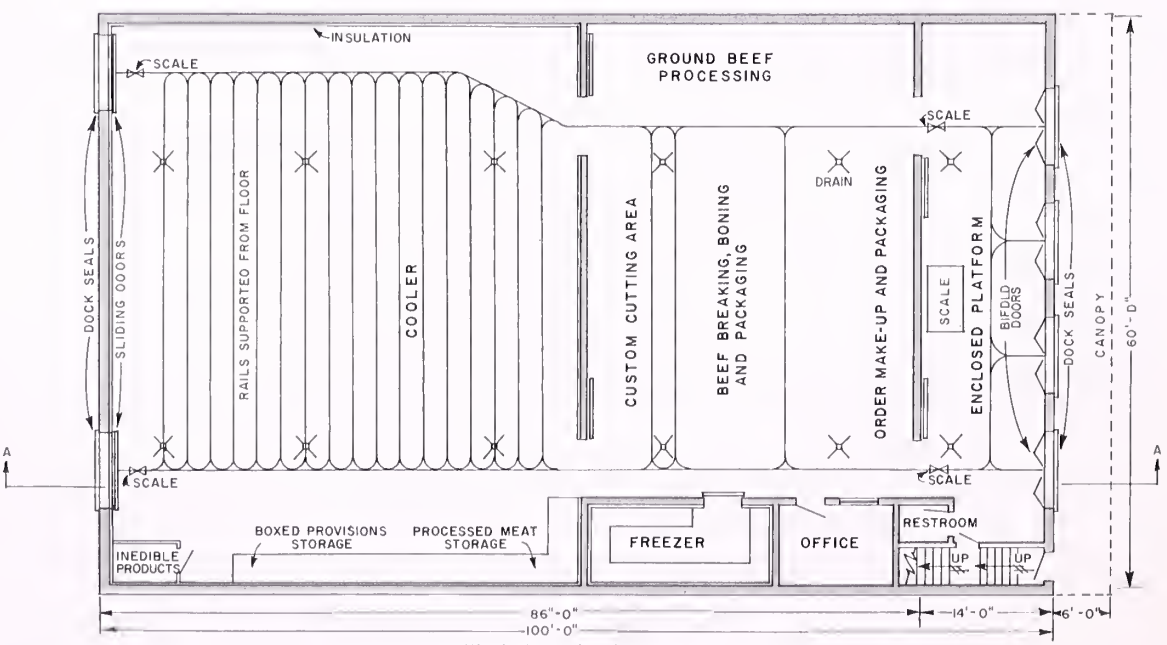


MEZZANINE PLAN



FIRST FLOOR PLAN

FIGURE 18.—A layout for a meat and meat products firm.

area. A double unit layout for a firm that steaks and breads fish and breads and cooks shrimp is shown in figure 26.

Incoming shipments are unloaded on the open rear platform. Two sliding doors, each with an air curtain, provide access to the interior of the units. The interior working area should be cooled to 55° F. Two refrigerated storage rooms are provided, one for fresh products at 32° and one for frozen products at -10°. Space is available for two processing lines in the work area. A separate processing room with two ventilating fans is used for inspection and sales personnel. The area under the mezzanine is used for shipping. Air curtains insulate the open doorways when the sliding doors are in use and provide a barrier for flying insects.

Corporate chainstores and affiliated wholesalers.—The four corporate chainstores and affiliated wholesalers require four single-occupancy buildings containing a total of 162,100 square feet of first-floor area. The four buildings are served by two sets of house tracks at the rear.

Refrigerated warehouse.—A one-story public refrigerated warehouse should be provided. This building should contain 50,400 square feet with a clear ceiling height of 26 feet. This facility should have a 32° F. cooler, a -10° freezer, and a -40° blast freezer. The front and rear platform should be enclosed and insulated. The mezzanine above the front platform could be used for office space.

Central refrigeration plant.—A separate study was conducted to determine the requirements and costs for a central refrigeration system for the proposed food distribution center. A recommended plant is discussed in "A Master Plan for a Central Refrigeration System for the Proposed Los Angeles Food Distribution Center."[7] The system recommended for the proposed center consists of a central plant capable of supplying 7,300 tons of refrigeration, a network of pipelines to distribute refrigerants to the users, and terminal evaporator units to cool the air in each user's room. After the study was completed, however, four firms elected to proceed with independent relocation plans. Therefore, approximately 5,100 tons of refrigeration at peak loads would be required by the market candidates included in this report.

The central plant would require a building with approximately 13,000 square feet to accommodate equipment and service functions and an outdoor area of 10,000 square feet for distribution headers and condensing equipment. In addition, another 10,000 square feet of land is provided for future expansion.

[7] U. S. Agricultural Research Service, Transportation and Facilities Research Division. A master plan for a central refrigeration system for the Los Angeles food distribution center. U.S. Dept. Agr., Agr. Res. Serv. ARS 52-57. 1970.

Auxiliary Facilities

In addition to the facilities described, many auxiliary facilities are required. Streets and parking areas, railroad facilities, expansion areas, restaurants, additional office space, public restrooms, service stations, and solid waste (trash) disposal facilities are required within or nearby the market.

Streets and parking areas.—All streets in the proposed market should be wide enough for present and anticipated future use. They should be paved to carry heavy traffic and to facilitate drainage away from the buildings. The clearance between the platform and the parking median should be 150 feet wide to allow sufficient room for maneuvering and parking semitrailers and permit traffic to flow freely. Clearance between buildings in remaining areas should be at least 80 feet wide to facilitate traffic flow.

Parking areas should be considered an integral part of the market and should have room for expansion. Selected parking areas should be designated for use by over-the-road trucks, while others should be reserved for small trucks and cars. At least 4,400 parking spaces are required for all types of cars and trucks.

Railroad facilities.—Firms using rail service extensively should have tracks adjacent to their facilities. Tracks nearest the building would serve as house tracks and outside tracks would serve as switching tracks. House tracks are positioned so that products can be unloaded directly from railcars into facilities. Buildings should be arranged so that trackage could be provided to firms desiring rail service in the future.

Expansion areas.—When acquiring land for a market site, sufficient land should be acquired at the outset for expansion and growth. Ten percent expansion should be provided for in total acreage required. In addition, land adjacent to the site should be available for future use by food firms or allied industry who may wish to locate in the center.

Restaurants, public restrooms, and additional office space.—Restaurants should be located where they will be convenient to the greatest number of people. Restaurant equipment and furnishings should be supplied by the tenants. At the time final plans are developed, construction of public restrooms should be considered.

An office building could be constructed on land adjacent to the market site as provided for in the master plan. This building would provide space for brokerage firms, banks, retail stores, and management. No costs for an office building have been included in the tabular data presented because the size and type of facility required would depend on the needs of interested tenants. Prospective tenants would be determined by the demand for such a facility at the time the proposed food distribution center is being developed.

Service stations.—In other cities where new food markets have been built,

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FIGURE 19.—Artist's conception of an interior view of a meat and meat products firm.

the trend has been for oil companies to plan and construct, under long term leases, facilities for servicing cars and trucks. At the time of construction, any offers tendered by interested oil companies should be considered.

Solid-waste (trash) disposal.—Handling and disposing of solid waste generated in wholesale food distribution centers can be a significant problem. Recent and pending antipollution legislation in some areas of the country is limiting the choice of solid-waste-management systems and forcing some centers to upgrade present waste-management methods.

Many types of waste-management systems are available. When selecting a method for managing solid waste, some factors to be considered are economic feasibility, implementing the system considering the physical characteristics of a particular center, acceptability to the tenants, and present or pending antipollution regulations.

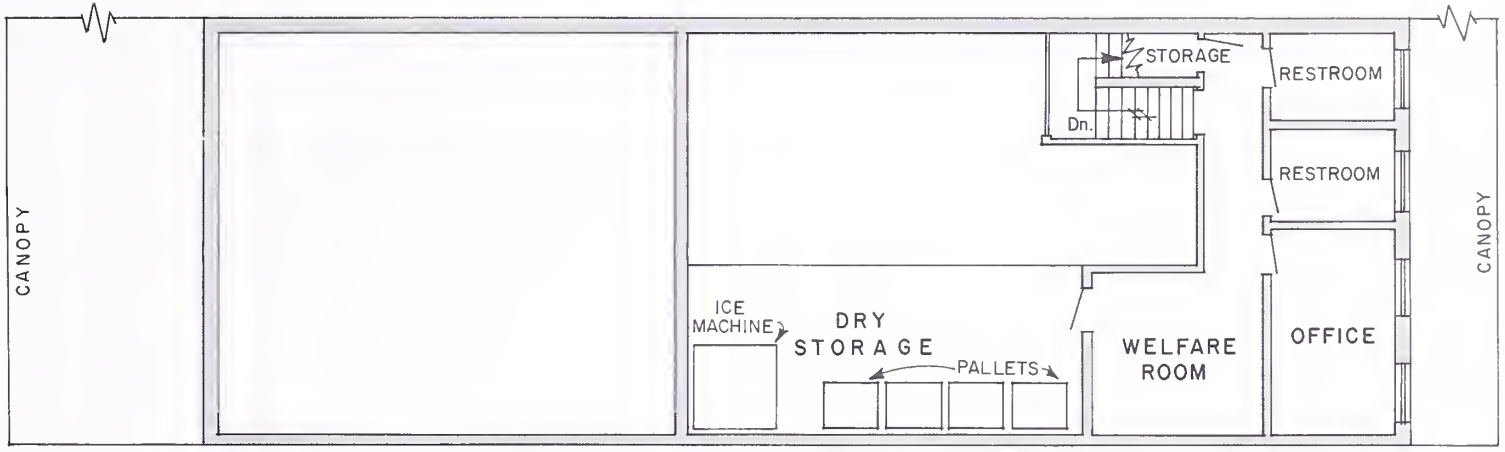
An in-depth engineering study of sources and types of solid wastes, waste-generation rates, and present methods of waste handling and disposal at food distribution centers was evaluated. Recommendations from this study are presented in the appendix (p. 72).

Arrangement of Facilities

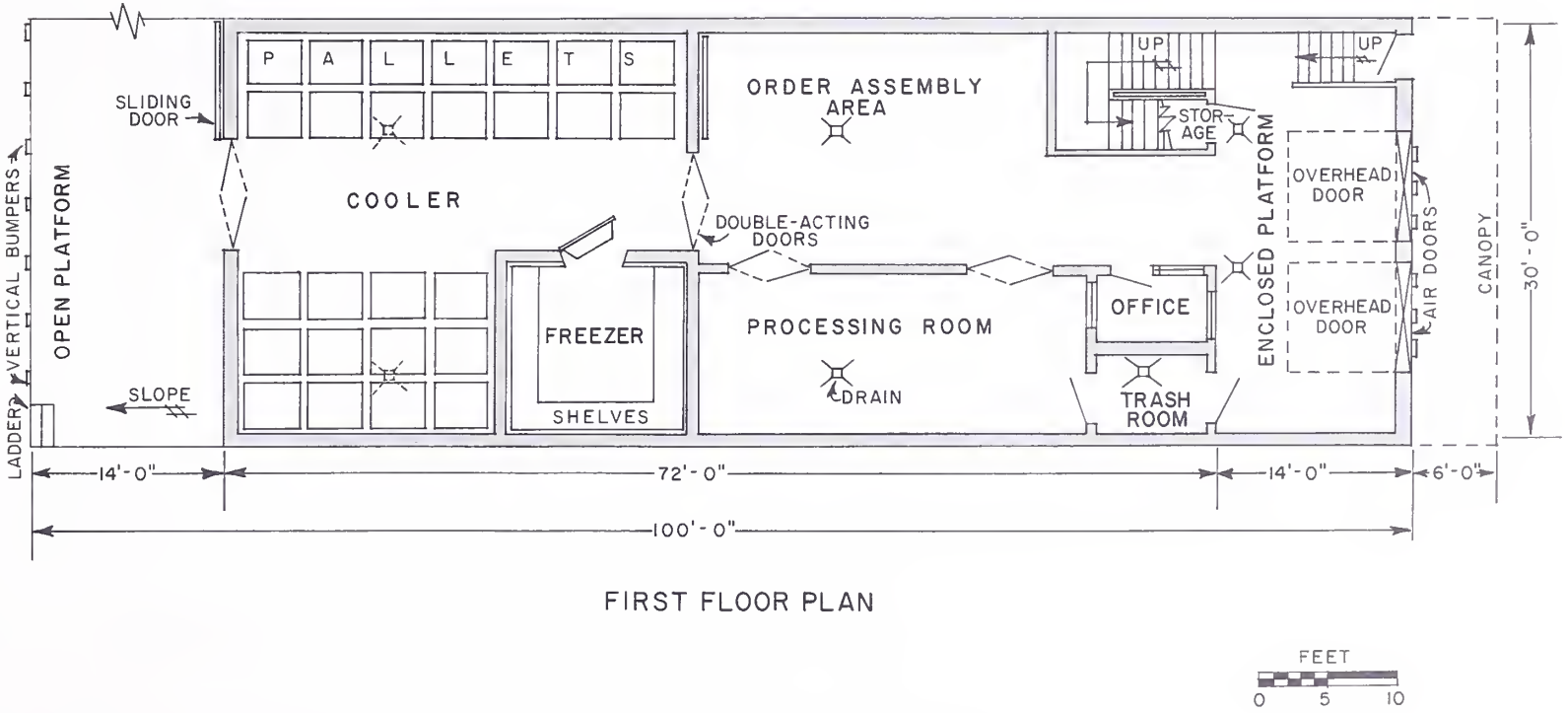
The final arrangement of buildings and other facilities in the wholesale food center will depend upon the physical characteristics of the site selected, the location of existing and proposed traffic arteries, and the accessibility to rail.

Figure 27 illustrates a possible master plan showing the facilities recommended for the Los Angeles wholesale food distribution center. Figure 28 shows artist's conception of the master plan.

Wholesalers who have a common interest are grouped together. A particular commodity group has its own streets, parking areas for expansion, and service facilities while remaining an integral part of the total food



MEZZANINE PLAN



FIRST FLOOR PLAN

FIGURE 20.—A layout for a poultry firm.

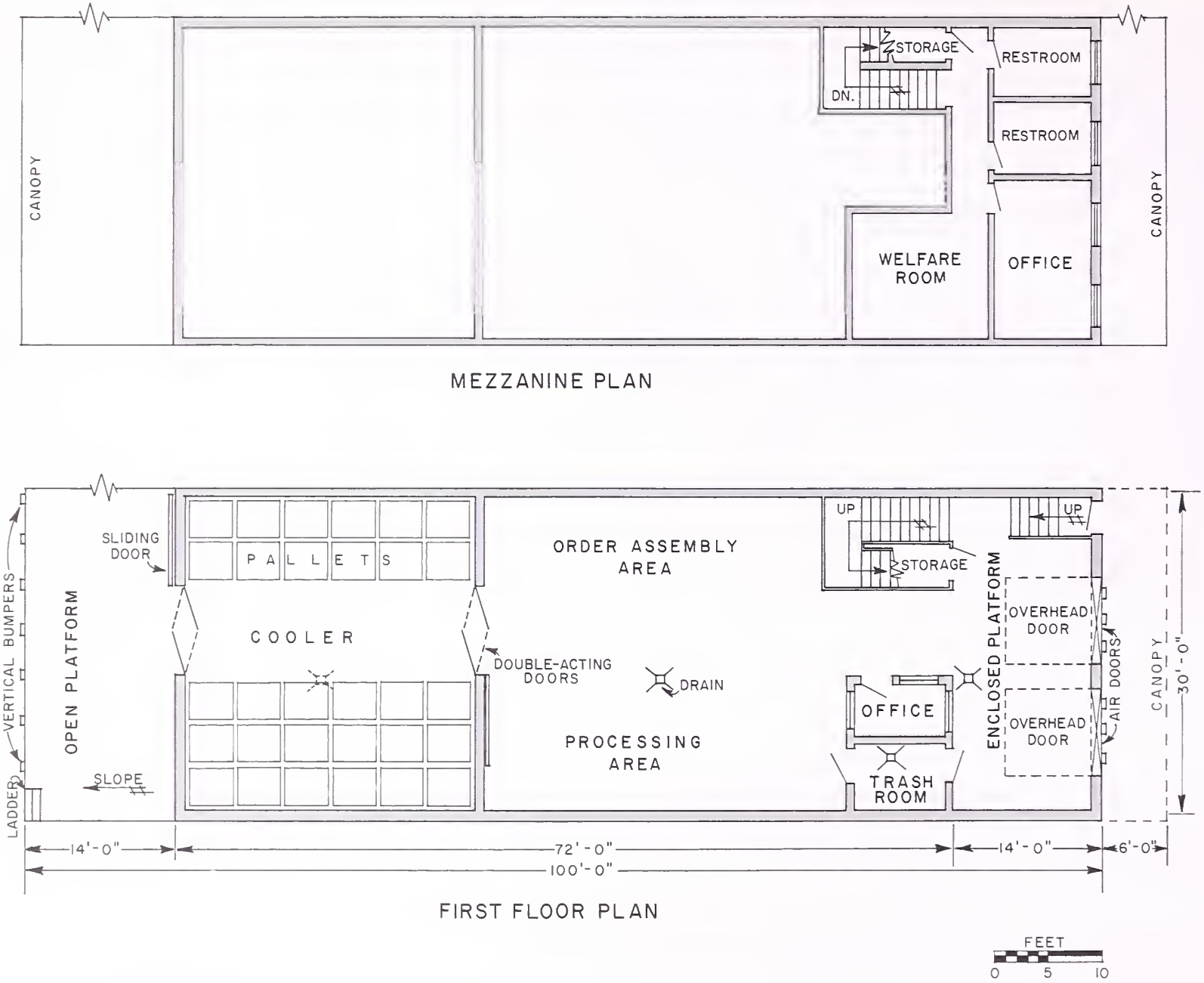


FIGURE 21.—A layout for a shell egg firm.

center. Commodity grouping facilitates transactions among wholesalers of like commodities. Single-occupancy buildings are located so that they are within their commodity group but away from the heavy traffic surrounding the multiple-occupancy buildings.

Service stations, restaurants, and other such service facilities should be located where they are easily accessible. In the master plan a public refrigerated warehouse and a central refrigeration plant have been situated where they can best serve the market. Areas for expansion should be available for all present and future tenants of the center. Facilities should be arranged so that traffic is distributed as evenly as possible throughout the entire market.

Acreage Needed

A food distribution center for Los Angeles would require a total of 470 acres, 341 acres would be needed for the recommended buildings and service facilities and 129 acres for other food firms or allied industries. Failure to acquire sufficient land could limit the potential of the market.

Selecting a Site for a Food Distribution Center

Factors to be Considered

When choosing the best possible site for a food distribution center, certain criteria should be considered.

1. Proximity to potential tenants and customers.
2. Accessibility to transportation arteries.
3. Avoidance of nonmarket traffic.
4. Availability of land and utilities.
5. Physical features of the site.
6. Land-use plans.

Proximity to potential tenants and customers.—Because of the large volume of food distributed within the Los Angeles area, a site should be selected where buyers and wholesalers require a minimum of travel time.

At the time of the study, the center of the Los Angeles and Orange County population was approximately at the intersection of Slauson Avenue and Downey Road in Huntington Park. The center of population has been projected to continue to move in a southeasterly direction. A suitable site, then, should be found that is as close as possible to the center of population.

Accessibility to transportation arteries.—The large volume of products received and distributed at a food center makes convenient access to freeways and rail facilities a vital requirement. About 85 percent of the food arriving in the Los Angeles area comes by truck, and nearly all of it is distributed by truck. Thus, the site selected should have direct access to the major highway system and good access to arterial streets.

Rail receipts accounted for about 12 percent of the total. Thus, the proposed food distribution center should have good access to railroad facilities. Three major railroads, Southern Pacific Lines, Union Pacific Railroad, and the Atchinson, Topeka, and Santa Fe Railway Company, serve Los Angeles. In selecting the market site, various rail switching limits should be considered, so that perishables and other products can be handled as rapidly as possible.

Although air and water transportation is secondary now to truck and rail, the likelihood of containerized shipment by air and sea in the future should be considered. Therefore, good highway access from airports and piers is important.

Avoidance of nonmarket traffic.—The movement of food into and out of wholesale facilities is conducive to traffic congestion. Routing traffic, even in a well planned facility, can be a serious and complicated problem. The presence of nonmarket traffic creates additional traffic and security problems. Market and nonmarket vehicles often compete for the available space. Therefore, a site should be selected that will minimize the conflict between these types of traffic.

Availability of land and utilities.—The problem of land assembly may be complicated when dealing with many separate owners of small parcels. Accessibility of public utilities, such as water, gas, electricity, and sewage-disposal facilities, affects the suitability of a site. Depending on the site selected, a developer may be required to bear part of the cost, or the entire cost, of providing utilities.

Physical features of the site.—The shape and general topography of a site are important. A site that requires either an excessive amount of fill or piling can significantly increase the cost of the entire project. The possibility of adapting the facilities to a site should be thoroughly investigated before making firm commitments to purchase or build.

Land-use plans.—Current or planned land use is an important consideration in selecting a site. An economically feasible site with sufficient acreage to accommodate a complete food distribution center may be difficult to locate because of rapid growth and development of urban areas.

Rapidly increasing population has caused prime industrial land to be used for residential purposes. A site for a food center should conform with local zoning and land-use plans.

A site in proximity to a heavy industrial complex should not be considered because of the possibility of air pollution. Noxious odors and air contamination would not be conducive to maintaining food quality.

Possible Sites

Possible sites were suggested by real estate firms, officials and various levels of governmental planning, transportation agencies, wholesalers, and other interested persons. More than 25 sites within the Los Angeles area

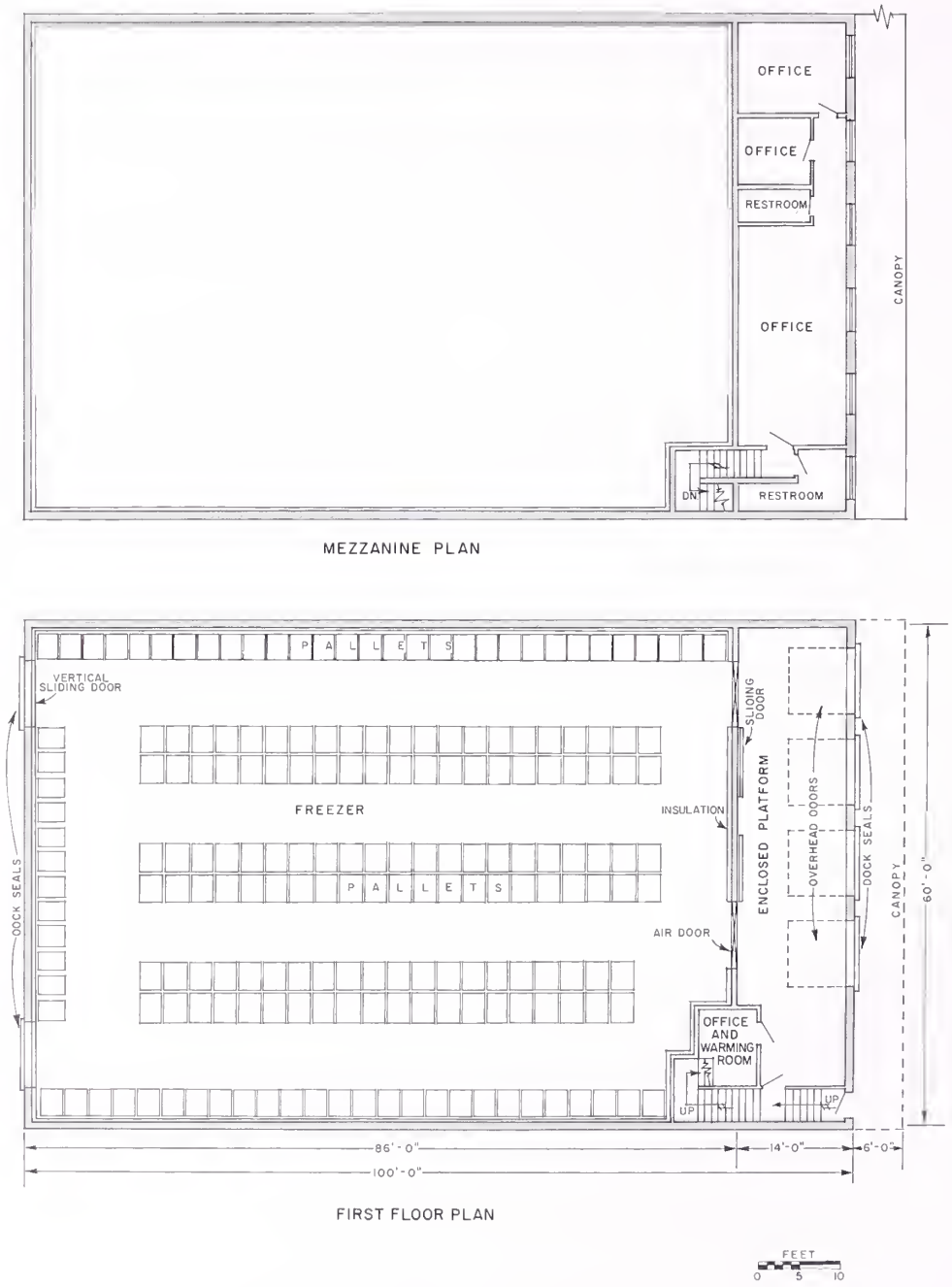
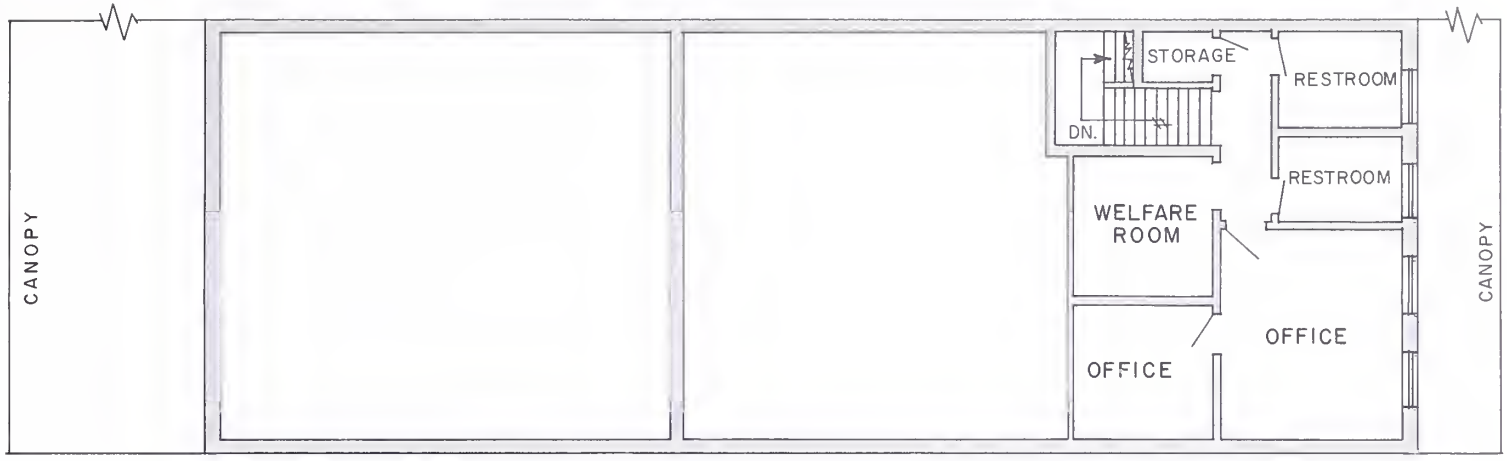
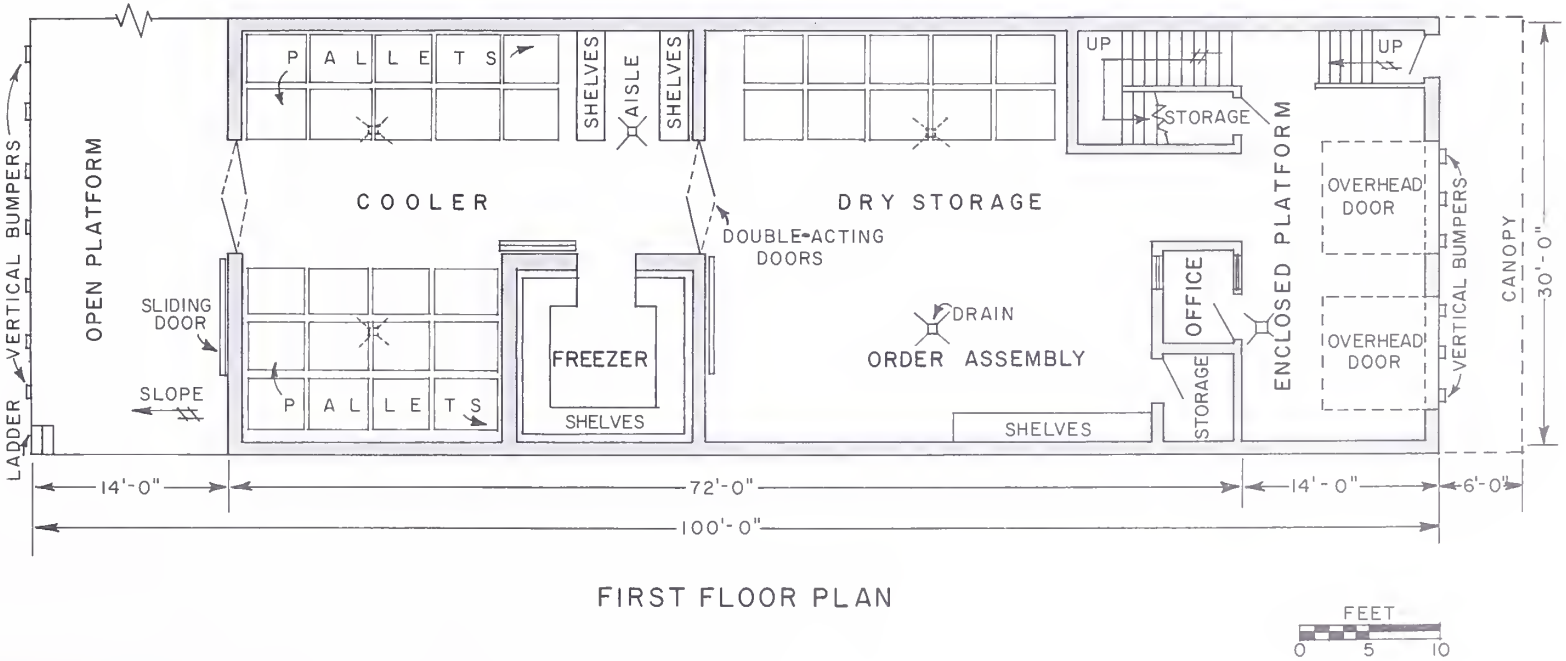


FIGURE 22.—A layout for a frozen food firm.



MEZZANINE PLAN



FIRST FLOOR PLAN

FIGURE 23.—A layout for a manufactured dairy products wholesale firm.

were considered. Many of these were eliminated because they did not meet acreage requirements, lacked adequate access to transportation arteries, or failed to meet other important criteria. Because it was impossible to cover all sites, five geographically distributed sites were analyzed. These sites are north, Branford-Pacoima-Jessup Park; east, city of Industry; southeast, Santa Fe Springs; south, city of Carson; and central, city of Los Angeles, Naomi-Trinity-Stanford. These representative sites are shown in figure 29.

Branford-Pacoima-Jessup Park.—This site is located on the northern boundary of the City of Los Angeles, about 42 miles from the center of population. Part of it is in Los Angeles County. Most of the Roger Jessup Park of Whitman Airpark are included in this acreage but not the 50.3 acres of rugged parkland adjacent to the site. The site contains approximately 485 acres, part of which is owned by the county. The rest is divided among 360 property owners. The boundaries are: Northeast, Defoe Avenue extended; southwest, the Southern Pacific right-of-way; northwest, Pierce Street; and southeast, Branford Street. This part of the site does not include the residential area in the vicinity. The site also includes the area bounded by Osborne Street, Glenoaks Boulevard, Branford Road, and San Fernando Road. The land is presently zoned single-family residential and industrial.

To assemble a complete site, an urban renewal program would be necessary. This could be a long range program, however, since sufficient vacant land is available to begin development without major relocation of residents.

To provide rail service to the site, a bridge would have to be built over a flood-control channel that parallels the railroad right-of-way of San Fernando Road.

Highway access to this site would be by the Golden State Freeway with access via this route to the Hollywood Freeway. The proposed Foothills Freeway will be within 1-1/2 miles of the property. The site is adjacent to San Fernando Road, a main arterial highway connecting northern and southern California.

This site is relatively level, except for the northwestern part that would require extensive cut and fill. Utilities, water, and sewerage systems are available and of sufficient capacity to serve a food center. Houses and industrial buildings on the site will need to be razed. Conditions of the subsoil has not been determined.

Cost for land at this site in condition to build is estimated at $50,000 per acre, or $1.15 per square foot.[8] The required 470 acres would cost about $23,500,000 in condition to use.

Carson.—This site is in the Dominquez Hills section of the city of Carson, 10 miles south of the designated center of population. It contains about 726 acres. The boundaries are Artesia Freeway on the north, Alameda Street on the east, Wilmington Boulevard on the west, and Del Amo Boulevard on the south. There are many owners, several with substantial parcels.

The area is largely vacant with light industrial facilities. It contains a few scattered residences and a school. In addition, the City of Long Beach has water-storage tanks on the site.

The site is adjacent to the Artesia Freeway, approximately 1-1/2 miles from the San Diego Freeway, 2-1/2 miles from the Long Beach Freeway, and about 4 miles from the Harbor Freeway. The proposed Industrial Freeway may intersect the site. The Southern Pacific Railroad could provide rail service.

Certain parts of the site are level, but a large part of it will require extensive cut and fill to make it usable. The estimated cost of this site in condition to use is $37,500 per acre, or $0.86 per square foot (see footnote 8). The required 470 acres would cost about $17,625,000 in condition to use.

Industry.—This site is in the city of Industry, east of Los Angeles and about 30 miles from the present center of population. It is within Los Angeles County and contains approximately 580 acres. It is bounded on the north by Railroad Street; east, Nogales Street; west, South Bloomfield Avenue; and south, Anaheim-Puente Road. The area within these boundaries is intersected by a 26-acre section that is developed with approximately 380,000 square feet of general purpose manufacturing and warehouse facilities.

The site is served by the Union Pacific Railroad main line. The property is adjacent to the Pomona Freeway (U.S. Highway 60), which would provide a direct access to downtown Los Angeles.

There are approximately 16 owners of this land, with two owners holding approximately 400 acres. The property is zoned light industrial. The area has been designed to provide utilities for heavy industrial development, and sufficient water service is available. Within 2 years a major Ocean Outfall Industrial sewer will be constructed.

This site is relatively flat and would require little or no grading. Since the land is vacant, no demolition would be necessary unless the 26-acre industrial section were acquired.

The purchase price for this site in condition to use is estimated at $36,500 per acre, or $0.84 per square foot. (See footnote 8.) The required 470 acres would cost $17,155,000 in condition to use.

Naomi-Trinity-Stanford.—The Naomi-Trinity-Stanford area is located in the Central City section of Los Angeles. This 500-acre site is bounded on the north by Washington Boulevard; east, Alameda Street; south, Adams Boulevard and Southern Pacific right-of-way; and west by Main Street and the Knudsen Dairy property. It is about 5 miles from the center of population of Los Angeles and Orange Counties.

Approximately 44 percent of the site is zoned multiple residential; 10 percent, commercial; and about 46 percent, industrial. At the time of the

[8] The cost of putting land in condition to use includes demolishing buildings, removing trees and other obstructions, and grading. It does not include curbing streets, on-site utilities, or piling, when necessary.

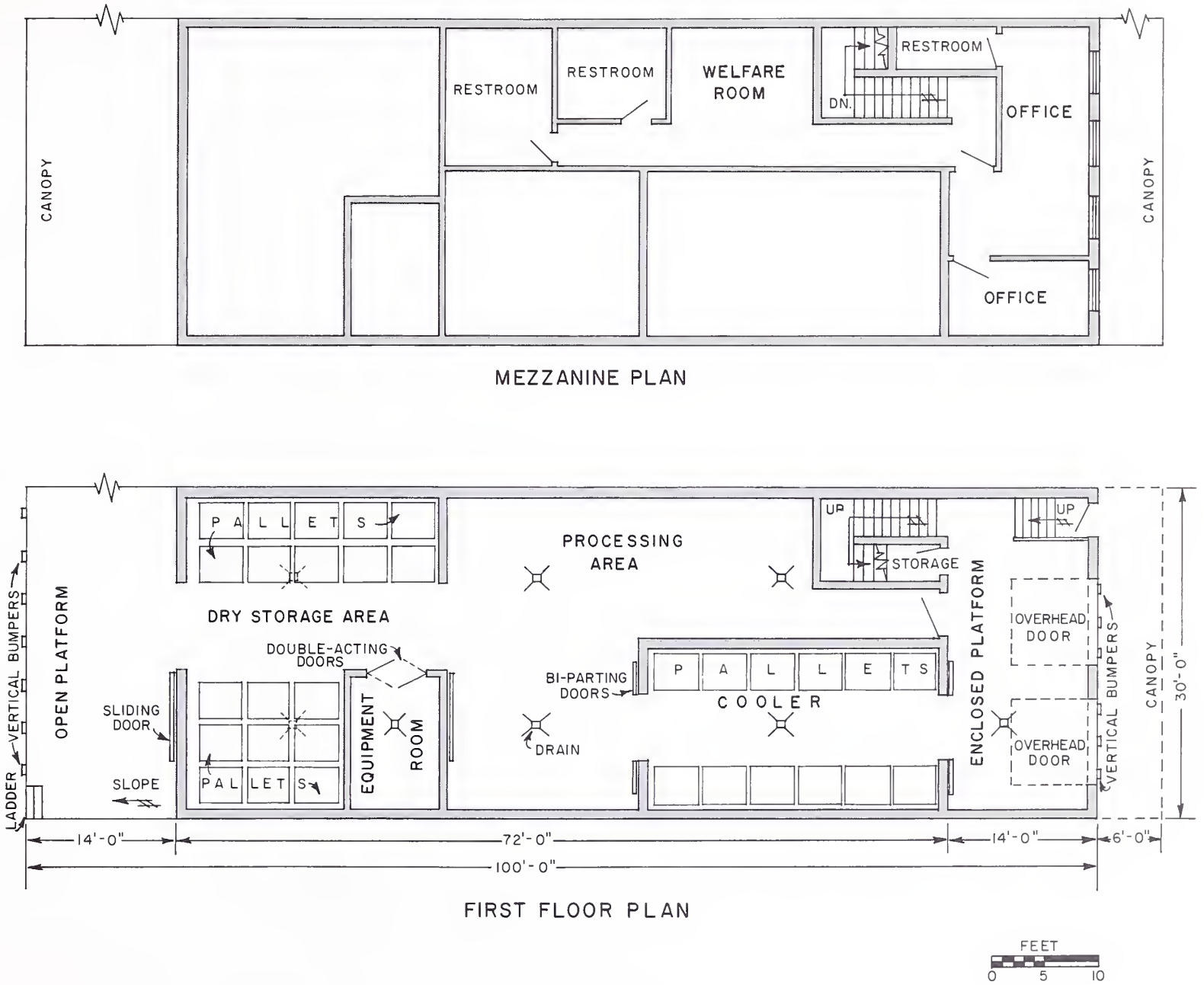


FIGURE 24.—A layout for a manufactured dairy products processing firm.

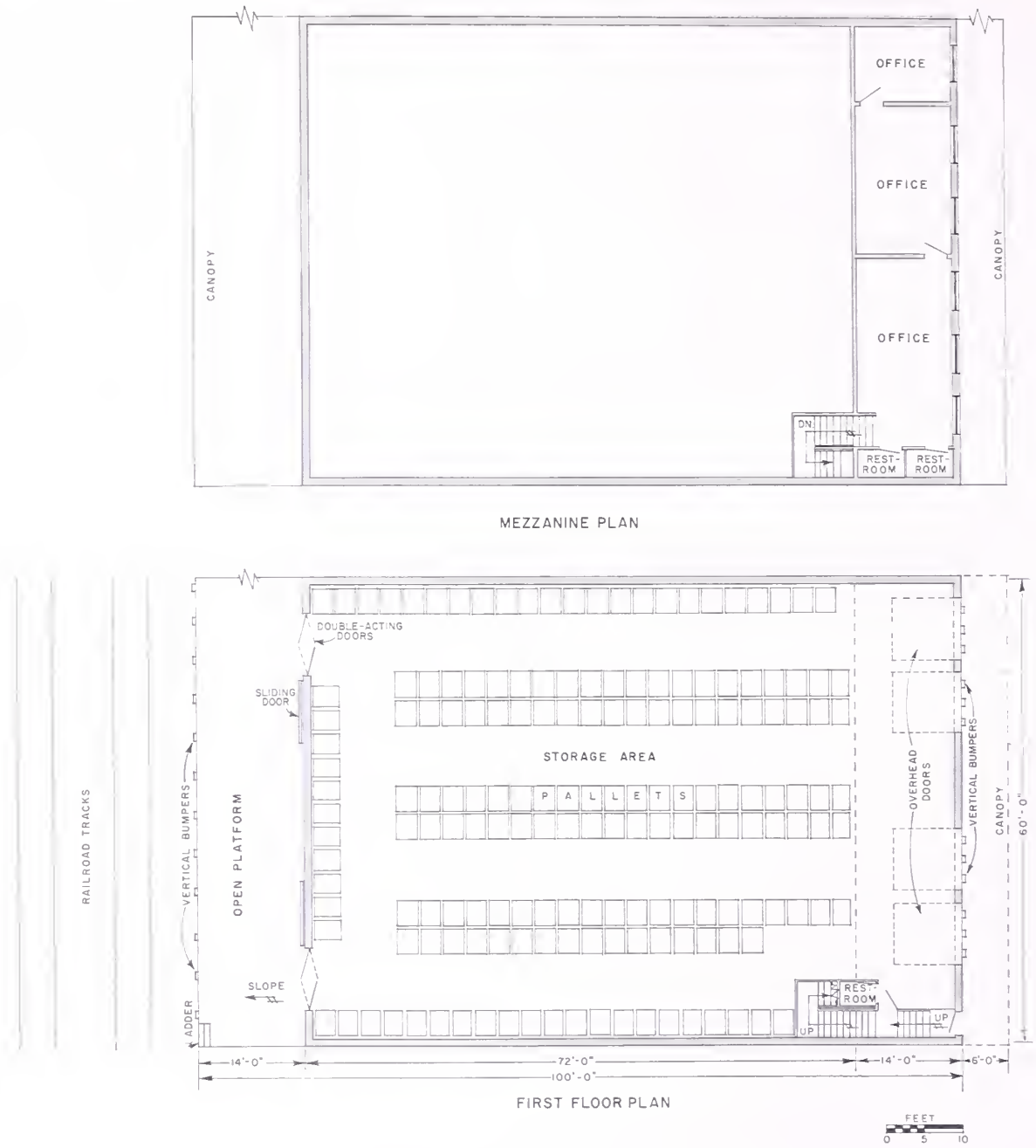


FIGURE 25.—A layout for a grocery firm.

study, no definite program for urban renewal had been adopted. However, if such a plan is adopted, the development of the center may be coordinated with the urban renewal program.

This site is served by the Southern Pacific Railroad that has rights of way and tracks in the median of Long Beach Avenue and in the center of Alameda Street. The center is in proximity to most freeways and adjacent to the Central City Freeway loop. It is served directly by the Santa Monica Freeway with ramps at Alameda Street, Naomi, and Central Avenues.

The land is level. However, an extensive demolition program would be required before the site could be placed in condition to use. Substantial relocation of residences, commercial establishments, and light industry would be necessary. Utilities, water, and sewage systems are available.

This site could be purchased and put in condition to use for about $128,000 per acre, or $2.86 per square foot, assuming the city would vacate the streets and alleys. (See footnote 8.) The required 470 acres would cost about $60,160,000. The cost per acre is based on the present value of land and facilities and assumes that this site is not included in an urban renewal program.

Santa Fe Springs.—This site is located in the city of Santa Fe Springs, approximately 12 miles from the center of population. The boundaries of the site are north, Los Nietos Road and Santa Fe Railroad; east, South Bloomfield Avenue; south, Florence Avenue; and west, South Pioneer Boulevard. This site does not include the residential area encompassed in these boundaries. The site contains approximately 500 acres, which is under multiple ownership.

The area is zoned heavy industrial, except for the area west of the Santa Fe Railroad. A Southern Pacific Railroad switchyard, several vacated residences of industrial firms, and oil wells are currently on the site. The oil field will be subject to a secondary oil recovery program in which former oil wells will be capped, while selected ones will remain. Engineering reports indicate that construction over capped wells does not present a problem. A small oil refinery is in the vicinity of the site but emissions are subject to control by the Los Angeles Air Pollution Control Board.

This site is served by the Santa Fe and Southern Pacific Railroads. Norwalk Boulevard, Telegraph Road, and Florence Avenue are the main arteries serving the area. Nonmarket traffic is a potential problem because of these streets. The San Gabriel River Freeway (Rt. 605) and Santa Ana Freeways nearby provide excellent highway access.

Electricity, gas, and water are available. A sewage system adequate to serve a heavy industrial area has been installed along Norwalk Boulevard.

This site could be purchased and put in condition to use for about $50,000 per acre, or $1.15 per square foot in condition to use. (See footnote 8.) The required 470 acres would cost about $23,500,000 in condition to use.

Summary of Possible Sites

Each of the five sites has specific advantages. All of them could be served by rail, and highway access is good. Zoning would not present a major problem at any site. All sites have been reviewed with the planning staff of the city or county. A summary of these sites is shown in table 10.

Estimated Investment Cost

The initial investment in a wholesale food distribution center would include two major cost components—land and facilities. For the sites described, the cost of land in condition to use was estimated to vary from $36,500 to $128,000 per acre. Actual cost per acre of an individual site cannot be definitely established until negotiations for purchase are made. In this report, the cost of 129 acres for allied industries was excluded from the computations. The estimated cost of 341 acres in condition to use on the various sites is:

Sites	*Million dollars*
Branford-Pacoima	17.1
Carson	12.8
Industry	12.5
Naomi-Trinity-Stanford	43.7
Santa Fe Springs	17.1

These estimates are based on reviews of recent real estate transactions in Los Angeles and Orange Counties, interviews with local real estate developers, and estimates made by city and county officials familiar with land transactions. The estimates do not include the cost of extending utilities, railroad tracks, sewers, or piling and related cost.

The specific kind and amount of facilities planned for this project are based on the number of candidates and volume of food they handle. Facility costs are based upon construction costs in the Los Angeles area for 1971. These estimates are based on tilt-up concrete construction with a 6-inch concrete floor slab. Tilt-up construction, which is used extensively in Los Angeles, consists of on site casting of concrete building members—usually walls and, sometimes, the building frame.

The estimated costs for the multiple-occupancy facilities are for the shell building including a mezzanine, cooler or freezer, or both, drainage and rough-in plumbing, lighting, exterior and interior painting, and heating equipment. Costs for partitioned offices and specialized equipment are not included.

The estimated costs for the single-occupancy facilities are similar to those of the multiple occupancy, such as the shell building including drainage and rough-in, plumbing, coolers or freezers, or both; exterior and interior

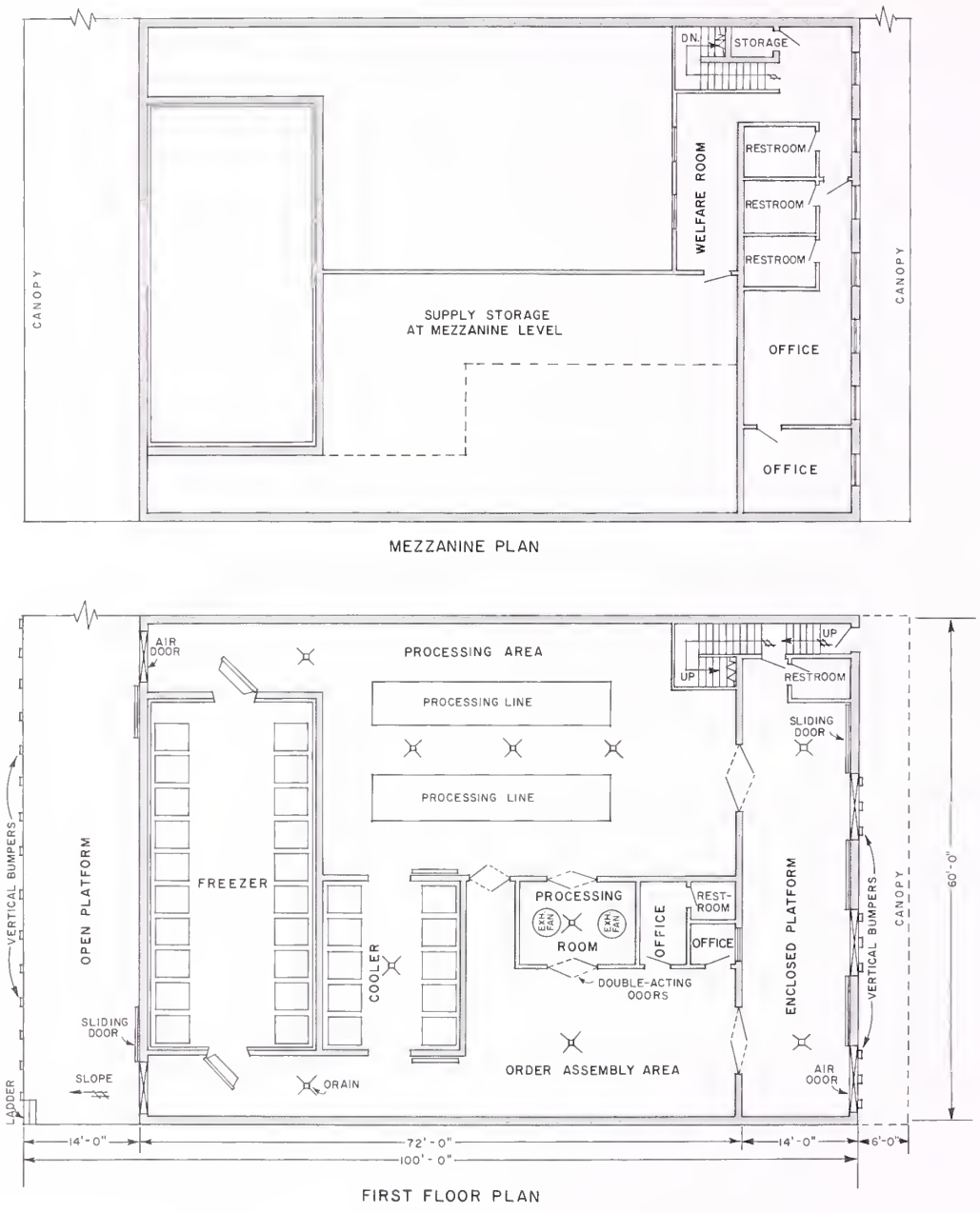


FIGURE 26.—A layout for a fish and shellfish processing firm.

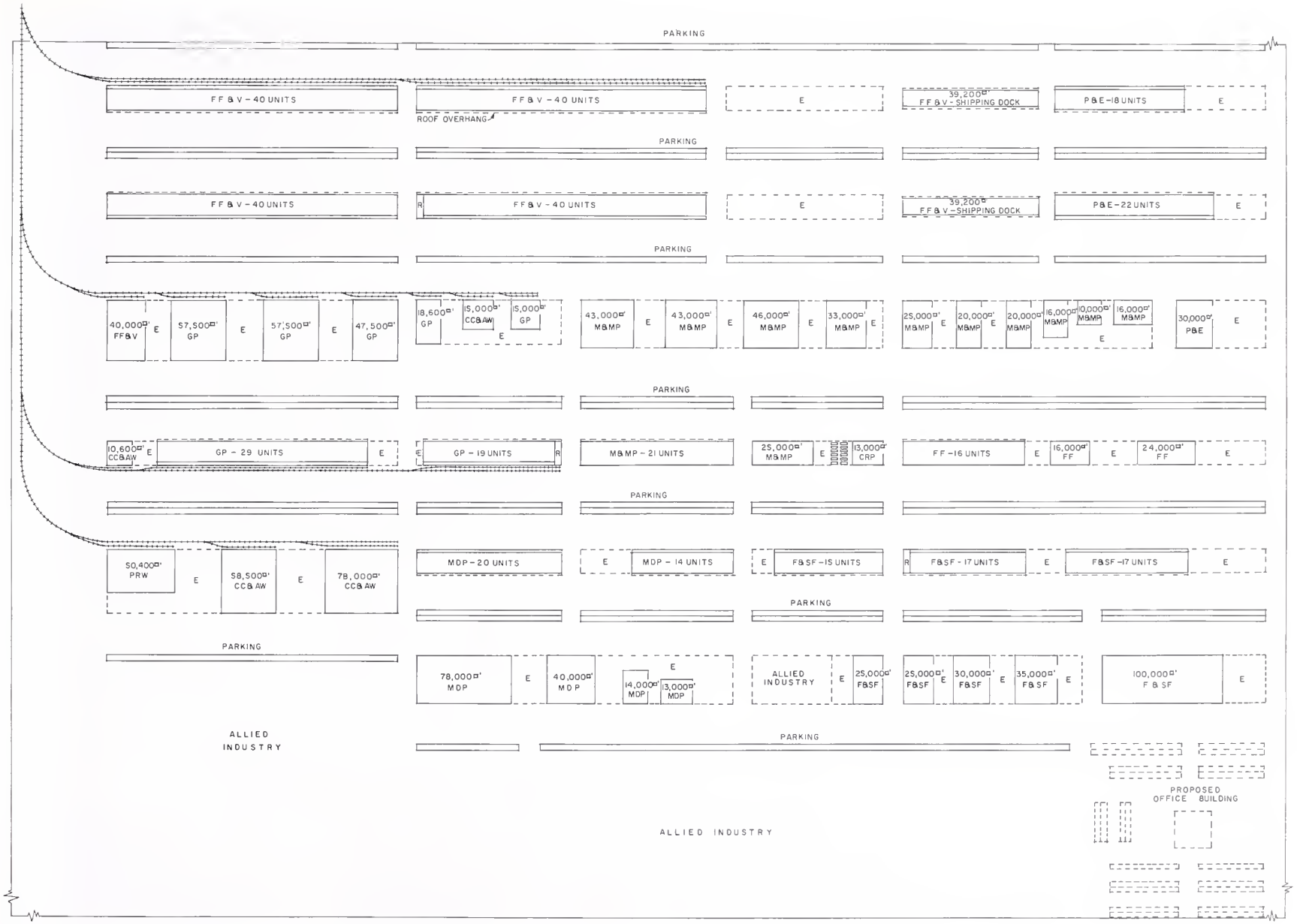


FIGURE 27.—A master plan of the proposed Los Angeles wholesale food distribution center.

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FIGURE 28.—Artist's conception of the master plan.

painting; and heating equipment. Costs for mezzanine partitioned offices or for specialized equipment have not been included.

Paving estimates for streets and parking areas have been prorated among the food groups according to their share of the total market. Paving costs are for 11 inches of "full depth" asphaltic concrete. For areas where oil or gasoline drippings would be commonplace, concrete paving 6 inches deep is recommended because of the detrimental effect petroleum products have upon asphalt. Concrete paving is also needed in these areas to support disengaged trailers.

Rail tracks, switches, storm and sanitary sewers, street lights, and fencing have been prorated among all firms using these facilities. All utility lines are assumed to be underground.

Service and loan fees included in the building costs are (1) 5-percent architect's fee, (2) 10-percent construction loan, and (3) 10-percent contingency allowance. The 10-percent construction loan was assumed for the total cost of the loan and is not an interest rate.

Construction costs shown in this section are estimates and intended only to be used as a guide in planning facilities. They are not intended to replace firm estimates made by local architects and contractors just before construction.

The following tabulation shows the estimated costs for the facilities proposed.

Fresh Fruits and Vegetables Section

Single-occupancy facilities:	
Building:	
1 building containing 40,000 sq. ft. of 1st floor area @ $11 per sq. ft.[1]	$440,000
Coolers containing 200,000 cu. ft. @ $14.50 per 100 cu. ft.[2]	29,000
Other facilities:[3]	
Trackage—464 linear ft. @ $13.75 per ft.	6,400
Railroad switches—1 @ $4,200 per switch	4,200
Paving—17,341 sq. yds. @ $5.40 per sq. yd.	93,600
Sewers:	
Storm—501 linear ft. @ $18 per ft.	9,000
Sanitary—426 linear ft. @ $15 per ft.	6,400
Street lights—3 @ $1,000 per light	3,000
Fence—250 linear ft. @ $4 per ft.	1,000
Sprinkler system—30,000 sq. ft. @ $0.40 per sq. ft.[4]	12,000
Total construction costs of building and other facilities	604,600
Associated construction costs:[5]	
Architect's fee	30,200
Construction loan	63,500
Contingency allowance	69,800
Total building, other facilities, and associated costs	768,100
Multiple-occupancy facilities:	
Buildings:	
4 buildings with 160 units, including mezzanines (1 unit used as a restaurant) —3,000 sq. ft. of 1st floor area @ $11 per sq. ft. plus 420 sq. ft. of mezzanine area @ $9.00 per sq. ft., or $36,780 per unit[1]	5,884,800
Coolers and freezers containing 2,718,760 cu. ft. @ $25.64 per 100 cu. ft.	697,000
Other facilities:[3]	
Trackage—5,480 linear ft. @ $13.75 per ft.	75,400
Railroad switches—2 @ $4,200 per switch	8,400
Paving—197,399 sq. yds. @ $5.40 per sq. yd.	1,066,000
Sewers:	
Storm—5,720 linear ft. @ $18 per ft.	103,000
Sanitary—4,871 linear ft. @ $15 per ft.	74,000
Street lights—36 @ $1,000 per light	36,000
Fence—2,854 linear ft. @ $4 per ft.	11,400
Sprinkler system—402,400 sq. ft. @ $0.40 per sq. ft.[4]	161,000
Total construction cost of buildings and other facilities	8,117,000
Associated construction costs:[5]	
Architect's fee	405,900
Construction loan	852,300
Contingency allowance	937,500
Total buildings, other facilities, and associated costs	10,312,700
Loading docks:	
2 docks containing 78,400 sq. ft. @ $4.50 per sq. ft.	352,800
Other facilities:[3]	
Paving—25,224 sq. yds. @ $5.40 per sq. yd.	136,200
Sewers:	
Storm—731 linear ft. @ $18 per ft.	13,200
Sanitary—623 linear ft. @ $15 per ft.	9,300
Street lights—5 @ $1,000 per light	5,000
Fence—365 linear ft. @ $4 per ft.	1,500
Total construction cost of loading docks and other facilities	518,000
Associated construction costs:[5]	
Architect's fee	25,900
Construction loan	54,400
Contingency allowance	59,800
Total loading docks, other facilities, and associated costs	658,100
Total construction costs for all facilities for fresh fruits and vegetables section	11,738,900

Meat and Meat Products Section

Single-occupancy facilities:	
Buildings:	
11 buildings containing 297,000 sq. ft. of 1st floor area @ $11 per sq. ft.[1]	$ 3,267,000
Coolers and freezers containing 3,346,080 cu. ft. @ $24.02 per 100 cu. ft.[2]	803,800
Other facilities:[3]	
Paving—162,491 sq. yds. @ $5.40 per sq. yd.	877,500
Sewers:	
Storm—4,712 linear feet @ $18 per ft.	84,800
Sanitary—4,012 linear ft. @ $15 per ft.	60,200

See footnotes at end of tabulation.

Street lights—30 @ $1,000 per light	30,000
Fence—2,351 linear ft. @ $4 per ft.	9,400
Sprinkler system—6,100 sq. ft. @ $0.40 per sq. ft.[4]	2,400
Total construction cost of buildings and other facilities	5,135,100
Associated construction costs:[5]	
Architect's fee	256,800
Construction loan	539,200
Contingency allowance	593,100
Total buildings, other facilities, and associated costs	6,524,200
Multiple-occupancy facilities:	
Building:	
1 building containing 21 units including mezzanines—3,000 sq. ft. of 1st floor area @ $11 per sq. ft. plus 1,500 sq. ft. of mezzanine area @ $9 per sq. ft. or $46,500 per unit[1]	976,500
Coolers and freezers containing 885,240 cu. ft. @ $34.15 per 100 cu. ft.[2]	302,300
Other facilities:[3]	
Paving—23,422 sq. yds. @ $5.40 per sq. yd.	126,500
Sewers:	
Storm—679 linear ft. @ $18 per ft.	12,200
Sanitary—578 linear ft. @ $15 per ft.	8,700
Street lights—4 @ $1,000 per light	4,000
Fence—339 linear ft. @ $4 per ft.	1,400
Sprinkler system—31,400 sq. ft. @ $0.40 per sq. ft.[4]	12,600
Total construction cost of building and other facilities	1,444,200
Associated construction costs:[5]	
Architect's fee	72,200
Construction loan	151,600
Contigency allowance	166,800
Total building, other facilities, and associated costs	1,834,800
Total construction costs for all facilities for meat and meat products section	8,359,000

Poultry and Eggs Section

Single-occupancy facilities:		
Building:		
1 building containing 30,000 sq. ft. of 1st floor area @ $11 per sq. ft.[1]	$	330,000
Coolers and freezers containing 400,000 cu. ft. @ $15.35 per 100 cu. ft.[2]		61,400
Other facilities:[3]		
Paving—24,210 sq. yds. @ $5.40 per sq. yd.		130,700
Sewers:		
Storm—702 linear ft. @ $18 per ft.		12,600
Sanitary—598 linear ft. @ $15 per ft.		9,000
Street lights—4 @ $1,000 per light		4,000
Fence—350 linear ft. @ $4 per ft.		1,400
Sprinkler system—11,000 sq. ft. @ $0.40 per sq. ft.[4]		4,400
Total construction cost of building and other facilities		553,500
Associated construction costs:[5]		
Architect's fee		27,700
Construction loan		58,100
Contingency allowance		63,900
Total building, other facilities, and associated costs		703,200
Multiple-occupancy facilities:		
Buildings:		
2 buildings containing 40 units including mezzanines—3,000 sq. ft. of 1st floor area @ $11 per sq. ft. plus 528 sq. ft. of mezzanine area @ $9 per sq. ft., or $37,752 per unit[1]		1,510,000
Coolers and freezers containing 624,050 cu. ft. @ $30.93 per 100 cu. ft.[2]		193,000
Other facilities:[3]		
Paving—56,078 sq. yds. @ $5.40 per sq. yd.		302,800
Sewers:		
Storm—1,628 linear ft. @ $18 per ft.		29,300
Sanitary—1,386 linear ft. @ $15 per ft.		20,800
Street lights—11 @ $1,000 per light		11,000
Fence—812 linear ft. @ $4 per ft.		3,200
Sprinkler system—107,920 sq. ft. @ $0.40 per sq. ft.[4]		43,200
Total construction cost of buildings and other facilities		2,113,300
Associated construction costs:[5]		
Architect's fee		105,700
Construction loan		221,900
Contingency allowance		244,100
Total buildings, other facilities, and associated costs		2,685,000
Total construction costs for all facilities for poultry and eggs section		3,388,200

Frozen Foods Section

Single-occupancy facilities:		
Buildings:		
2 buildings containing 40,000 sq. ft. of 1st floor area @ $11 per sq. ft.[1]	$	440,000
Coolers and freezers containing 640,500 cu. ft. @ $18.74 per 100 cu. ft.[2]		120,000
Other facilities:[3]		
Paving—28,377 sq. yds. @ $5.40 per sq. yd.		153,200
Sewers:		
Storm—824 linear ft. @ $18 per ft.		14,800
Sanitary—702 linear ft. @ $15 per ft.		10,500
Street lights—5 @ $1,000 per light		5,000
Fence—411 linear ft. @ $4 per ft.		1,600
Sprinkler system—8,000 sq. ft. @ $0.40 per sq. ft.[4]		3,200
Total construction cost of buildings and other facilities		748,300
Associated construction costs:[5]		
Architect's fee		37,400
Construction loan		78,600
Contingency allowance		86,400
Total buildings, other facilities, and associated costs		950,700

See footnotes at end of tabulation.

Multiple-occupancy facilities:	
Building:	
1 building containing 16 units including mezzanines—3,000 sq. ft. of 1st floor area @ $11 per sq. ft. and 420 sq. ft. of mezzanine area @ $9.00 per sq. ft., or $36,780 per unit[1]	588,500
Coolers and freezers containing 504,600 cu. ft. @ $32.58 per 100 cu. ft.[2]	164,400
Other facilities:[3]	
Paving—20,269 sq. yds. @ $5.40 per sq. yd.	109,500
Sewers:	
Storm—590 linear ft. @ $18 per ft.	10,600
Sanitary—502 linear ft. @ $15 per ft.	7,500
Street lights—4 @ $1,000 per light	4,000
Fence—294 linear ft. @ $4 per ft.	1,200
Sprinkler system—28,520 sq. ft. @ $0.40 per sq. ft.[4]	11,400
Total construction cost of building and other facilities	897,100
Associated construction costs:[5]	
Architect's fee	44,900
Construction loan	94,200
Contingency allowance	103,600
Total building, other facilities, and associated costs	1,139,800
Total construction costs for all facilities for frozen foods section	2,090,500

Manufactured Dairy Products Section

Single-occupancy facilities:	
Buildings:	
4 buildings containing 145,000 sq. ft. of 1st floor area @ $11 per sq. ft.[1]	$ 1,595,000
Coolers and freezers containing 747,600 cu. ft. @ $17.78 per 100 cu. ft.[2]	132,900
Other facilities:[3]	
Paving—84,455 sq. yds. @ $5.40 per sq. yd.	456,000
Sewers:	
Storm—2,448 linear ft. @ $18 per ft.	44,100
Sanitary—2,085 linear ft. @ $15 per ft.	31,300
Street lights—16 @ $1,000 per light	16,000
Fence—1,221 linear ft. @ $4 per ft.	4,800
Sprinkler system—107,500 sq. ft. @ $0.40 per sq. ft.[4]	43,000
Total construction cost of buildings and other facilities	2,323,100
Associated construction costs:[5]	
Architect's fee	116,200
Construction loan	243,900
Contingeney allowance	268,300
Total buildings, other facilities, and associated costs	2,951,500
Multiple-occupancy facilities:	
Buildings:	
Dairy products wholesalers—1 building containing 20 units including mezzanines—3,000 sq. ft. of 1st floor area @ $11 per sq. ft. plus 620 sq. ft. of mezzanine area @ $9 per sq. ft., or $38,580 per unit[1]	771,600
Dairy products processors—1 building containing 14 units including mezzanines—3,000 sq. ft. of 1st floor area @ $11 per sq. ft. plus 920 sq. ft. of mezzanine area @ $9 per sq. ft., or $41,280 per unit[1]	577,900
Coolers and freezers containing 247,380 cu. ft. @ $45.68 per 100 cu. ft.[2]	113,000
Other facilities:[3]	
Paving—39,637 sq. yds. @ $5.40 per sq. yd.	214,000
Sewers:	
Storm—1,150 linear ft. @ $18 per ft.	20,700
Sanitary—979 linear ft. @ $15 per ft.	14,700
Street lights—7 @ $1,000 per light	7,000
Fence—574 linear ft. @ $4 per ft.	2,300
Sprinkler system—102,180 sq. ft. @ $0.40 per sq. ft.[4]	40,900
Total construction cost of buildings and other facilities	1,762,100
Associated construction costs:[5]	
Architect's fee	88,100
Construction loan	185,000
Contingency allowance	203,500
Total buildings, other facilities, and associated costs	2,238,700
Total construction costs for all facilities for dairy products section	5,190,200

Grocery Products Section

Single-occupancy facilities:	
Buildings:	
5 buildings containing 196,100 sq. ft. of 1st floor area @ $11 per sq. ft.[1]	$2,157,100
Coolers and freezers containing 76,420 cu. ft. @ $28.27 per 100 cu. ft.[2]	21,600
Other facilities:[3]	
Trackage—2,661 linear feet @ $13.75 per linear ft.	36,600
Railroad switches—5 @ $4,200 per switch	21,000
Paving—103,823 sq. yds. @ $5.40 per sq. yd.	560,600
Sewers:	
Storm—3,012 linear ft. @ $18 per ft.	54,200
Sanitary—2,565 linear ft. @ $15 per ft.	38,500
Street lights—19 @ $1,000 per light	19,000
Fence—1,503 linear ft. @ $4 per ft.	6,000
Sprinkler system—192,600 sq. ft. @ $0.40 per sq. ft.[4]	77,000
Total construction cost of buildings and other facilities	2,991,600
Associated construction costs:[5]	
Architect's fee	149,600
Construction loan	314,100
Contingency allowance	345,500
Total buildings, other facilities and associated costs	3,800,800
Multiple-occupancy facilities:	
Buildings:	
2 buildings containing 48 units including mezzanines (1 unit used as a restaurant)—3,000 sq. ft. of 1st floor area @ $11 per sq. ft. plus 420 sq. ft. of mezzanine area @ $9 per sq. ft. or $36,780 per unit[1]	1,765,400
Coolers and freezers totaling 65,660 cu. ft. @ $72.95 per 100 cu. ft.[2]	47,900

See footnotes at end of tabulation.

Other facilities:[3]	
Trackage—3,653 linear ft. @ $13.75 per ft.	50,200
Railroad switches—2 @ $4,200 per switch	8,400
Paving—50,673 sq. yds. @ $5.40 per sq. yd.	273,600
Sewers:	
Storm—1,466 linear ft. @ $18 per ft.	26,400
Sanitary—1,249 linear ft. @ $15 per ft.	18,700
Street lights—9 @ $1,000 per light	9,000
Fence—731 linear ft. @ $4 per ft.	2,900
Sprinkler system—158,960 sq. ft. @ $0.40 per sq. ft.[4]	63,600
Total construction cost of buildings and other facilities	2,266,100
Associated construction costs:[5]	
Architect's fee	113,300
Construction loan	237,900
Contingency allowance	261,700
Total buildings, other facilities, and associated cost	2,879,000
Total construction costs for all facilities for grocery products section	6,679,800

Fish and Shellfish Section

Single-occupancy facilities:	
Buildings:	
5 buildings containing 215,000 sq. ft. of 1st floor area @ $11 per sq. ft.[1]	$ 2,365,000
Coolers and freezers totaling 1,901,548 cu. ft. @ $25.71 per 100 cu. ft.[2]	488,800
Other facilities:[3]	
Paving—105,512 sq. yds. @ $5.40 per sq. yd.	569,800
Sewers:	
Storm—3,054 linear ft. @ $18 per ft.	55,000
Sanitary—2,601 linear ft. @ $15 per ft.	39,000
Street lights—19 lights @ $1,000 per light	19,000
Fence—1,524 linear ft. @ $4 per linear ft.	6,100
Sprinkler system—78,700 sq. ft. @ $0.40 per sq. ft.[4]	31,500
Total construction cost of buildings and other facilities	3,574,200
Associated construction costs:[5]	
Architect's fee	178,700
Construction loan	375,300
Contingency allowance	412,800
Total buildings, other facilities, and associated costs	4,541,000
Multiple-occupancy facilities:	
Buildings:	
3 buildings containing 49 units including mezzanines (1 unit used as a restaurant)—3,000 sq. ft. of first floor area @ $11 per sq. ft. plus 420 sq. ft. of mezzanine area @ $9.00 per sq. ft., or $36,780 per unit[1]	1,802,200
Coolers and freezers containing 1,342,442 cu. ft. @ $36.06 per 100 cu. ft.[2]	484,100
Other facilities:[3]	
Paving—66,438 sq. yds. @ $5.40 per sq. yd.	358,800
Sewers:	
Storm—1,924 linear ft. @ $18 per ft.	34,600
Sanitary—1,639 linear ft. @ $15 per ft.	24,600
Street lights—12 @ $1,000 per light	12,000
Fence—960 linear ft. @ $4 per ft.	3,800
Sprinkler system—84,780 sq. ft. @ $0.40 per sq. ft.[4]	33,900
Total construction cost of buildings and other facilities	2,754,000
Associated construction costs:[5]	
Architect's fee	137,700
Construction loan	289,200
Contingency allowance	318,100
Total buildings, other facilities, and associated costs	3,499,000
Total construction costs for all facilities for fish and shellfish section	8,040,000

Corporate Chainstores and Affiliated Wholesalers

Single-occupancy facilities:	
Buildings:	
4 buildings containing 162,100 sq. ft. of 1st floor area @ $11 per sq. ft.[1]	$ 1,783,100
Coolers and freezers containing 815,500 cu. ft. @ $15.71 per 100 cu. ft.[2]	128,100
Other facilities:[3]	
Trackage—2,430 linear ft. @ $13.75 per ft.	33,400
Railroad switches—4 @ $4,200 per switch	16,800
Paving—88,846 sq. yds. @ $5.40 per sq. yd.	479,800
Sewers:	
Storm—2,577 linear ft. @ $18 per ft.	46,400
Sanitary—2,194 linear ft. @ $15 per ft.	32,900
Street lights—16 @ $1,000 per light	16,000
Fence—1,286 linear ft. @ $4 per ft.	5,100
Sprinkler system—106,500 sq. ft. @ $0.40 per sq. ft.[4]	42,600
Total construction cost of buildings and other facilities	2,584,200
Associated construction costs:[5]	
Architect's fee	129,200
Construction loan	271,300
Contingency allowance	298,500
Total buildings, other facilities, and associated costs	3,283,200
Total construction costs for all facilities for corporate chainstores and affiliated wholesalers section	3,283,200

Public Refrigerated Warehouse Section

Single-occupancy facilities:	
Building:	
1 building containing 1,310,400 cu. ft. @ $1.30 per cu. ft.[6]	$ 1,703,500
Other facilities:[3]	
Trackage—987 linear ft. @ $13.75 per ft.	13,600
Railroad switches—1 @ $4,200 per switch	4,200

See footnotes at end of tabulation.

Paving—31,868 sq. yds. @ $5.40 per sq. yd.	172,100
Sewers:	
Storm—922 linear ft. @ $18 per ft.	16,600
Sanitary—786 linear ft. @ $15 per ft.	11,800
Street lights—6 @ $1,000 per light	6,000
Fence—460 linear ft. @ $4 per ft.	1,800
Sprinkler system—6,000 sq. ft. @ $0.40 per sq. ft.[4]	2,400
Total construction cost of building and other facilities	1,932,000
Associated construction costs:[5]	
Architect's fee	96,600
Construction loan	202,900
Contingency allowance	223,200
Total construction costs for all facilities for public refrigerated warehouse section	2,454,700

Central Refrigeration Plant Section

Single-occupancy facilities:	
Building:	
1 building containing 13,000 sq. ft. of 1st floor area with associated equipment[7]	$ 8,840,000
Other facilities:[3]	
Paving—1,173 sq. yds. @ $5.40 per sq. yd.	6,300
Sewers:	
Storm—310 linear ft. @ $18 per ft.	5,600
Sanitary—264 linear ft. @ $15 per ft.	4,000
Street lights—2 @ $1,000 per light	2,000
Fence—155 linear ft. @ $4 per ft.	600
Sprinkler system—10,000 sq. ft. @ $0.40 per sq. ft.	4,000
Total construction cost of building and other facilities	8,862,500
Associated construction costs:[5]	
Architect's fee	443,100
Construction loan	930,600
Contingency allowance	1,023,600
Total construction costs for all facilities for central refrigeration plant	11,259,800

Footnotes to tabulation

[1] Includes cost of shell building, unit heaters, drainage and rough-in plumbing, lighting, and interior and exterior painting.

[2] Cost includes insulation, interior walls, false ceilings, subslab construction and cold-storage doors. Variation in cost per cubic foot among commodity groups is dependent on the ratio of cooler to freezer space and size of rooms.

[3] Cost computed on a pro rata basis for the amount of facilities being served.

[4] Includes nonrefrigerated areas only.

[5] Associated construction costs are estimated as follows: Architect's fee = 5 percent of buildings and facilities cost; construction loan = 10 percent of buildings and facilities cost and architect's fee; contingency allowance = 10 percent of buildings and facilities cost, architect's fee, and construction loan.

Table 11 summarizes the investment costs for land and facilities by type of firm or facility. These estimated costs, which range from $74.9 to $106.1 million depending on the site selected, are based on the arrangement in the master plan.

Financing

Whether public or private funds are used for financing the center, prospective investors will expect a reasonable return on their investment with a minimum of risk. To protect investors a board of directors, or some other form of management, should be formed to represent all groups concerned with the operation of the center. There should be definite assurances that:

1. The center will be properly located, designed, equipped, and operated.
2. Buildings will not be constructed until firm agreements have been signed.
3. Funds will be invested wisely, so that increased efficiency will not be offset by high ownership costs.
4. The center will be operated without discrimination against buyer, seller, mode of transportation, or origin of shipment.

TABLE 9. — Number of firms expected to relocate in an improved wholesale food center, volume handled, and facilities required

Type of Firms	Firms moving	Volume handled	Units in multiple-occupancy buildings	Single-occupancy buildings
	Number	1,000 tons	Number	Number
Fresh fruits and vegetables	114	1,202.6	160	1
Meat and meat products	22	100.0	21	11
Poultry and eggs	21	75.5	40	1
Frozen foods	11	65.2	16	2
Manufactured dairy products	18	59.1	34	4
Grocery products	30	158.5	48	5
Fish and shellfish	24	22.7	49	5
Corporate chainstores and affiliated wholesalers	4	417.6	0	4
Total	244	2,101.2	368	33

[6] Includes costs of refrigeration equipment and those associated with building costs shown in footnotes 1 and 2.

[7] Includes cost of central plant, distribution lines, and associated equipment show in Agricultural Research Service, A MASTER PLAN FOR A CENTRAL REFRIGERATION SYSTEM FOR THE PROPOSED LOS ANGELES FOOD DISTRIBUTION CENTER. U.S. Dept. Agr., Agr. Res. Serv. ARS 52-57, Oct. 1970.

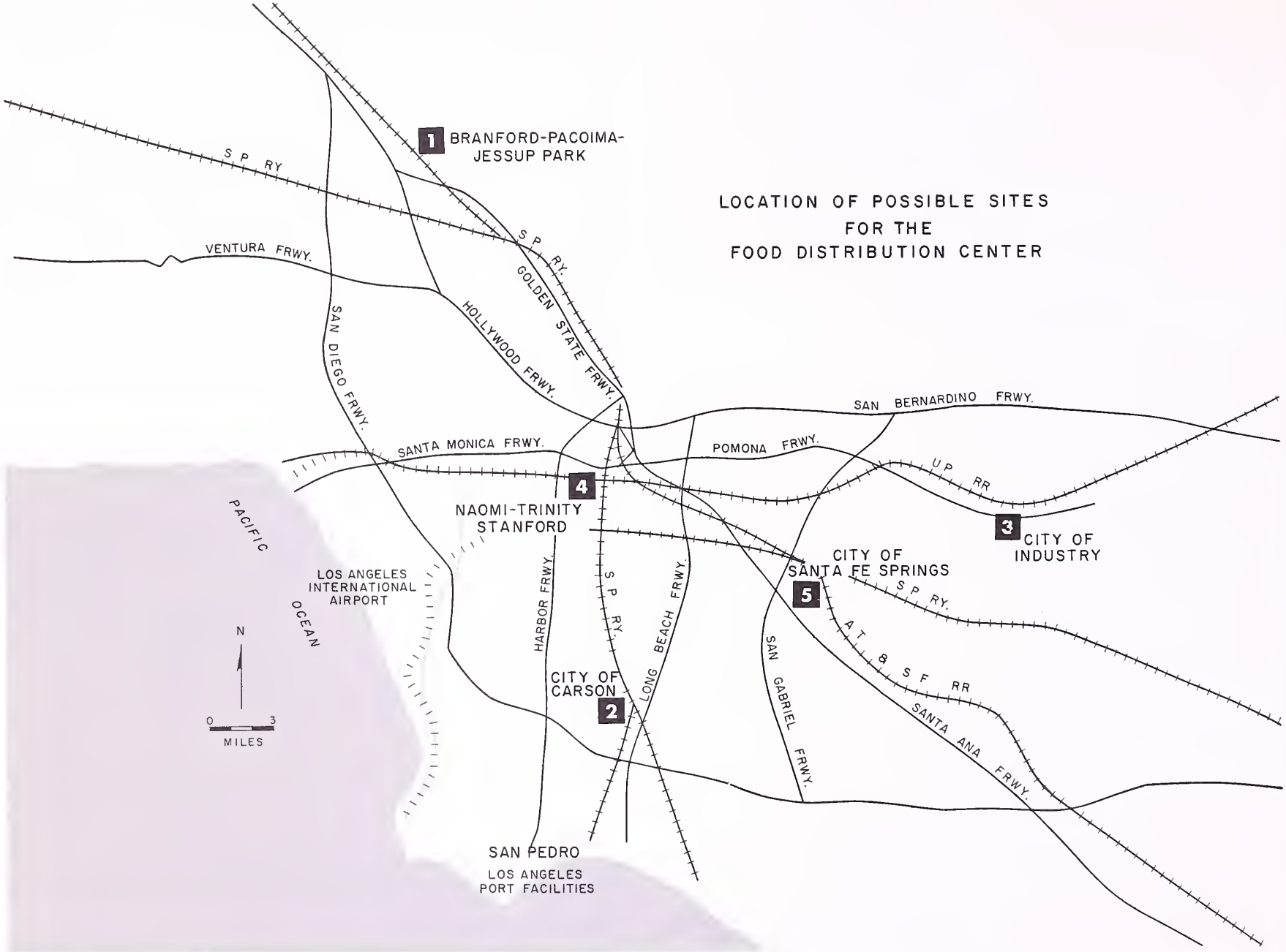

FIGURE 29.—Location of possible sites for the food distribution center.

TABLE 10. — Summary of 5 possible sites for a proposed wholesale food distribution center for Los Angeles

Item	Branford-Pacoima-Jessup Park	Carson	Industry	Naomi-Trinity-Stanford	Santa Fe Springs
Boundaries (part of these areas.) . .	Northeast: Defoe Ave. extended Southwest: Southern Pacific right-of-way. Northwest: Pierce St. Southeast: Branford St. "Also included" area bounded by Osborne St., Glenoaks Blvd., Branford Rd. & San Fernando Rd.	North: Artesia Freeway East: Alameda St. West: Wilmington Blvd. South: Del Amo Blvd.	North: Union Pacific Railroad East: Nogales St. South: Pomona Freeway to Escalada Ave. & Anhiem-Puente Rd. West: Hatchin Ave. Extended & Azusa Rd., excluding industrial development, power station to Fieldgate Ave.	North: Washington Blvd. East: Alameda Street West: Main St. and Knudsen Dairy Property South: Adams Blvd. & Southern Pacific Property.	North: Vicinity of Los Nietros Rd. & Santa Fe Railroad East: South Bloomfield Ave. West: South Pioneer Blvd. South: Florence Ave. (excluding residential housing).
Land available. . . .	485 acres[1]	726 acres	580 acres	500 acres[1]	500 acres.
Estimated land . . cost per acre in condition to use	$50,000	$37,500	$36,500	$128,000 assuming streets and alleys vacated by the city	$50,000.
Present land use . .	An airpark, county service buildings, light industry, and housing. Excludes portions of residential area in the vicinity of the airpark.	Vacant land with some light industrial facilities.	Vacant land, with 26 acres light industrial intersecting site.	Extensive residential housing and light industrial uses.	Excludes residential area in vicinity. Vacant land, some light industrial. Primarily an oil field subject to extensive oil recovery program (small refinery in vicinity).
Topography	Relatively level except for northwestern portion which would require extensive cut and fill. Subsoil conditions undetermined.	Portions of site level, balance would require extensive cut and fill. Subsoil conditions undetermined.	Flat land would require little grading. Subsoil conditions undetermined.	Flat land, subsoil conditions undetermined.	Relatively flat would not require extensive grade and fill. Subsoil conditions undetermined.
Rail transportation	Served by Southern Pacific Railroad.	Served by Southern Pacific Railroad.	Served by Union Pacific Railroad.	Served by Southern Pacific Railroad.	Served by Santa Fe and Southern Pacific Railroad.
Access to highways	Served by San Fernando Road and is approximately 1/4 mile from Golden State Freeway.	Adjacent to Artesia Freeway, 2½ miles Long Beach Freeway, 1½ miles San Diego Freeway, 4 miles from Harbor Freeway.	Adjacent to Pomona Freeway (U.S. Highway 60).	South of Central City Freeway Loop, good arterial system of streets and highways, excellent access to Central City.	Good central highway access. San Gabriel Freeway and Santa Ana Freeway in vicinity.
Distance from center of population	42 miles	10 miles	30 miles	5 miles	12 miles.
Zoning	Light industrial, single-family residential.	Heavy industrial	Light industrial	Multiple dwelling, commercial, and industrial.	Heavy industrial.
Utilities available .	Water, electricity, gas, and sewerage.	Water, electricity, gas, and sewerage.	Water, electricity, gas, and sewerage.	Water, electricity, gas, and sewerage.	Water, electricity, and gas. Sewerage system is being installed in vicinity.

[1] Assuming an urban renewal program.

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FIGURE 30.—Pallet racks and materials-handling equipment enable an efficient use of time and space.

Food distribution centers can be financed and operated in several ways. Some common methods are private corporations, public benefit corporations, direct public ownership, or various combinations of these methods.[9] In California, a joint powers' authority also may be used because of constitutional debt limits.

Private.—The private corporation is a legal entity organized in conformity with State statutes and made up of individuals bound together for a common purpose or objective. The owners of a private corporation have complete control over operations, subject only to generalized legal restrictions. A private corporation may be operated either as a profit-making or a nonprofit organization. When a private corporation is operated for profit, there are usually no restrictions on the sale of voting stock to any individual because of his occupation or profession, nor on the number of shares of voting stock that may be held by any one individual. Stockholders have one vote in corporate affairs for each share of voting stock held. Many wholesale food markets are owned and operated by private corporations. In some, the principal stockholders are the tenants. In others, the corporation is a railroad company or other company that was organized for another type of business.

To form a private corporation, the incorporators usually obtain a charter from the State. This charter defines the powers of the corporation and of its officers and directors, and states the corporation's purpose. It further specifies the stockholder's rights and how control should be exercised.

Some of the characteristics of private corporations are as follows:

1. The board of directors has the power to make decisions quickly.
2. State statutes place few restrictions on membership or operations of a private company.
3. Private corporations are usually financed by selling bonds and by issuing stock.
4. The bylaws of a private corporation may be written so that the tenants who occupy the facilities while the investment is being amortized will be able to recoup some of the rents and service charges paid during this period. A privately owned facility has greater latitude in conveying property, or other rights and prerogatives concerning property, to the tenants who helped to pay for it through rentals.

Wholesale food markets owned by private corporations may tend to become so-called closed markets. They sometimes do not provide space for expansion, either for increased volume of the occupants or for new food handlers and allied industries. The major problem of corporate ownership is that substantial financial equity is required. Private corporation market sponsors sometimes have found it more difficult to obtain funds to take care of preliminary organization and to acquire equity funds than public market sponsors.

A nonprofit private corporation is not an agency of government, but it must be organized in conformity with existing State statutes. As a rule State statutes place no limitations on participation in the corporation because of business occupation. However, membership can usually be restricted or limited through bylaws. In a nonprofit private corporation, participation in

[9] CLOWES, HARRY G., ELLIOTT, WILLIAM H., AND CROW, WILLIAM C. WHOLESALE FOOD MARKET FACILITIES, TYPES OF OWNERSHIP, AND METHODS OF FINANCING. U.S. Dept. Agr. Mktg. Res. Rpt. 160, 96 pp., illus. 1957.

TABLE 11. — Summary of estimated investment costs for a proposed wholesale food distribution center for the Los Angeles area by type of firm or facility and site [1]

Type of firm or facility	Branford-Pacoima-Jessup Park @ $50,000/acre	Carson @ $37,500/acre	Industry @ $36,500/acre	Naomi-Trinity-Stanford @ $128,000/acre	Santa Fe Springs @ $50,000/acre
	1,000 dollars	1,000 dollars	1,000 dollars	1,000 dollars	1,000 dollars
Fresh fruits and vegetables:					
Land (72.4 acres)	3,620.0	2,715.0	2,642.6	9,267.2	3,620.0
Facilities[2]	11,738.9	11,738.9	11,738.9	11,738.9	11,738.9
Total	15,358.9	14,453.9	14,381.5	21,006.1	15,358.9
Meat and meat products:					
Land (56.2 acres)	2,810.0	2,107.5	2,051.3	7,193.6	2,810.0
Facilities	8,359.0	8,359.0	8,359.0	8,359.0	8,359.0
Total	11,169.0	10,466.5	10,410.3	15,552.6	11,169.0
Poultry and eggs:					
Land (24.2 acres)	1,210.0	907.5	883.3	3,097.6	1,210.0
Facilities	3,388.2	3,388.2	3,388.2	3,388.2	3,388.2
Total	4,598.2	4,295.7	4,271.5	6,485.8	4,598.2
Frozen foods:					
Land (14.7 acres)	735.0	551.3	536.6	1,881.6	735.0
Facilities	2,090.5	2,090.5	2,090.5	2,090.5	2,090.5
Total	2,825.5	2,641.8	2,627.1	3,972.1	2,825.5
Manufactured dairy products:					
Land (37.5 acres)	1,875.0	1,406.3	1,368.8	4,800.0	1,875.0
Facilities	5,190.2	5,190.2	5,190.2	5,190.2	5,190.2
Total	7,065.2	6,596.5	6,559.0	9,990.2	7,065.2
Grocery products:					
Land (46.6 acres)	2,330.0	1,747.5	1,700.9	5,964.8	2,330.0
Facilities[2]	6,679.8	6,679.8	6,679.8	6,679.8	6,679.8
Total	9,009.8	8,427.3	8,380.7	12,644.6	9,009.8
Fish and shellfish:					
Land (52.0 acres)	2,600.0	1,950.0	1,898.0	6,656.0	2,600.0
Facilities[2]	8,040.0	8,040.0	8,040.0	8,040.0	8,040.0
Total	10,640.0	9,990.0	9,938.0	14,696.0	10,640.0

See footnotes at end of tabulation.

TABLE 11. — Summary of estimated investment costs for a proposed wholesale food distribution center for the Los Angeles area by type of firm or facility and site [1] —Continued

Type of firm or facility	Branford-Pacoima-Jessup Park @ $50,000/acre	Carson @ $37,500/acre	Industry @ $36,500/acre	Naomi-Trinity-Stanford @ $128,000/acre	Santa Fe Springs @ $50,000/acre
	1,000 dollars	1,000 dollars	1,000 dollars	1,000 dollars	1,000 dollars
Corporate chainstores and affiliated wholesalers:					
Land (26.8 acres)	1,340.0	1,005.0	978.2	3,430.4	1,340.0
Facilities	3,283.2	3,283.2	3,283.2	3,283.2	3,283.2
Total	4,623.2	4,288.2	4,261.4	6,713.6	4,623.2
Public refrigerated warehouse:					
Land (9.6 acres)	480.0	360.0	350.4	1,228.8	480.0
Facilities	2,454.7	2,454.7	2,454.7	2,454.7	2,454.7
Total	2,934.7	2,814.7	2,805.1	3,683.5	2,934.7
Central refrigeration system:[3]					
Land (1.0 acres)	50.0	37.5	36.5	128.0	50.0
Facilities	11,259.8	11,259.8	11,259.8	11,259.8	11,259.8
Total	11,309.8	11,297.3	11,296.3	11,387.8	11,309.8
Total investment, all facilities:					
Land (341 acres)	17,050.0	12,787.6	12,446.6	43,648.0	17,050.0
Facilities	62,484.3	62,484.3	62,484.3	62,484.3	62,484.3
Total	79,534.3	75,271.9	74,930.9	106,132.3	79,534.3

[1] Land costs are based on estimates of market value determined by local realtors, city and county planners, and on recent sales in the area. Does not include 129 acres of land for allied industry.

[2] Includes cost of one unit as a restaurant.

[3] The cost of the central refrigeration system is overstated due to the excess capacity it provides (see description of central refrigeration plant in section titled, Description of Proposed Facilities. Initial market occupants may prefer to build a plant with less but sufficient capacity to meet immediate market requirements.

corporate rights and activities is usually based either on a system of dues, which limits each member (stockholder) to one vote, or on bylaws, which restrict ownership of voting stock to one share per member. It is possible for those who are directly interested in the ownership and operation of a wholesale center to form a nonprofit private corporation to construct and operate the food center. An example of a nonprofit private corporation is the small business investment company set up under the Small Business Administration. The following is a brief description of this type of organization.

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

A development company is a profit or nonprofit enterprise incorporated

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

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

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

A public benefit corporation is a nonprofit agency. Rentals and other charges do not exceed the amount needed to pay the costs of operation, amortize the original investment, and maintain a limited contingency fund. Under public ownership the revenues would be considered as public funds, and these funds could not be paid to leasees as dividends. However, there is a possibility that these funds might be appropriated for other public uses while bonds remained outstanding, unless such funds were specifically committed to redemption of bonds.

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

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

Direct public ownership.—Several wholesale food marketing facilities have been financed, constructed, and operated by States, counties, or municipalities. Several States and some municipalities have enabling legislation covering the improvement or establishment of produce markets.

Direct State ownership and operation usually can be differentiated from ownership and operation by a State market authority by the methods of financing used and the delegation of authority made by the State legislature. Although some States have appropriated funds and otherwise assisted market authorities with financial problems, they do not usually underwrite the total cost of a market constructed by an authority, nor have the States always assumed responsibility for the operation of these markets.

Under direct State ownership, a market facility is financed in whole or in part by an appropriation of State funds. If the financing is not entirely by this method, the State usually is obligated for the rest unless this balance is obtained through grants or donations The State is responsible also, for maintenance and other expense involved in the operation of a State-owned market. States may finance, construct, and operate wholesale food market facilities because legislative bodies believe that improved facilities will in themselves serve the public interest.

Municipal ownership of a wholesale food market is comparable in many of its basic aspects to direct State ownership. Some municipalities are authorized in their charters to construct and operate food markets. Some city councils or commissions are authorized to make appropriations from general funds in the city treasury for the construction of market facilities, on a basis comparable to that of a State legislative body. Three methods are usually open to municipalities for financing a market program: (1) Issuing municipal bonds, (2) issuing revenue warrants, and (3) obtaining loans from public corporations. In most cities, issuing bonds for such purposes must be approved by a majority of the voters in a referendum.

Facilities constructed with municipal or county funds would necessarily be owned by the municipality or county and rent would have to be paid by the tenants indefinitely.

Combinations.—Because of the complexity of building large wholesale food distribution centers, some are built by a combination of public and private funds. Several food distribution centers were built in the Northeast section of the United States which typifies the possibilities of various combinations.

A food distribution center was built in Philadelphia by a nonprofit corporation on land owned and put into condition to build by the city. The city subordinated its interest in the land so that the land could be used as equity in borrowing money for building construction. Where the multiple-occupancy buildings were constructed, the development company leased the units to operating stock companies formed by the prospective tenants. At the end of 30 years, all buildings will become the property of the city, except those built on the parcels sold by the developing company with city approval for construction of single-occupancy buildings.

A food distribution center at Hunts Point, N.Y., is owned by the city that makes direct leases to the tenants in the fruit and vegetable section of the market and to operators in single-occupancy buildings. Other sections of the market are to be built by the city but leased to corporations consisting of groups of merchants. The city manages and maintains the center that was financed through general obligation bonds.

The New England Produce Center, Inc., and the Boston Food Center were constructed in the Boston metropolitan area by private food corporations. These centers are entirely owned and operated by the participating food firms. To develop these markets, equity funds were provided by the stockholders on the basis of their participation. The major sources of financing were from local lending institutions and the Small Business Administration.

In Los Angeles, the wholesalers could apply for a charter as a private corporation. All common stock of such a corporation could be owned by the occupants of the facilities and be based on their investment. Such a corporation should encompass all food commodity groups. This corporation could operate on its own or with a developer to buy or lease land, and construct multiple-occupancy or single-occupancy facilities. The developer could either be a private corporation, such as a Joint Powers Authority,[10] or a Public Benefit Corporation, an instrument of the municipal-county government.

Estimated Annual Operating Costs and Revenue Requirements

The method selected to finance and operate the proposed food distribution center will affect the annual revenue required. For purposes of estimating revenue requirements, private financing was used to construct the proposed facilities on 341 acres of land. This assumption is not intended to imply that this is the most desirable financing method but only to establish a basis for estimating costs.

The annual operating expenses and revenue requirements for the proposed center assuming ownership by a private corporation will be discussed under the following categories: (1) debt service; (2) real estate taxes; and (3) management and maintenance costs.

For comparative purposes, the cost of financing a food distribution center through public financing was also considered and is shown in the appendix.

Debt service.—The wholesale food distribution center should be financed so that it will be a self-sustaining entity. A major item of cost that must be paid by a private corporation financing and operating a food distribution center is debt service. If the market is to be self-liquidating, the investment must be repaid from market revenue.

The proportion of the total investment that might be borrowed on a mortgage loan and the terms of the loan depend on the money market. The facilities for the recommended food distribution center should be designed so that they will not become obsolete in less than 30 years. They should be useful for a much longer period, however. The facilities proposed are of durable construction and with few minor alterations could be expanded or converted for use by several types of occupants.

The money required for the project would probably be obtained from three sources: (1) First mortgage bonds; (2) second mortgage bonds or preferred stock; and (3) equity capital. Depending on the money market at the time of financial arrangements, various amounts might be obtained from each of these sources. In general, about 65 percent of the total investment could be obtained from a first mortgage and 20 to 25 percent from a second mortgage or preferred stock. The remaining 10 to 15 percent could be obtained from equity capital.

It is assumed that a 65-percent first mortgage could be obtained for 7.5 percent, a 25-percent second mortgage for 8.5 percent, and equity capital would average about a 10-percent return. Using these estimates, a rate of approximately 8 percent would result. These rates are for purposes of estimating the revenue required to finance the proposed food distribution center by a private corporation. If the equity capital were supplied by the tenants in proportion to the relative cost of facilities, payment of dividends to stockholders might not be desirable because of the tax situation. In this event, the 8 percent assumed interest rate might be slightly higher than the actual cost of borrowing the required capital.

If bonds were issued, purchasers might demand that the annual income exceed annual expenses and that a fund to guarantee payment be created. The actual amount required would vary according to the money market, the financial rating of the issue, and the nature of the collateral offered. Collections for the contingency allowance are proposed at the rate of 10 percent per year until the reserve covers one full year of amortization payment after which it might be possible to discontinue this allowance.

To determine the annual revenue required for the proposed facilities, a rate of 8 percent for a 30-year period has been assumed. On the basis of these assumptions, the annual revenue required for debt service (table 12) would range from $7.3 to $10.3 million, depending on the site selected.

Real estate taxes.—One major expense involved in the operation of the proposed wholesale market facilities under private financing would be taxes on real property and improvements.

Tax rates in Los Angeles County vary depending on the individual jurisdiction. Property valuation is based on 25 percent of total investment in land and facilities. These tax rates and assessed valuations are published by

[10] Beebe, James Warren, Hodgman, Donald R., and Southerland, Frederic P. joint powers authority revenue bonds. South. Calif. Law Rev. 41 (1), 1967. (Reprint.)

the county of Los Angeles. The 1969-70 tax rates per $100 of assessed valuation in the various communities were:

City of Los Angeles	$11.0040
City of Santa Fe Springs	11.2622
City of Industry	11.7242
City of Carson	10.0406

To provide an equitable basis for comparison of sites, the appropriate tax rate was applied to the assessed valuation of land and facilities at each site.

Taxes probably will increase either through revised valuations or higher rates or a combination of both. A contingency allowance of 10 percent is included to allow for these increases. After a sizable reserve has been accumulated, this practice might be discontinued. The estimated taxes to be paid annually by a private corporation on real property and improvements at the five sites is shown in table 13. Annual taxes and contingencies range from $2.1 to $3.2 million depending on the site selected.

Management and maintenance.—Management costs for a good distribution center include salaries for a manager and assistant manager; a secretarial and bookkeeping staff; legal and auditing services; office rentals; travel and business expenses; advertising and promotion; office equipment and supplies; communications and utilities for management offices and public areas; insurance, and security. The maintenance costs include general market sanitation, repairs, and upkeep.

The insurance rates used in this report are based on estimates made by local underwriters of fire and liability insurance. Fire insurance rates are based on the use of sprinkler systems, use of metal trash receptacles with metal lids, and on central station supervision of the center, or a watchman with an approved clock or an approved thermostat system. Fire and extended coverage are estimated to be $0.35 per $100 based on 90 percent of the value of the buildings, or $103,000. Liability insurance rates are based on a $5 million combined single limits for bodily injury and property damage extended umbrella policy. The annual rate for this policy, based on the number of square feet of the buildings, is approximately $19,000.

The above rates are not applied to, nor do they include, any property of tenants.

Repairs and upkeep are assumed to be 0.5 percent of facility cost, or $264,100. This percentage is used because this type of construction requires a relatively low level of maintenance. This rate was applied to all buildings and facilities and not to the cost of land.

A contingency of 10 percent was added to the management and maintenance costs to cover possible increases. After a sizable reserve has been accumulated, this practice might be discontinued.

These costs will be similar at all sites regardless of financial arrangement or what agency or group operates the market. The cost allocated to each of the commodity classifications is prorated according to their acreage requirements.

The annual expenses for management and maintenance for the proposed wholesale food distribution center are estimated as follows:

	Dollars
Management:	
Salaries:	
Market manager	25,000
Assistant market manager	20,000
Secretarial and bookkeeping staff	23,000
Associated expenses:	
Legal and auditing	10,000
Office rental	5,000
Travel and business expense	6,000
Advertising and promotion	10,000
Office equipment and supplies	5,000
Communications (telephone and telegraph)	3,000
Utilities (management office and public areas)	20,000
Insurance:	
Fire and extended coverage	103,000
Liability	19,000
Security (10 watchmen)	60,000
Maintenance:	
General market sanitation:	
Street cleaning	30,000
Janitorial services	12,000
Repairs and upkeep[1]	264,100
Total management and maintenance	615,100
Contingency[2]	61,500
Grand total	676,600

[1] Based on 0.5 percent of cost of buildings and other facilities. Cost of refrigeration equipment in the public refrigerated warehouse and refrigeration equipment, distribution lines, and terminal equipment associated with the central refrigeration system is not included.

[2] Based on 10 percent of total cost.

Total Annual Revenue Required

Table 14 shows the estimated total annual revenue needed with private financing to finance, pay real estate taxes, and manage and maintain the proposed food distribution center. The revenue required ranges from $10.0 to $14.2 million, depending on the site.

Estimated Rentals Required

The revenue required for the proposed wholesale food distribution center was assumed to be rent charged for all facilities except the central refrigeration system. The revenue required for refrigeration in the proposed facilities is handled as a separate cost item. Excluding this cost, the annual revenue required ranges from $8.6 to $12.7 million, depending on the site selected. These rentals are based on private financing and operation of the food center and, therefore, could be considered ownership costs. Actual rentals will depend largely on the methods used to finance the market. The

TABLE 12. — Estimated annual debt service payments under private financing for the proposed wholesale food distribution center for the Los Angeles area by type of firm or facility and site

Type of firm or facility	Branford-Pacoima-Jessup Park	Carson	Industry	Naomi-Trinity-Stanford	Santa Fe Springs
	1,000 dollars	1,000 dollars	1,000 dollars	1,000 dollars	1,000 dollars
Fresh fruits and vegetables:					
Amortization[1]	1,352.7	1,273.1	1,266.8	1,850.3	1,352.7
Contingency allowance[2]	135.3	127.3	126.7	185.0	135.2
Total debt service	1,488.0	1,400.4	1,393.5	2,035.3	1,487.9
Meat and meat products:					
Amortization[1]	983.8	921.9	916.9	1,369.9	983.8
Contingency allowance[2]	98.4	92.2	91.7	137.0	98.4
Total debt service	1,082.2	1,014.1	1,008.6	1,506.9	1,082.2
Poultry and eggs:					
Amortization[1]	405.0	378.4	376.2	571.3	405.0
Contingency allowance[2]	40.5	37.8	37.6	57.1	40.5
Total debt service	445.5	416.2	413.8	628.4	445.5
Frozen foods:					
Amortization[1]	248.9	232.7	231.4	349.9	248.9
Contingency allowance[2]	24.9	23.3	23.1	35.0	24.9
Total debt service	273.8	256.0	254.5	384.9	273.8
Manufactured dairy products:					
Amortization[1]	622.3	581.0	577.7	879.9	622.3
Contingency allowance[2]	62.2	58.1	57.8	88.0	62.2
Total debt service	684.5	639.1	635.5	967.9	684.5
Grocery products:					
Amortization[1]	793.6	742.3	738.2	1,113.7	793.6
Contingency allowance[2]	79.3	74.2	73.8	111.4	79.4
Total debt service	872.9	816.5	812.0	1,225.1	873.0
Fish and shellfish:					
Amortization[1]	937.2	879.9	875.3	1,294.4	937.2
Contingency allowance[2]	93.7	88.0	87.5	129.5	93.7
Total debt service	1,030.9	967.9	962.8	1,423.9	1,030.9

See footnotes at end of tabulation.

TABLE 12. — Estimated annual debt service payments under private financing for the proposed wholesale food distribution center for the Los Angeles area by type of firm or facility and site—Continued

Type of firm or facility	Branford-Pacoima-Jessup Park	Carson	Industry	Naomi-Trinity-Stanford	Santa Fe Springs
	1,000 dollars	1,000 dollars	1,000 dollars	1,000 dollars	1,000 dollars
Corporate chainstores and affiliated wholesalers:					
Amortization[1]	407.2	377.7	375.3	591.3	407.2
Contingency allowance[2]	40.7	37.8	37.5	59.1	40.7
Total debt service	447.9	415.5	412.8	650.4	447.9
Public refrigerated warehouses:					
Amortization[1]	258.5	247.9	247.1	324.4	258.5
Contingency allowance[2]	25.9	24.8	24.7	32.4	25.9
Total debt service	284.4	272.7	271.8	356.8	284.4
Central refrigeration system:					
Amortization[1]	996.2	995.1	995.0	1,003.0	996.2
Contingency allowance[2]	99.6	99.5	99.5	100.3	99.6
Total debt service	1,095.8	1,094.6	1,094.5	1,103.3	1,095.8
Grand total:					
Amortization[1]	7,005.4	6,630.0	6,599.9	9,348.1	7,005.4
Contingency allowance[2]	700.5	663.0	659.9	934.8	700.5
Total debt service	7,705.9	7,293.0	7,259.8	10,282.9	7,705.9

[1] Based on 8 percent over 30 years on the total investment cost (table 11) $88.08 per $1,000.

[2] Based on 10 percent of amortization rates.

estimated rentals required per square foot of first floor area under private financing at the various sites and by type of firm or facility are shown in table 15.

Mezzanine costs are allocated to the first floor and no provision made for vacancies in estimating rents. When the food distribution center is developed, long-term leases should be signed by prospective tenants to prevent overbuilding.

Estimated Cost of Refrigeration

A separate study was conducted by private contract to determine the requirements of a central plant to supply refrigeration service to occupants of the proposed Los Angeles wholesale food distribution center.[11] The original cost for such system with the capacity to supply 7,300 tons of refrigeration was estimated at $8.84 million. The annual cost of owning and operating the central refrigeration system and terminal equipment is estimated at $2.4 million, or $329 per ton. This cost includes expenses for financing, plant payroll, refrigerant, electrical power, vehicle leasing and operation, maintenance and repairs, parts and supplies, depreciation, and an

[11] See reference listed in footnote 7, p. 35. For additional information of refrigeration systems see, STAHLMAN, ROBERT L. A STUDY OF REFRIGERATION SYSTEMS FOR URBAN FOOD DISTRIBUTION CENTERS. U.S. Dept. Agr. Mktg. Res. Rpt. No. 921, 107 pp., illus. January 1972.

TABLE 13. — Estimated annual real estate taxes under private financing to be paid by the proposed wholesale food distribution center for the Los Angeles area, by type of firm or facility and site

Type of firm or facility	Branford-Pacoima-Jessup Park	Carson	Industry	Naomi-Trinity-Stanford	Santa Fe Springs
	1,000 dollars	1,000 dollars	1,000 dollars	1,000 dollars	1,000 dollars
Fresh fruits and vegetables:					
Tax[1]	422.5	362.8	421.6	577.9	432.4
Contingency[2]	42.3	36.3	42.2	57.8	43.2
Total	464.8	399.1	463.8	635.7	475.6
Meat and meat products:					
Tax[1]	307.3	262.7	305.1	427.8	314.5
Contingency[2]	30.7	26.3	30.5	42.8	31.5
Total	338.0	289.0	335.6	470.6	346.0
Poultry and eggs:					
Tax[1]	126.5	107.8	125.2	178.4	129.5
Contingency[2]	12.7	10.8	12.5	17.8	13.0
Total	139.2	118.6	137.7	196.2	142.5
Frozen foods:					
Tax[1]	77.7	66.3	77.0	109.3	79.5
Contingency[2]	7.8	6.6	7.7	10.9	8.0
Total	85.5	72.9	84.7	120.2	87.5
Manufactured dairy products:					
Tax[1]	194.4	165.6	192.2	274.8	198.9
Contingency[2]	19.4	16.6	19.2	27.5	19.9
Total	213.8	182.2	211.4	302.3	48.8
Grocery products:					
Tax[1]	247.9	211.5	245.6	347.8	253.7
Contingency[2]	24.8	21.1	24.6	34.8	25.4
Total	272.7	232.6	270.2	382.6	279.1
Fish and shellfish:					
Tax[1]	292.7	250.7	291.3	404.3	299.6
Contingency[2]	29.3	25.1	29.1	40.4	29.9
Total	322.0	275.8	320.4	444.7	329.5

See footnotes at end of tabulation.

TABLE 13. — Estimated annual real estate taxes under private financing to be paid by the proposed wholesale food distribution center for the Los Angeles area, by type of firm or facility and site—Continued

Type of firm or facility	Branford-Pacoima-Jessup Park	Carson	Industry	Naomi-Trinity-Stanford	Santa Fe Springs
	1,000 dollars	1,000 dollars	1,000 dollars	1,000 dollars	1,000 dollars
Corporate chainstores and affiliated wholesalers:					
Tax[1]	127.2	107.7	124.9	184.7	130.2
Contingency[2]	12.7	10.8	12.5	18.5	13.0
Total	139.9	118.5	137.4	203.2	143.2
Public refrigerated warehouse:					
Tax[1]	80.7	70.7	82.2	101.3	82.6
Contingency[2]	8.1	7.1	8.2	10.1	8.3
Total	88.8	77.8	90.4	111.4	90.9
Central refrigeration system:					
Tax[1]	311.1	283.6	331.1	313.3	318.4
Contingency[2]	31.1	28.3	33.1	31.3	31.8
Total	342.2	311.9	364.2	344.6	350.2
Grand total:					
Tax[1]	2,188.0	1,889.4	2,196.2	2,919.6	2,239.3
Contingency[2]	218.8	188.9	219.6	292.0	223.9
Total	2,406.8	2,078.3	2,415.8	3,211.6	2,463.2

[1] Assessed valuation is 25 percent of total investment in land and facilities (table 11).

[2] 10 percent of tax payment.

earning and reserve allowance. A charge for leasing terminal evaporators to users is also included.

During the first 10 years of operations, the cost to a hypothetical firm for using refrigeration from a central plant would be approximately 62 percent of the cost for owning and operating its own refrigeration equipment. An additional advantage to the firm would be not having to supply the initial capital required for installing its own equipment. Also, the investment required for a central refrigeration system is 76 percent of the aggregate cost that would be required for each firm to supply its own system. An analysis to determine if two central refrigeration systems might be more economical than one revealed that one system would require only 61 percent of the investment required for two systems.

A central refrigeration system for a food distribution center offers other than economic advantages. A central plant can provide backup services and relieve the individual food wholesalers of the problems of adding more equipment when existing services become overloaded. Furthermore, a central plant relieves the food wholesalers of the responsibility for day-to-day maintenance and repairs.

A further cost of refrigeration to the user not included in the cost of the central plant and terminal evaporators is the initial investment in cooler and freezer space. These costs are included in the estimated investment costs. Table 16 summarizes the estimated cost of cooler and freezer space in the proposed facilities by commodity classification. Since the coolers and freezers

TABLE 14 — Estimated total annual revenue required under private financing to finance, pay real estate taxes, and manage and maintain the facilities in the proposed wholesale food distribution center for the Los Angeles area, by type of firm or facility and site

Type of firm or facility	Branford-Pacoima-Jessup Park	Carson	Industry	Naomi-Trinity Stanford	Santa Fe Springs
	1,000 dollars	1,000 dollars	1,000 dollars	1,000 dollars	1,000 dollars
Fresh fruits and vegetables:[1]					
Debt service	1,488.0	1,400.4	1,393.5	2,035.3	1,487.9
Real estate taxes	464.8	399.1	463.8	635.7	475.6
Management and maintenance[2]	143.4	143.4	143.4	143.4	143.4
Total	2,096.2	1,942.9	2,000.7	2,814.4	2,106.9
Meat and meat products:					
Debt service	1,082.2	1,014.1	1,008.6	1,506.9	1,082.2
Real estate taxes	338.0	289.0	335.6	470.6	346.0
Management and maintenance[2]	111.0	111.0	111.0	111.0	111.0
Total	1,531.2	1,414.1	1,455.2	2,088.5	1,539.2
Poultry and eggs:					
Debt service	445.5	416.2	413.8	628.4	445.5
Real estate taxes	139.2	118.6	137.7	196.2	142.5
Management and maintenance[2]	48.0	48.0	48.0	48.0	48.0
Total	632.7	582.8	599.5	872.6	636.0
Frozen foods:					
Debt service	273.8	256.0	254.5	384.9	273.8
Real estate taxes	85.5	72.9	84.7	120.2	87.5
Management and maintenance[2]	29.1	29.1	29.1	29.1	29.1
Total	388.4	358.0	368.3	534.2	390.4
Manufactured dairy products:					
Debt service	684.5	639.1	635.5	967.9	684.5
Real estate taxes	213.8	182.2	211.4	302.3	218.8
Management and maintenance[2]	73.8	73.8	73.8	73.8	73.8
Total	972.1	895.1	920.7	1,344.0	977.1
Grocery products:[1]					
Debt service	872.9	816.5	812.0	1,225.1	873.0
Real estate taxes	272.7	232.6	270.2	382.6	279.1
Management and maintenance[2]	92.0	92.0	92.0	92.0	92.0
Total	1,237.6	1,141.1	1,174.2	1,699.7	1,244.1

See footnotes at end of tabulation.

TABLE 14 — Estimated total annual revenue required under private financing to finance, pay real estate taxes, and manage and maintain the facilities in the proposed wholesale food distribution center for the Los Angeles area, by type of firm or facility and site—Continued

Type of firm or facility	Branford-Pacoima-Jessup Park	Carson	Industry	Naomi-Trinity Stanford	Santa Fe Springs
	1,000 dollars	1,000 dollars	1,000 dollars	1,000 dollars	1,000 dollars
Fish and shellfish:[1]					
Debt service	1,030.9	967.9	962.8	1,423.9	1,030.9
Real estate taxes	322.0	275.8	320.4	444.7	329.5
Management and maintenance[2]	102.2	102.2	102.2	102.2	102.2
Total	1,455.1	1,345.9	1,385.4	1,970.8	1,462.6
Corporate chains and affiliated wholesalers:					
Debt service	447.9	415.5	412.8	650.4	447.9
Real estate taxes	139.9	118.5	137.4	203.2	143.2
Management and maintenance[2]	52.8	52.8	52.8	52.8	52.8
Total	640.6	586.8	603.0	906.4	643.9
Public refrigerated warehouse:					
Debt service	284.4	272.7	271.8	356.8	284.4
Real estate taxes	88.8	77.8	90.4	111.4	90.9
Management and maintenance[2]	18.9	18.9	18.9	18.9	18.9
Total	392.1	369.4	381.1	487.1	394.2
Central refrigeration system:					
Debt service	1,095.8	1,094.6	1,094.5	1,103.3	1,095.8
Real estate taxes	342.2	311.9	364.2	344.6	350.2
Management and maintenance[2]	5.4	5.4	5.4	5.4	5.4
Total	1,443.4	1,411.9	1,464.1	1,453.3	1,451.4
Grand total:					
Debt service	7,705.9	7,293.0	7,259.8	10,282.9	7,705.9
Real estate taxes	2,406.9	2,078.4	2,415.8	3,211.5	2,463.3
Management and maintenance[2]	676.6	676.6	676.6	676.6	676.6
Total	10,789.4	10,048.0	10,352.2	14,171.0	10,845.8

[1] Includes one unit used as a restaurant.

[2] Prorated according to acreage requirements.

would be owned by the market occupants, their cost is amortized in the estimated annual rentals shown in table 15.

After the refrigeration study was completed, four large firms (former market candidates) proceeded with independent relocation plans. As a result, refrigeration requirements for the market were reduced. To estimate probable refrigeration costs to market candidates, a central plant having less capacity than the plant proposed in the study is assumed to be able to provide the refrigeration required. Table 17 shows, by type of firm, the estimated annual revenue required to finance and operate a central refrigeration plant of reduced but sufficient capacity to satisfy the needs of market candidates. It is assumed that the 5,108.7 tons of refrigeration required by the market candidates could be supplied at a cost of $329 per ton for a total annual refrigeration cost of $1.7 million. The share of the annual ownership and operating cost associated with the central refrigeration plant allocated to each firm classification is assumed to be directly proportional to the total tons of refrigeration required by each. Actual charges to firms using refrigeration from the central plant would be determined by assessing a flat charge for each terminal evaporator and by metering the demand for refrigerants to each room.

TABLE 15. — Estimated annual rental required per square foot under private financing for first floor building area for the proposed wholesale food distribution center for the Los Angeles area, by type of firm or facility and site[1]

Firm classification	First-floor area required	Estimated annual rent per square foot[2]				
		Branford-Pacoima-Jessup-Park	Carson	Industry	Naomi-Trinity-Stanford	Santa Fe Springs
	1,000 square feet	Dollars	Dollars	Dollars	Dollars	Dollars
Fresh fruits and vegetables	598.4	3.50	3.25	3.35	4.70	3.50
Meat and meat products	360.0	4.25	3.95	4.05	5.80	4.30
Poultry and eggs	150.0	4.20	3.90	4.00	5.80	4.25
Frozen foods	88.0	4.40	4.05	4.20	6.05	4.45
Manufactured dairy products	247.0	3.95	3.60	3.75	5.45	3.95
Grocery products	340.1	3.65	3.35	3.45	5.00	3.65
Fish and shellfish	362.0	4.00	3.70	3.85	5.45	4.05
Corporate chainstores and affiliated wholesalers	162.1	3.95	3.60	3.70	5.60	3.95
Public refrigerated warehouse	50.4	7.80	7.35	7.55	9.65	7.80
Central refrigeration system[3]	-	-	-	-	-	-
Total or average	2,358.0	3.95	3.65	3.75	5.40	4.00

[1] Based on total annual revenue requirements shown in table 14.

[2] Rounded to nearest nickel.

[3] Not included.

TABLE 16. — Estimated cost to construct coolers and freezers in shell buildings by type of firm[1]

Type of firm	Cooler and freezer space	Cost of cooler and freezer space[2]
	1,000 cubic feet	1,000 dollars
Fresh fruits and vegetables	2,918.8	726.0
Meat and meat products	4,231.3	1,106.1
Poultry and eggs	1,024.1	254.4
Frozen foods	1,145.1	284.4
Manufactured dairy products	995.0	245.9
Groceries	142.1	69.5
Fish and shellfish	3,244.0	972.9
Corporate chainstores and affiliated wholesalers	815.5	128.1
Total	14,515.9	3,787.3

[1] Average construction cost for single and multiple occupancy facilities.

[2] Cost includes insulation, interior walls, false ceilings, subslab construction, and cold storage doors.

Estimated Cost Comparisons

Estimates of handling and other costs incurred in moving commodities through the proposed food distribution center, as presented in this section of the report are based on research by the Department on operating costs within modern market facilities using proper kinds and amounts of handling equipment.

Cost comparisons between the present and proposed wholesale food facilities were estimated for the 244 candidate firms. Table 18 summarizes cost comparisons of present vs. proposed facilities as shown in appendix tables 23 through 30.

Apparently, high rents resulting from high costs of land and construction and, from most locations, increased distribution costs more than offset the

projected savings in the proposed facilities. These costs assume the present volume will be handled in the new market, but these calculations do not reflect the potential savings that will accrue with the handling of increased volumes in the future. Average fixed costs will decline with the handling of larger volumes. Therefore, the potential for reducing unit handling and distribution costs in the improved facilities is much greater than it is in the present facilities.

Whether the proposed facilities are developed or not, the number of wholesale firms operating in the area will probably decrease in the future. At the same time, the population of the study area is expected to increase substantially. Firms locating in the proposed facilities, therefore, can expect to handle larger volumes of food products. Potentially lower unit-handling costs made possible by an efficient layout and use of modern handling practices will enable these firms to improve their competitive position among other firms operating in nearby areas.

In a centralized facility the cost of transferring merchandise among wholesalers will be reduced. Many wholesalers who are presently widely separated will be located in the same center. Contiguous platforms between wholesalers will eliminate or reduce the cost of many inefficient unloading and loading operations. Direct rail service to certain buildings will reduce the costs of cartage and the extra handling necessary with present operations. Adequate parking, truck-bed height platforms, and streets of sufficient width to handle market traffic will reduce congestion and avoidable delays to trucks.

The greatest opportunity to reduce costs occurs in the handling operations. To achieve maximum efficiency, proper use of materials-handling equipment, including forklift trucks, pallets, pallet racks, and handtrucks, is necessary. Operating in modern facilities provides an effective means for achieving the most efficient use of materials-handling equipment. The use of

TABLE 17. — Estimated annual revenue required to finance and operate a central refrigeration system by type of firm[1]

Type of firm	Refrigerated space[2]	Refrigeration required	Share of refrigeration tonnage	Cost per commodity group[3]	Cost per cubic foot of refrigerated space	Total volume of product handled	Cost per ton of total product handled[4]
	1,000 cubic feet	Tons	Percent	1,000 dollars	Dollars	1,000 tons	Dollars
Fresh fruits and vegetables	3,624.4	1,184.2	23.2	389.9	0.11	1,202.6	0.32
Meat and meat products	4,492.3	1,287.3	25.2	423.6	.09	100.0	4.24
Poultry and eggs	1,319.9	678.9	13.3	223.5	.17	75.5	2.96
Frozen foods	1,254.7	231.1	4.5	75.6	.06	65.2	1.16
Manufactured dairy products	1,233.6	368.5	7.2	121.0	.10	59.1	2.05
Groceries	424.5	182.1	3.6	60.5	.14	158.5	.38
Fish and shellfish	3,579.2	898.5	17.6	295.8	.08	22.7	13.03
Corporate chains and affiliated wholesalers	847.5	278.1	5.4	90.8	.11	417.6	.22
Total	16,776.1	5,108.7	100.0	1,680.7	.10	2,101.2	.80

[1] Actual charges to firms using refrigeration from the central plant would be determined by assessing a flat charge for each terminal evaporator and by metering the demand for refrigerants to each room.

[2] Including air-conditioned offices and work areas.

[3] Assuming refrigeration cost of $3 29 per ton.

[4] Apportioned over total tonnage handled, refrigerated and nonrefrigerated.

TABLE 18. — Summary of the estimated annual costs and savings of moving food products to, through, and from new food distribution facilities for all food commodity groups at each of the proposed sites compared with present costs

Movement of commodities and type of firm	Present volume	Present cost		Possible food distribution sites													
				Branford-Pacoima-Jessup Park			Carson			Industry			Naomi-Trinity-Stanford			Santa Fe Springs		
				Cost		Savings	Cost		Savings	Cost		Savings	Cost		Savings	Cost		Savings
		Per ton	Total	Per ton	Total		Per ton	Total		Per ton	Total		Per ton	Total		Per ton	Total	
	1,000 tons	Dollars	1,000 dollars	Dollars	1,000 dollars	1,000 dollars	Dollars	1,000 dollars	1,000 dollars	Dollars	1,000 dollars	1,000 dollars	Dollars	1,000 dollars	1,000 dollars	dollars	1,000 dollars	1,000 Dollars
To facilities:																		
Fresh fruits and vegetables	1,069.1	0.73	776.4	1.09	1,169.1	-392.7	0.40	432.1	344.3	0.80	860.5	-84.1	0.48	508.2	268.2	0.57	605.1	171.3
Meat and meat products	93.6	3.27	306.5	3.91	365.9	-59.4	3.35	313.8	-7.3	4.10	383.9	-77.4	3.40	318.3	-11.8	3.37	315.0	-8.5
Poultry and eggs	74.8	1.31	98.1	1.82	136.3	-38.2	.62	46.7	51.4	1.22	91.5	6.6	.94	70.2	27.9	.79	58.8	39.3
Frozen foods	36.0	3.38	121.8	1.76	63.2	58.6	1.59	57.4	64.4	1.74	62.8	59.0	1.57	56.4	65.4	1.57	56.4	65.4
Manufactured dairy products	57.7	1.00	57.9	2.17	125.4	-67.5	.64	36.7	21.2	1.32	76.3	-18.4	1.06	60.9	-3.0	.97	55.8	2.1
Groceries	153.7	2.52	386.9	2.41	370.3	16.6	1.31	201.4	185.5	2.58	397.0	-10.1	1.95	300.4	86.5	1.94	297.7	89.2
Fish and shellfish	22.7	4.55	103.2	.78	17.6	85.6	.64	14.6	88.6	.81	18.4	84.8	.74	16.7	86.5	.72	16.4	86.8
Corporate chains and affiliated wholesalers	411.5	.22	88.8	.29	118.8	-30.0	.23	93.3	-4.5	.21	86.2	2.6	.22	88.8	0	.17	71.3	17.5
Total or average	(1,919.1)	1.01	1,939.6	1.23	2,366.6	-427.0	.62	1,196.0	743.6	1.03	1,976.6	-37.0	.74	1,419.9	519.7	.77	1,476.5	463.1
Through facilities:																		
Fresh fruits and vegetables	1,202.6	8.02	9,639.2	6.35	7,631.5	2,007.7	6.22	7,478.2	2,161.0	6.27	7,536.0	2,103.2	6.94	8,349.7	1,289.5	6.36	7,642.2	1,997.0
Meat and meat products	100.0	21.18	2,018.4	30.66	3,066.0	-1,047.6	29.49	2,948.9	-930.5	29.90	2,990.0	-971.6	36.23	3,623.3	-1,604.9	30.74	3,074.0	-1,055.6
Poultry and eggs	75.5	13.57	1,024.4	17.84	1,346.9	-322.5	17.18	1,297.0	-272.6	17.40	1,313.7	-289.3	21.02	1,586.8	-562.4	17.88	1,350.2	-325.8
Frozen foods	65.2	19.16	1,249.2	18.45	1,203.3	45.9	17.99	1,172.9	76.3	18.15	1,183.2	66.0	20.69	1,349.1	-99.9	18.49	1,205.3	43.9
Manufactured dairy products	59.1	20.90	1,235.1	27.61	1,631.5	-396.4	26.30	1,554.5	-319.4	26.74	1,580.1	-345.0	33.90	2,003.4	-768.3	27.69	1,636.5	-401.4
Groceries	158.5	25.87	4,100.8	22.17	3,513.5	587.3	22.56	3,417.0	683.8	21.77	3,450.1	650.7	25.08	3,975.6	125.2	22.21	3,520.0	580.8
Fish and shellfish	22.7	58.43	1,328.0	114.72	2,604.1	-1,276.1	109.91	2,494.9	-1,166.9	111.65	2,534.4	-1,206.4	137.44	3,119.8	-1,791.8	115.05	2,611.6	-1,283.6
Corporate chains and affiliated wholesalers	417.6	6.61	2,761.7	7.46	3,113.4	-351.7	7.33	3,059.6	-297.9	7.37	3,075.8	-314.1	8.09	3,379.2	-617.5	7.46	3,116.7	-355.0
Total or average	(2,101.2)	11.12	23,356.8	11.47	24,110.2	-753.4	11.14	23,423.0	-66.2	11.26	23,663.3	-306.5	13.03	27,386.9	-4,030.1	11.50	24,156.5	-799.7
From facilities:																		
Fresh fruits and vegetables	1,069.1	2.42	2,589.3	5.53	5,910.3	-3,321.0	5.47	5,852.2	-3,262.9	6.46	6,903.8	-4,314.5	2.42	2,589.3	0	3.82	4,087.2	-1,497.9
Meat and meat products	93.6	17.64	1,651.1	21.51	2,013.5	-362.4	21.60	1,725.9	-74.8	26.44	2,112.2	-461.1	21.91	1,750.4	-99.3	21.68	1,732.2	-81.1
Poultry and eggs	74.8	14.49	1,083.7	16.26	1,216.6	-132.9	16.55	1,238.0	-154.3	16.09	1,203.4	-119.7	15.20	1,136.6	-52.9	16.06	1,201.6	-117.9
Frozen foods	36.0	19.06	686.0	21.49	773.7	-87.7	19.46	700.5	-14.5	21.58	776.8	-90.8	19.03	685.0	1.0	19.02	684.8	1.2
Manufactured dairy products	57.7	7.79	449.4	8.72	503.0	-53.6	8.18	472.1	-22.7	8.89	513.2	-63.8	7.70	444.5	4.9	7.88	454.9	-5.5
Groceries	153.7	13.00	1,998.3	15.56	2,392.1	-393.8	13.24	2,035.6	-37.3	14.03	2,156.9	-158.6	12.67	1,948.0	50.3	12.60	1,937.2	61.1
Fish and shellfish	22.7	23.96	543.9	30.92	701.9	-158.0	27.69	628.5	-84.6	32.00	726.4	-182.5	24.50	556.1	-12.2	27.52	624.7	-80.8
Corporate chains and affiliated wholesalers	411.5	1.73	711.5	2.33	958.4	-246.9	1.84	755.3	-43.8	1.69	697.1	14.4	1.73	711.5	0	1.39	573.2	138.3
Total or average	(1,919.1)	5.06	9,713.2	7.54	14,469.5	-4,756.3	6.99	13,408.1	-3,694.9	7.86	15,089.8	-5,376.6	5.12	9,821.4	-108.2	5.89	11,295.8	-1,582.6
Grand total or average cost	1,919.1	18.24	35,009.6	21.34	40,946.3	-5,936.7	19.82	38,027.1	-3,017.5	21.22	40,729.7	-5,720.1	20.13	38,628.2	-3,618.6	19.24	36,928.8	-1,919.2

pallet racks would reduce time needed to assemble customers' orders and more fully utilize cubic space available (fig. 30).

Savings or losses were estimated by comparing costs incurred in moving commodities through the proposed market with costs for 1967 in the present market. The estimated savings or losses are summarized in table 19 and presented in greater detail in appendix tables 23 through 30.

In the proposed facility commodities could be unloaded directly to pallets and transported into the facilities with no intermediate step. Meat wholesalers could place carcass meats on overhead rails at the edge of the platform and move them directly to coolers or processing areas. Similar loading operations could achieve similar efficiencies. Some commodities could be received directly on the platforms and be loaded out to buyers' trucks without entering the interior of the facilities.

At present, many wholesale food firms do not have sufficient refrigerated space. Adequate refrigeration is included in the design of proposed facilities for normal inventory levels, resulting in reduced waste and deterioration. To allow for seasonal variations in supply and in-transit storage, a public refrigerated warehouse has been provided.

Based on the savings and losses shown in table 19, the construction of a complete food distribution center may not appear to be attractive. However, the primary factor in considering a new wholesale food distribution center for the Los Angeles area is that it is one of the fastest growing urban areas in the United States. This area, the hub of Southern California, is expected to continue to grow. Many food wholesalers in Los Angeles need new facilities now. The facilities they use are inadequate, and they do not perform the wholesaling operations efficiently. Without more efficient facilities and handling methods, the high cost of operations that results from these facilities can only be expected to increase as the costs for labor, repairs, materials, space, and services increase.

It is impossible to place a monetary value on all of the savings and benefits that may accrue from the development and operations of a new wholesale food distribution center. These benefits will affect not only the wholesalers in the center, but buyers, producers, market employees, Los Angeles County, and Orange County. Such benefits as improved employee morale, better working conditions, regulated working hours, and improved environment greatly affect the efficiency of operation.

Even though relatively few buyers visit the market, those who do would be able to park conveniently, make their selections quickly, load their trucks expeditiously, and leave promptly. Buyers would be able to examine and select products easier because of the design and location of storage and display areas and improved lighting.

TABLE 19. — Estimated total annual savings or losses incurred in moving specified commodities to, through, and from the proposed wholesale food distribution center for the Los Angeles area, by type of firm and site[1]

Type of firm	Present volume	Savings or losses				
		Branford-Pacoima-Jessup Park	Carson	Industry	Naomi-Trinity-Stanford	Santa Fe Springs
	1,000 tons	1,000 dollars	1,000 dollars	1,000 dollars	1,000 dollars	1,000 dollars
Fresh fruits and vegetables	1,069.1	-1,706.0	-757.6	-2,295.4	1,557.7	670.4
Meat and meat products	93.6	-1,469.4	-1,012.6	-1,510.1	-1,716.0	-1,145.2
Poultry and eggs	74.8	-493.6	-375.5	-402.4	-587.4	-404.4
Frozen foods	36.0	16.8	126.2	34.2	-33.5	110.5
Manufactured dairy products	57.7	-517.5	-320.9	-427.2	-766.4	-404.8
Groceries	153.7	210.1	832.0	482.0	262.0	731.1
Fish and shellfish	22.7	-1,348.5	-1,162.9	-1,304.1	-1,717.5	-1,277.6
Corporate chains and affiliated wholesalers	411.5	-628.6	-346.2	-297.1	-617.5	-199.2
Total	1,919.1	-5,936.7	-3,017.5	-5,720.1	-3,618.6	-1,919.2

[1] Based on tables 23 through 30.

With improved working conditions for employees, both their morale and efficiency would be improved. Less strenuous labor would be required with the use of proper handling equipment in facilities especially designed for their use. Inventory control would be simplified in a one-level facility. Over a period of time, labor productivity could increase. Conveniences such as parking facilities, restaurants, and welfare facilities, which are now inadequate, could be improved.

Several benefits to the community can be expected as a result of the development of a wholesale food distribution center. The center would provide for (1) an increased tax base, (2) the localization of market traffic, enabling improved control, (3) the expeditious enforcement of health, fire, and police regulations, (4) increased employment for semiskilled labor, and (5) a stimulus to the area's economic development.

APPENDIX

Commodity Flow Through Candidate Firms

TABLE 20. — Direct receipts, interwholesaler transfers, and the determination of volumes received, handled, and distributed by the 244 candidate firms

Type of Firm	(1) Direct receipts	(2) Transfers from all wholesalers	(3) Total volume handled (1 + 2)	(4) Percent candidate firms	(5) Transfers from candidates (2 x 4)	(6) Percentage non-candidate firms	(7) Transfers from non-candidates (2 x 6)	(8) Volume received & distributed (1 + 7)
	1,000 tons	1,000 tons	1,000 tons	Percent	1,000 tons	Percent	1,000 tons	1,000 tons
Fruits and vegetables	1,047.4	155.2	1,202.6	86	133.5	14	21.7	1,069.1
Meat and meat products	64.5	35.5	100.0	18	6.4	82	29.1	93.6
Poultry and eggs	72.8	2.7	75.5	27	.7	73	2.0	74.8
Frozen foods	31.3	33.9	65.2	[1]86	[1]29.2	[1]14	[1]4.7	36.0
Manufactured dairy products	54.2	4.9	59.1	29	1.4	71	3.5	57.7
Grocery products	149.2	9.3	158.5	52	4.8	48	4.5	153.7
Fish and shellfish	22.7	0	22.7	67	-	33	-	22.7
Chainstores and affiliated wholesalers	381.9	35.7	417.6	17	6.1	83	29.6	411.5
Total	1,824.0	277.2	2,101.2	--	182.1	-	95.1	1,919.1

[1]Many frozen foods firms handle a substantial volume of fresh fruits and vegetables. In table 18 nearly all transfers of frozen foods are receipts of fresh fruits and vegetables from other wholesalers. We assumed that 86 percent of these receipts, that is, the percentage of fresh fruits and vegetables firms determined to be candidates, were obtained from candidate fresh fruits and vegetables firms. Because the 29.2 tons of fresh fruits and vegetables considered was originally received by fresh fruits and vegetables firms, the charge for distributing this tonnage has been allocated to the distribution costs shown in the report for fresh fruits and vegetables. Thus, to avoid charging the system twice for the distribution of this volume, it has been subtracted from the volume distributed by frozen foods firms.

Methodology and Cost Comparisons

Present Costs

Total annual costs to, through, and from the present wholesale facilities, along with the applicable volume involved in these costs, are shown in table 21. Except for costs of rent, waste, theft, and deterioration that were obtained from all candidate firms, these data were obtained from a sample of wholesale firms for each commodity group. The total annual costs were divided by the volume pertaining to them to obtain an average cost per ton for each cost component. Costs per ton were then multiplied by the volume pertaining to the specific function of all candidate firms in a commodity group for total costs.

The percentage of time spent by employees in unloading, handling within, loading out, transferring, and distributing was estimated by wholesalers. This information was used to determine the labor cost for each function, except for fresh fruit and vegetable firms in which men known as "swampers" often were used to unload incoming shipments of produce. These men were paid by the shipper on a union scale. The total cost for their labor was determined by multiplying the average cost of their labor per ton of product unloaded by the volume that the wholesalers estimated the swampers unloaded. The total annual labor costs for each of the wholesaler's employees consisted of basic wages, overtime, bonuses, and fringe benefits. These costs were obtained from the individual wholesalers and from union representatives.

To Facilities

These costs included those operations involved in moving commodities from initial points of receipt to the firms' facilities. They included cartage,

Table 21 — Estimated selected annual cost of moving specified food commodities through the present facilities of the 244 wholesale firms needing improved facilities, Los Angeles, Calif., 1967

Movement of commodities	Fruits and vegetables			Meat and related products			Poultry and eggs			Frozen foods			Manufactured dairy products			Grocery products			Fish and shellfish			Corporate chainstores and affiliated wholesalers			Total		
	Volume[1]	Cost/ ton	Total cost	Volume[1]	Cost/ ton	Total cost	Volume[1]	Cost/ ton	Total cost	Volume[1]	Cost/ ton	Total cost	Volume[1]	Cost/ ton	Total cost	Volume[1]	Cost/ ton	Total Cost	Volume[1]	Cost/ ton	Total cost	Volume[1]	Cost/ ton	Total cost	Volume[1]	Cost/ ton	Total cost
To facilities:	1,000 tons	Dollars	1,000 dollars	1,000 tons	Dollars	1,000 dollars	1,000 ton	Dollars	1,000 dollars	1,000 tons	Dollars	1,000 dollars	1,000 tons	Dollars	1,000 dollars	1,000 tons	Dollars	1,000 dollars	1,000 tons	Dollars	1,000 dollars	1,000 tons	Dollars	1,000 dollars	1,000 tons	Dollars	1,000 dollars
Cartage from:																											
Commercial warehouses	0	0	0	0	0	0	3.3	9.82	32.4	9.0	7.06	63.5	0	0	0	0	0	0	8.3	9.89	82.1	0	0	0	20.6	8.64	178.0
Team tracks	38.5	3.39	130.6	0	0	0	0	0	0	.3	30.33	9.1	0	0	0	3.1	23.03	71.4	0	0	0	0	0	0	41.9	5.04	211.1
Piers and airports	49.3	8.71	429.6	0	0	0	2.2	26.40	59.4	0	0	0	1.7	23.97	40.7	9.7	23.16	224.7	.9	18.33	16.5	0	0	0	63.8	12.10	770.9
Receipts without cartage[2]	959.6	0	0	64.5	0	0	67.3	0	0	22.0	0	0	52.5	0	0	136.4	0	0	13.5	.34	[3] 4 6	381.9	0	0	1,697.7	0	4.6
Subtotal or average	1,047.4	.53	560.2	64.5	0	0	72.8	1.26	91.8	31.3	2.32	72.6	54.2	.75	40.7	149.2	1.98	296.1	22.7	4.55	103.2	381.9	0	0	1,824.0	.64	1,164.6
Interwholesaler transfers from noncandidate firms	21.7	3.62	78.6	29.1	10.30	299.7	2.0	3.17	6.3	4.7	10.47	49.2	3.5	4.90	17.2	4.5	20.18	90.8	0	0	0	29.6	3.00	88.8	95.1	6.63	630.6
Avoidable delay[4]	(1,058.4)	.13	137.6	(20.0)	.34	6.8	(0)	0	0	(0)	0	0	(0)	0	0	(0)	0	0	(0)	0	0	(0)	0	0	(1,078.4)	.13	144.4
Total or average	1,069.1	.73	776.4	93.6	3.27	306.5	74.8	1.31	98.1	36.0	3.38	121.8	57.7	1.00	57.9	153.7	2.52	386.9	22.7	4.55	103.2	411.5	.22	88.8	1,919.1	1.01	1,939.6
Through facilities:																											
Interwholesaler transfers from candidate firms	(133.5)	3.62	483.3	(6.4)	10.30	65.9	(.7)	3.17	2.2	(29.2)	10.47	305.7	(1.4)	4.90	6.9	(4.8)	20.18	96.9	(0)	0	0	(6.1)	3.00	18.3	(182.1)	5.38	979.2
Facility labor:																											
Unloading	(1,202.6)	1.90	2,285.0	(100.0)	1.70	169.7	(75.5)	2.02	152.5	(65.2)	1.88	123.0	(59.1)	2.07	122.3	(158.5)	4.30	681.3	(22.7)	2.86	65.0	(417.6)	.58	244.4	(2,101.2)	1.83	3,843.2
Handling within	(1,202.6)	1.00	1,202.6	(100.0)	6.58	657.9	(75.5)	3.06	231.0	(65.2)	3.52	229.6	(59.1)	6.69	395.1	(158.5)	10.09	1,598.8	(22.7)	26.41	600.6	(417.6)	3.16	1,319.5	(2,101.2)	2.97	6,235.1
Loading out	(1,202.6)	1.21	1,455.2	(100.0)	2.34	234.0	(75.5)	3.16	238.6	(65.2)	4.21	274.7	(59.1)	5.08	300.0	(158.5)	2.15	340.7	(22.7)	3.13	71.3	(417.6)	.94	392.5	(2,101.2)	1.57	3,307.0
Subtotal or average	(1,202.6)	4.51	5,426.1	(100.0)	11.28	1,127.5	(75.5)	8.27	624.3	(65.2)	14.31	933.0	(59.1)	13.95	824.3	(158.5)	17.15	2,717.7	(22.7)	32.40	736.9	(417.6)	4.73	1,974.7	(2,101.2)	6.84	14,364.5
Other cost:																											
Public warehouse charges[5]			268.5			229.0			69.4			62.8			3.3			1.7			102.6			2.0			739.3
Handling equipment use	(1,202.6)	.11	132.3	(100.0)	.22	22.0	(75.5)	.36	27.2	(65.2)	.20	13.1	(59.1)	.96	56.7	(158.5)	1.07	169.5	(22.7)	2.85	64.8	(417.6)	.22	91.9	(2,101.2)	.27	577.5
Facility rental[6]	(1,202.6)	.90	1,082.4	(100.0)	4.40	439.9	(75.5)	3.35	252.9	(65.2)	2.42	158.2	(59.1)	4.88	288.2	(158.5)	3.23	512.2	(22.7)	13.58	308.9	(417.6)	.89	371.6	(2,101.2)	1.68	3,528.3
Facility services[7]	(1,202.6)	.47	565.2	(100.0)	1.33	133.0	(75.5)	.67	50.6	(65.2)	.14	8.9	(59.1)	1.06	62.6	(158.5)	1.22	193.3	(22.7)	5.09	115.8	(417.6)	.28	116.9	(2,101.2)	.54	1,132.3
Waste, theft, and deterioration	(1,202.6)	1.80	2,164.7	(100.0)	.67	67.0	(75.5)	-	-	(65.2)	1.12	73.2	(59.1)	-	-	(158.5)	3.20	506.4	(22.7)	0	0	(417.6)	.49	204.6	(2,101.2)	1.44	3,015.9
Subtotal or average	(1,202.6)	3.50	4,213.1	(100.0)	8.91	890.9	(75.5)	5.30	400.1	(65.2)	4.85	316.2	(59.1)	6.96	410.8	(158.5)	8.73	1,383.1	(22.7)	26.03	591.1	(417.6)	1.88	787.0	(2,101.2)	4.28	8,992.3
Total or average	(1,202.6)	8.02	9,639.2	(100.0)	20.18	2,018.4	(75.5)	13.57	1,024.4	(65.2)	19.16	1,249.2	(59.1)	20.90	1,235.1	(158.5)	25.87	4,100.8	(22.7)	58.43	1,328.0	(417.6)	6.61	2,761.7	(2,101.2)	11.12	23,356.8
From facilities:																											
Distribution to points witbin study area:																											
Los Angeles County:																											
North County	0	0	0	1.0	44.69	44.7	[8]0	16.00	.8	.2	23.14	4.6	0	0	0	0	0	0	.1	50.83	5.1	14 8	2.38	35.2	16.1	5.61	90.4
San Fernando Valley	10.2	9.79	99.9	7.2	24.98	179.9	11.6	17.12	198.6	4.1	21.86	89.6	1.8	26.09	47.0	20.7	19.77	409.2	2.4	37.31	89.5	8.7	2.04	17.7	66.7	16.96	1,131.4
Malibu	0	0	0	.3	26.10	7.8	1.4	23.58	33.0	1.4	20.29	28.4	.4	21.11	8.4	5.1	8.69	44.3	.3	37.23	11.2	7.4	1.89	14.0	16.3	9.02	147.1
West Central, L. A.	11.6	8.31	96.4	10.6	24.87	263.6	13.6	18.60	253.0	7.9	20.53	162.2	2.3	25.84	59.4	14.9	13.42	200.0	1.3	45.30	58.9	17.2	2.56	44.0	79.4	14.33	1,137.5
Verdugo	.5	14.93	7.5	6.1	19.52	119.1	7.5	17.46	131.0	1.5	15.57	23.4	1.2	24.34	29.2	2.0	16.48	33.0	1.0	50.23	50.2	24.2	1.93	46.7	44.0	10.00	440.1
West San Gabriel Valley	22.0	6.03	132.7	6.0	20.41	122.5	4.6	18.27	84.0	2.8	18.73	52.4	1.2	27.30	32.8	16.1	15.07	242.6	.9	42.43	38.2	55.6	1.19	66.2	109.2	7.06	771.4
East San Gabriel Valley	12.5	8.57	107.1	5.3	19.95	105.7	1.3	20.16	26.2	1.7	22.27	37.9	1.2	22.95	27.5	14.5	17.01	246.6	1.2	40.18	48.2	9.8	2.86	28.0	47.5	13.20	627.2
Southwest, L. A.	14.1	7.30	102.9	12.4	18.41	228.3	4.1	21.47	88.0	2.6	20.46	53.2	2.4	21.17	50.8	11.4	18.27	208.3	1.5	33.86	50.8	25.9	1.29	33.4	74.4	10.96	815.7
East Central, L. A.	435.8	2.18	950.0	5.7	16.36	93.3	11.0	16.48	181.3	3.6	18.62	67.0	4.1	21.10	86.5	10.1	9.51	96.1	3.3	24.96	82.4	33.8	.76	25.7	507.4	3.12	1,582.3
Southeast, L. A.	199.2	4.40	876.5	7.7	18.27	140.7	2.5	19.07	47.7	2.8	19.75	55.3	2.7	20.90	56.4	16.0	10.80	172.8	1.8	29.47	53.0	48 2	1.22	58.8	280.9	5.20	1,461.2
Orange County:																											
All	23.8	9.09	216.3	17.6	19.63	345.5	1.8	22.25	40.1	4.8	23.34	112.0	2.2	23.38	51.4	17.1	20.20	345.4	1.5	37.59	56.4	165.9	2.06	341.8	234.7	6.43	1,508.9
Subtotal or average	729.7	3.55	2,589.3	79.9	20.66	1,651.1	59.4	18.24	1,083.7	33.4	20.54	686.0	19.5	23.05	449.4	127.9	15.62	1,998.3	15.3	35.55	543.9	411.5	1.73	711.5	1,476.6	6.58	9,713.2
Customer pickup at facilities[9]	136.3	-	-	12.8	-	-	6.9	-	-	.3	-	-	31.4	-	-	7.5	-	-	2.5	-	-	-	-	-	197.7	-	-
Distribution outside study area[9]	203.1	-	-	.9	-	-	8.5	-	-	2.3	-	-	6.8	-	-	18.3	-	-	4.9	-	-	-	-	-	244.8	-	-
Total or average	1,069.1	2.42	2,589.3	93.6	17.64	1,651.1	74.8	14.49	1,083.7	36.0	19.06	686.0	57.7	7.79	449.4	153.7	13.00	1,998.3	22.7	23.96	543.9	411.5	1.73	711.5	1,919.1	5.06	9,713.2
Grand total or average	1,069.1	12.16	13,004.9	93.6	42.48	3,976.0	74.8	29.49	2,206.2	36.0	57.14	2,057.0	57.7	30.20	1,742.4	153.7	42.20	6,486.0	22.7	87.01	1,975.1	411.5	8.66	3,562.0	1,919.1	18.24	35,009.6

[1] Figures in parentheses are not included in total.
[2] No cost because they were received at the wholesale facility or point of sale.
[3] Includes 915 tons landed by commercial fishing vessels at a cost of $5.05 per ton. All cost and volume information concerning fish and shellfish was collected and analyzed by the U.S. Department of Interior, Washington, D.C. Handling costs include processing charges.
[4] Based on total volume excluding volume received by handtruck.
[5] No volume estimates considered. Total charges depend on storage time, amounts moved and placed in storage, and the particular type of product as well as total volume. Estimates of volume and average cost per ton would not be meaningful in the context of this report.
[6] In addition to facility maintenance and repairs, includes cost of maintenance and repairs on refrigeration equipment.
[7] Includes solid waste management, electricity, extermination, and facility security.
[8] Less than 50 tons.
[9] Costs not included as they were beyond the scope of this report.

interwholesaler transfers from noncandidate firms, and avoidable delay to trucks. All tonnages were estimated by the wholesalers.

Cartage costs.—Cartage costs consisted of costs for loading commodities into trucks from commercial warehouses, team tracks, piers, and airports and hauling them to the firms' facilities. In the Los Angeles area, cartage was performed either by individual food firms using their own trucks or by commercial cartage firms. These costs were determined on the basis of (1) the average elapsed time and mileage per round trip, (2) the cost per mile for owning (or renting), operating, and maintaining a truck, and (3) the cost per hour for a driver (and his helper). These elements were combined to estimate the cost per load. The number of average tons per load was obtained from the wholesalers. The cost per ton was then derived by dividing the cost per load by the average tons per trip.

The cost per mile for owning and renting trucks depended upon the type and size of the vehicle. This cost varied substantially among the different commodity groups. Truck ownership costs consisted of fixed and variable costs. Fixed costs were depreciation, insurance, interest on invested capital, and taxes; variable costs, gasoline, oil, and maintenance.

When cartage firms were used, their rates per ton for particular commodities were incorporated. These rates were applied to the tonnage received by this method.

Interwholesaler transfers from noncandidate firms to candidate firms.—Transfers between wholesalers were defined as movement of products between wholesalers within the study area. This included the cost of transporting commodities from the wholesaler's facility on a truck or other conveyance to the buyer's store, delay time at the buyer's store, and return. The total volume of all interwholesaler transfers was estimated by the wholesalers. For an explanation of how the total volume transferred was allocated to candidate and noncandidate firms, see section on "Flow of Commodities Through Candidate Firms" and table 20. The cost per ton was derived in a manner similar to that used for cartage. Where materials-handling equipment was used for transfers, sample time studies were taken to determine the labor cost for this operation. The cost of transfers from noncandidate firms was based on the average distance between wholesale firms and the average time per trip.

Avoidable delay to trucks.—Avoidable delay consisted of actual delay time encountered by wholesaler's trucks within the immediate area of the wholesale facility. The cost of this delay was determined by multiplying the total annual hours of delay by the hourly costs of drivers (and their helpers) and trucks. The resulting cost was then divided by the total volume handled less the amount transported by handcart. Delay time was estimated by wholesalers, drivers, and observations.

Through Facilities

The costs of handling through facilities consisted of wholesaler transfers between candidate firms, labor at the facilities, and other costs.

Interwholesaler transfers between candidate firms.—This cost per ton was the same as for transfers from noncandidate to candidate firms because of the similarity of travel time and the distances between them. A detailed explanation of how the tonnage for this operation was derived is in the section, "Flow of Commodities Through Candidate Firms" (p. 17).

Labor costs.—These costs were comprised of the labor involved in unloading incoming railcars and trucks at the facilities, handling products within facilities, and loading outgoing trucks of wholesalers and buyers. Costs per ton were based on the total volume of food handled, which consisted of the sum of direct receipts and all interwholesaler transfers. The percentage of employees' total labor hours spent at unloading, handling within, and loading out as estimated by wholesalers, determined the labor cost for each function, with one exception. For fresh fruits and vegetables, "swampers" cost per ton for unloading was added to the cost per ton of the wholesalers' employees. Labor costs for the wholesalers' employees consisted of the basic wages, overtime, bonuses, and fringe benefits.

The cost of unloading consisted of moving incoming products from a railcar or truck at the facilities onto the street, sidewalk, platform, or facility floor, or into the cooler or freezer, depending on where they are generally stored.

The cost of handling within consisted of assembling orders; rotating inventory; moving merchandise into and out of coolers, freezers, ripening rooms, and storage areas; or moving merchandise between floors. The cost of moving commodities between split facilities that were owned or rented by one wholesaler was also included. Except for the cooking and processing of fish and shellfish, processing such as boning and breaking carcasses, repacking produce, packaging meat, and icing and reicing boxes of poultry was not included.

The cost of loading out consisted of moving merchandise from a street, sidewalk, facility floor, platform, overhead rail, or storage area into an outbound vehicle. If the driver participated in loading out, his labor was included in the loading out operation. The driver's idle time spent waiting for trucks to be loaded was included in distribution costs.

Other costs.—Public warehousing; facility rental; facility services; and waste, theft, and deterioration costs, along with purchase price for handling equipment, were either obtained from the records of wholesalers or were estimated by them.

Public warehousing costs were the annual costs to wholesalers for storing their food products at a public warehouse when their own facilities were unable to handle them.

Facility rental costs consisted of the annual rent paid by the wholesalers

for the use of their facilities. For wholesaler-owned facilities, the annual rental value of facilities was estimated by the owners and verified by comparing the costs with those of similar facilities. Facility maintenance and repairs, refrigeration equipment maintenance, and real estate taxes were included as part of rent.

Facility services included the cost of electricity, security services, garbage and trash collection, and extermination.

Waste, theft, and deterioration costs consisted of the value of products lost in wholesaling operations. Reduction in the value of salvage products was included as part of the deterioration cost. Food products that had started to deteriorate before arrival at the wholesalers facilities were not included in this cost.

Purchase prices of handling equipment were estimated by the wholesalers. Ownership costs were based on this estimate, and consisted of straight-line depreciation, interest on invested capital, and insurance. Annual maintenance charges were based on estimates of equipment manufactures and wholesalers.

From Facilities

Distribution.—This operation involved the distribution of food commodities from the wholesalers' facilities to points within the study area. The volume of food available for distribution was based on the sum of the direct receipts and the transfers from noncandidate to candidate firms. The present cost of distribution was determined by adding the ownership and operating costs of the vehicle to the labor cost of vehicle drivers and their helpers (if used). To develop annual ownership, operating, and labor costs, the following information was collected from each wholesaler in the cost sample:

1. Number and types of trucks
2. Miles driven per year
3. Cost of gas, oil, and maintenance
4. Insurance costs
5. Number of drivers (and their helpers, if used) delivering customer orders.

Ownership costs consisted of depreciation, interest on invested capital, and insurance. All trucks were assumed to depreciate over a 6-year period on a straight-line basis, with no scrap value. Six-percent simple interest was charged for one-half of the initial purchase price to determine annual interest costs. Insurance costs per truck ranged from $350 to $550 per year, depending upon whether individual or fleet policies were carried. Operating costs were the costs of gas, oil, and maintenance.

The total cost of distribution was calculated as shown below. The resultant cost consists of all costs incurred from the time the vehicle departed from the wholesale facility until it returned to the wholesale facility.

Distribution cost = [(Drivers' wage rate) (total hours on the road)]+[(vehicle ownership and operating cost per mile) (annual mileage driven)]

Distribution cost per ton = distribution cost ÷ tons distributed

To aid in determining the costs of distributing from the present locations of the wholesalers to various distribution areas, a round trip time and distance table was developed (table 22). To construct this table, the entire study area was divided into 11 smaller areas that generally conformed to a subdivision map made by the Regional Planning Commission of Los Angeles County (fig. 13). Driving distance and driving time data prepared by the Automobile Club of Southern California were used to develop the time-distance table. This table shows the round trip distance and driving time from the center point of each of the 11 distribution areas to the center point of each of the other distribution areas. The round trip cost for delivery within a given area was based on the distance and time required to drive from the center point of the area to a point halfway to its perimeter and return.

To arrive at the round trip cost per ton between and within areas, the total number of trips a wholesaler makes and the total time and mileage involved in each trip had to be determined. The formulas shown below were used to determine the roundtrip cost per ton.

The resulting cost per ton is that which involves the truck and labor cost of driving from the center point of the wholesaler's area directly to the center point of another area, and return. It does not include any unloading time, movement between customers in the other area, or unavoidable delay of the truck driver at the customers' facilities.

1. Total trips = Annual tons distributed to a given area ÷ tons of the average truckload
2. Total annual hours = number of trips to each area × total hours per trip
3. Total annual miles = number of trips to each area × total miles per trip
4. Round-trip cost per ton = [(total round-trip hours) (driver wage rate per hour)] + [(total round-trip miles) (truck ownership and operating cost per mile)] ÷ annual tons distributed to each area

The next step was to develop a base cost to represent the cost of labor of the truck driver (and helper) for unloading at the customers' facilities, the travel costs between customers within a given area, and the unavoidable delay to the truck and drivers at the customers' facilities. This base cost is assumed to remain constant, regardless of the locations of the wholesalers or their customers. Base costs of each of the commodity groups were computed

TABLE 22. — Mileage and time per round trip between centers of 11 areas, Los Angeles, Calif.[1]

Item	From	To										
		Area 1	Area 2	Area 3	Area 4	Area 5	Area 6	Area 7	Area 8	Area 9	Area 10	Area 11
Miles		11.0										
M.P.H.	Area	35.0										
Mins.	1	18.8										
Miles		32.0	8.5									
M.P.H.	Area	35.0	35.0									
Mins.	2	54.7	14.5									
Miles		52.0	24.0	7.0								
M.P.H.	Area	35.0	35.0	35.0								
Mins.	3	88.9	41.0	12.0								
Miles		58.0	32.0	24.0	7.6							
M.P.H.	Area	40.0	45.0	35.0	35.0							
Mins.	4	87.0	42.6	41.0	13.0							
Miles		56.0	31.0	33.0	32.0	5.0						
M.P.H.	Area	31.0	30.0	38.0	39.0	25.0						
Mins.	5	108.6	62.0	52.1	49.3	12.0						
Miles		78.0	54.0	44.0	50.0	23.0	5.5					
M.P.H.	Area	33.0	32.0	38.0	39.0	33.0	25.0					
Mins.	6	142.0	101.5	69.5	77.0	42.0	13.2					
Miles		108.0	84.0	59.0	72.0	60.0	34.0	8.3				
M.P.H.	Area	33.0	32.0	38.0	39.0	36.0	39.0	35.0				
Mins.	7	196.6	157.9	93.2	110.9	100.2	52.4	14.2				
Miles		84.0	62.0	37.0	34.0	48.0	64.0	82.0	4.0			
M.P.H.	Area	39.0	44.0	43.0	37.0	44.0	44.0	53.0	25.0			
Mins.	8	129.4	84.3	51.8	55.1	65.3	87.0	92.7	9.6			
Miles		86.0	58.0	44.0	44.0	38.0	34.0	50.0	32.0	5.7		
M.P.H.	Area	35.0	35.0	41.0	39.0	33.0	33.0	53.0	24.0	20.0		
Mins.	9	147.1	99.2	64.2	67.8	69.2	61.9	56.5	80.0	17.1		
Miles		96.0	72.0	54.0	54.0	46.0	38.0	48.0	32.0	20.0	7.5	
M.P.H.	Area	38.0	39.0	44.0	43.0	37.0	37.0	49.0	25.0	23.0	20.0	
Mins.	10	151.7	110.9	73.4	75.6	74.5	61.6	58.6	76.8	52.2	22.5	
Miles		124.0	92.0	88.0	76.0	70.0	60.0	54.0	54.0	60.0	29.0	18.0
M.P.H.	Area	38.0	40.0	44.0	44.0	39.0	39.0	47.0	35.0	44.0	45.0	30.0
Mins.	11	195.9	138.0	119.7	103.4	107.8	92.4	69.1	92.3	81.6	38.6	36.0

[1] Travel within a given area was based on the distance and the time required to drive from the center point of the area to a point halfway to its perimeter and return.

by subtracting the average round trip cost per ton for all areas (total round trip cost between all areas divided by total tons distributed to all areas) from the present distribution cost per ton of product distributed (as shown in formula on p. 75).

The round trip cost from present locations to a given area was then added to the base cost to develop distribution costs per ton for that area. Thus, the distribution cost consists of all costs for traveling from the wholesalers' facilities to a given area, delivering product within that area, unloading or waiting while unloading takes place, and returning to the wholesalers' facilities.

For example, if the present average distribution cost per ton to all areas for a given classification of wholesalers is $25 per ton, and the average round trip cost for all areas is $7 per ton, then the base cost would be $18 ($25−$7). If the round trip cost from a given area to area 5 is $4, then the distribution cost per ton from that given area to area 5 is the base cost of $18 plus the round trip cost of $4, for a total cost of $22 per ton.

Proposed Costs

Tables 23 through 30 show the estimated annual costs of moving commodities to, through, and from facilities of the proposed food distribution center compared with costs in present facilities. Except where noted, estimated proposed costs at each of the five representative sites are based on the same volume, wage rates, and procedures as were used to determine present costs. For a more detailed explanation of what is involved in each of the following operations, and the steps taken to estimate their costs, see previous section on "Present Costs."

To Facilities

Cartage.—Cartage costs were determined on the basis of (1) the average elapsed time and mileage per round trip from each of the proposed sites to either a teamtrack, commercial warehouse, pier, or airport; (2) the cost per mile for owning (or renting), operating, and maintaining a truck; and (3) the cost per hour for a driver (and his helper, if one was used). These elements were combined to estimate the cost per load. The cost per ton was obtained by dividing the cost per load by the average tons per trip.

Direct rail service could reduce or eliminate the necessity for carting food commodities from teamtracks to the firms' facilities. For both fresh fruit and vegetable firms and grocery product firms, the cost of cartage was reduced by eliminating the volume that is presently being brought in by teamtrack.

Interwholesaler transfers from noncandidate firms to candidate firms.—This cost included transporting commodities from one wholesaler to another on a truck or other conveyance, delay time at the buyer's facility, and return. The cost of transfers from noncandidate firms to candidate firms was based on the average distance these firms were from each of the five proposed sites and the average time per trip. The costs per ton for these transfers were derived in the same way as for cartage.

Avoidable delay.—Avoidable delay caused by traffic congestion would be eliminated in a modern food distribution center with wide streets and ample parking areas.

Through Facilities

Interwholesaler transfers between candidate firms.—Transfers between candidate firms were based on the estimated times and distances involved within the proposed wholesale food distribution center and on the weight of the average transfer.

Labor costs.—The labor costs for unloading, handling within, and loading out in the proposed food distribution center were based on studies of modern operations in modern facilities in the Los Angeles area, on published studies of technical handling operations, and on estimates by specialists in the U.S. Department of Agriculture. These estimates were adjusted in accordance with the average wage rates in Los Angeles in 1967.

Other costs.—In the proposed facilities, the costs for public warehouse service would be reduced or eliminated because the wholesalers would have adequate space for normal operations. Some wholesalers, however, would need to use public warehouses to store reserve stocks or to hold items in periods of oversupply and occasional market speculation.

The cost for handling equipment is based on the initial cost of new equipment, its estimated life, its operating and maintenance costs, interest, and taxes. In new facilities the wholesale food firms are assumed to use more sophisticated handling equipment than is being used in present facilities; consequently, the proposed equipment will cost more than the present equipment.

The total annual rental (or ownership) cost for each commodity classification is based on the annual revenue required for debt service, the real estate tax, and the management and maintenance expenses for the food distribution center. (For details, see pp. 60-63.)

Costs for facility services are those costs associated with the physical plant but not included in the rent. These costs are electricity, extermination, garbage and trash removal, and security for all commodity groups.

In modern facilities with adequate security, cooler and freezer space, and mechanized handling equipment, commodity specialists in the Department estimated that waste, theft, and deterioration will be reduced in fresh fruits and vegetables and in meats by 50 percent and in groceries by 75 percent. For all other commodity groups, these losses would be negligible.

From Facilities

Distribution.—These costs were determined in the same way as those for the present facilities. It was assumed that distribution would be made to the same 11 areas from the center point of each of the areas in which the five proposed sites are located.

Public Financing

Cost Components

Debt Service

In this section, debt service is based on a mortgage rate of 6.5 percent for land and facilities. Assuming the land remains under public ownership, the principal amount of the land cost need not be recovered from market revenue. Therefore, the total debt service repayment has been reduced by the principal amount of the land cost. On this basis, only interest charges would be carried on the land along with the full amortization payment for facilities. With this assumption, the annual revenue required for debt service would range from $5.8 to $7.3 million, depending on the site selected (see table 31).

Real Estate Taxes

Real estate taxes were based on the California Possessory Interest Tax—the capital recovery method. As shown in table 32, the annual real estate taxes and contingencies would range from $1.7 to $2.4 million, according to the site selected.

Management and Maintenance

This cost would remain the same under any type of financing—$676,600.

Total Annual Revenue Required Using Public Financing

The annual cost of financing and operating the wholesale food distribution center using public financing would range from $8.2 to $10.4 million, depending on the site (table 33).

Estimated Rentals Required

The revenue required for the proposed wholesale food distribution center was assumed to be rent charged for all facilities except the central refrigeration system. The revenue required for refrigeration in the proposed facilities is not included in rent calculations but is handled as a separate cost item to market candidates. Excluding this cost, the annual revenue required ranges from $7.0 to $9.2 million, depending on the site selected. The estimated rentals required per square foot of floorspace on the first floor ranges from $2.95 to $3.90, depending on the site (table 34). Actual rentals will depend largely on the methods used to finance the market.

Estimated Cost Comparisons

Estimates of annual savings and losses in the proposed food distribution center using public financing as compared to 1967 costs in the present market are given by commodity group and site in table 35. Net annual losses range from $54,900 at Santa Fe Springs to $4,082,100 at Industry.

Solid Waste Management

Findings and Recommendations From a Study of Solid-Waste Disposal Systems[12]

Highlights

Six food distribution centers were surveyed to determine typical methods and costs of waste management. In addition to these six surveys, 38 centers located in 18 States supplied information on center operations and waste-management methods. Fresh fruits and vegetables were the predominant commodity distributed at the centers studied. Total costs for waste collection and disposal at the surveyed centers averaged $25 per ton collected. Approximately 20 pounds of waste were generated for each ton of food handled.

Alternative waste-management systems must be analyzed to determine the most desirable system for the Los Angeles Food Distribution Center. If the best waste-management techniques presently available were used, refuse removal would cost $18.84 per ton of refuse collected in a similar facility. However, the actual cost of refuse removal in Los Angeles will depend largely upon the location of the market site relative to solid-waste disposal facilities. The physical characteristics of the site selected and the present or pending antipollution regulations should also be considered in choosing a disposal system.

Recommendations

- The manager of the food distribution center should be delegated full responsibility for solid-waste management at the center. As a part of this responsibility, he should be authorized to administer all waste collection services provided to tenants by contracts with private firms for solid-waste

[12]For a detailed analysis of solid-waste management systems, see paper by Agricultural Research Service, "Solid Waste Management in Wholesale Food Distribution Centers."

collection and disposal services, or establishment of solid-waste collection and disposal facilities at the center.

- Each tenant of the center should be provided with and required to use the proper type and number of waste-storage containers based on the amount of waste generated. Containers for tenants should be of uniform size and design and be serviced a minimum of twice each week. Tenants with larger than usual amounts of waste should have additional containers or their containers should be serviced more frequently.
- Waste from the restaurants in the center should be collected daily. Trash from administrative offices should be collected weekly.
- Waste-storage containers should be located as near the point of waste generation as is practical. The rear dock area is convenient for both tenant use and collection service.
- Waste from elevated and street-level rear dock areas should be collected with a front-end loading packer vehicle. Metal-bin type containers equipped with casters and lift handles should be used.
- If space is available at the center, the market management should consider installing a stationary compactor. If the compactor cannot be located readily accessible to tenant docks, a pickup truck or small three-wheeled collection vehicle could be used to haul the wastes. If this method is used, self-dumping containers should be used.
- Because of high costs and increasingly stringent air pollution control regulations, an incinerator is not recommended.
- Several large containers of 4- to 6-cu. yd. capacity should be located on the premises and truckers encouraged to dispose of packing wastes into these containers. The gate watchman should be alerted to prevent any tendency for truckers to bring more than the required quantity of packing wastes onto the center with their produce loads.
- Tenants processing or preparing produce for packaging and the restaurants should be encouraged or required, local regulations permitting, to install food disposals. These units should be installed during construction.
- Regulations in the center should require that dunnage originating from railroad cars be transported either to the tenants' waste-storage container or to one of the large containers located for truckers' use. Appropriate penalties should be assessed those persons observed sweeping railcar dunnage onto the ground.
- The streets and other paved areas of the center should be swept at least twice weekly using a mechanical street sweeper. To facilitate this cleaning activity, all trucks and piggyback trailers should be parked away from the dock on designated days (during night sweeping hours). Perimeter fences of the center should be kept free of weeds and cleaned of litter on a periodic basis.
- The management should consider purchasing equipment and hiring sufficient workers to provide solid-waste collection and disposal service for tenants.
- If the managements decides to evaluate the possibility of establishing its own solid-waste collection and disposal operation, a careful planning and evaluation period is recommended. A competent consulting engineer experienced in solid-waste management should be retained to evaluate the conditions in the center and to recommend the proper equipment and waste-management system components. Cost estimates for service submitted by qualified private haulers should be included in the evaluation process.
- Detailed specifications governing the services to be provided by the private hauler should be prepared. Competent legal advice is needed in preparing these specifications.
- The contract with the private hauler should be with the center and not with the individual tenants. All authorization for, and payments to, the hauler should be from the manager or other designated representative of the center.

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TABLE 23. — Estimated annual costs of moving fresh fruits and vegetables to, through, and from facilities of the proposed food distribution center for the Los Angeles area compared with present costs

Movement of commodities	Present volume	Present cost per ton	Present cost	Possible food distribution center sites														
				Branford-Pacoima-Jessup Park			Carson			Industry			Naomi-Trinity-Stanford			Santa Fe Springs		
				Cost per ton	Total cost	Savings	Cost per ton	Total cost	Savings	Cost per ton	Total cost	Savings	Cost per ton	Total cost	Savings	Cost per ton	Total cost	Savings
	1,000 tons	Dollars	1,000 dollars	Dollars	1,000 dollars	1,000 dollars	Dollars	1,000 dollars	1,000 dollars	Dollars	1,000 dollars	1,000 dollars	Dollars	1,000 dollars	1,000 dollars	Dollars	1,000 dollars	1,000 dollars
To Facilities																		
Cartage from:																		
Commercial warehouses	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Team tracks	38.5	3.39	130.6	0	0	130.6	0	0	130.6	0	0	130.6	0	0	130.6	0	0	130.6
Piers and airports	49.3	8.71	429.6	20.07	989.9	-560.3	5.16	254.5	175.1	13.19	650.6	-221.0	8.71	429.6	0	9.75	480.9	-51.3
Receipts without cartage[1]	959.6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Subtotal or average	1,047.4	.53	560.2	.95	989.9	-429.7	.24	254.5	305.7	.62	650.6	-90.4	.41	429.6	130.6	.46	480.9	79.3
Interwholesaler transfers from noncandidate firms	21.7	3.62	78.6	8.26	179.2	-100.6	8.18	177.6	-99.0	9.67	209.9	-131.3	3.62	78.6	0	5.72	124.2	-45.6
Avoidable delay[2]	(1,058.4)	.13	137.6	0	0	137.6	0	0	137.6	0	0	137.6	0	0	137.6	0	0	137.6
Total or average	1,069.1	.73	776.4	1.09	1,169.1	-392.7	.40	432.1	344.3	.80	860.5	-84.1	.48	508.2	268.2	.57	605.1	171.3
Within Facilities																		
Interwholesaler transfers from candidate firms	(133.5)	3.62	483.3	1.98	264.3	219.0	1.98	264.3	219.0	1.98	264.3	219.0	1.98	264.3	219.0	1.98	264.3	219.0
Facility labor:																		
Unloading	(1,202.6)	1.90	2,285.0	.78	938.1	1,346.9	.78	938.1	1,346.9	.78	938.1	1,346.9	.78	938.1	1,346.9	.78	938.1	1,346.9
Handling within	(1,202.6)	1.00	1,202.6	.95	1,142.5	60.1	.95	1,142.5	60.1	.95	1,142.5	60.1	.95	1,142.5	60.1	.95	1,142.5	60.1
Loading out	(1,202.6)	1.21	1,455.2	1.04	1,250.7	204.5	1.04	1,250.7	204.5	1.04	1,250.7	204.5	1.04	1,250.7	204.5	1.04	1,250.7	204.5
Subtotal or average	(1,202.6)	4.51	5,426.1	2.99	3,595.6	1,830.5	2.99	3,595.6	1,830.5	2.99	3,595.6	1,830.5	2.99	3,595.6	1,830.5	2.99	3,595.6	1,830.5
Other cost:																		
Public warehouse charges	-	-	268.5	0	0	268.5	0	0	268.5	0	0	268.5	0	0	268.5	0	0	268.5
Handling equipment use	(1,202.6)	.11	132.3	.12	144.3	-12.0	.12	144.3	-12.0	.12	144.3	-12.0	.12	144.3	-12.0	.12	144.3	-12.0
Facility rental[3]	(1,202.6)	.90	1,082.4	1.74	2,096.2	-1,013.8	1.62	1,942.9	-860.5	1.66	2,000.7	-918.3	2.34	2,814.4	-1,732.0	1.75	2,106.9	-1,024.5
Facility services[3]	(1,202.6)	.47	565.2	.27	323.1	242.1	.27	323.1	242.1	.27	323.1	242.1	.27	323.1	242.1	.27	323.1	242.1
Central refrigeration[4]	(1,202.6)	-	-	.32	389.9	-	.32	389.9	-	.32	389.9	-	.32	389.9	-	.32	389.9	-
Waste, theft, and deterioration	(1,202.6)	1.80	2,164.7	.90	1,082.4	1,082.4	.90	1,082.4	1,082.4	.90	1,082.4	1,082.4	.90	1,082.4	1,082.4	.90	1,082.4	1,082.4
Subtotal or average	(1,202.6)	3.50	4,213.1	3.36	4,035.9	177.2	3.23	3,882.6	330.5	3.28	3,940.4	272.7	3.95	4,754.1	-541.0	3.37	4,046.6	166.5
Total or average	(1,202.6)	8.02	9,639.2	6.35	7,631.5	2,007.7	6.22	7,478.2	2,161.0	6.27	7,536.0	2,103.2	6.94	8,349.7	1,289.5	6.36	7,642.2	1,997.0
From Facilities																		
Distribution to points within study area:																		
Los Angeles County:																		
North County	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
San Fernando Valley	10.2	9.79	99.9	1.93	19.7	80.2	9.78	99.8	.1	14.30	145.9	-46.0	9.79	99.9	0	11.63	118.6	-18.7
Malibu	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
West Central, L.A.	11.6	8.31	96.4	6.65	77.1	19.3	6.65	77.1	19.3	13.23	153.5	-57.1	8.31	96.4	0	9.81	113.8	-17.4
Verdugo	.5	14.93	7.5	17.16	8.6	-1.1	17.16	8.6	-1.1	22.55	11.3	-3.8	14.93	7.5	0	17.27	8.6	-1.1
West San Gabriel Valley	22.0	6.03	132.7	9.95	218.9	-86.2	9.95	218.9	-86.2	5.74	126.3	6.4	6.08	132.7	0	13.65	300.3	-167.6
East San Gabriel Valley	12.5	8.57	107.1	14.97	187.1	-80.0	14.97	187.1	-80.0	2.22	27.8	79.3	8.57	107.1		9.15	114.4	-7.3

TABLE 23. — Estimated annual costs of moving fresh fruits and vegetables to, through, and from facilities of the proposed food distribution center for the Los Angeles area compared with present costs—Continued

Movement of commodities	Present volume	Present cost per ton	Present cost	Possible food distribution center sites														
				Branford-Pacoima-Jessup Park			Carson			Industry			Naomi-Trinity-Stanford			Santa Fe Springs		
				Cost per ton	Total cost	Savings	Cost per ton	Total cost	Savings	Cost per ton	Total cost	Savings	Cost per ton	Total cost	Savings	Cost per ton	Total cost	Savings
	1,000 tons	Dollars	1,000 dollars	Dollars	1,000 dollars	1,000 dollars	Dollars	1,000 dollars	1,000 dollars	Dollars	1,000 dollars	1,000 dollars	Dollars	1,000 dollars	1,000 dollars	Dollars	1,000 dollars	1,000 dollars
Southwest, L.A.	14.1	7.30	102.9	11.22	158.2	-55.3	1.42	20.0	82.9	14.02	197.7	-94.8	7.30	102.9	0	13.18	185.8	-82.9
East Central, L.A.	435.8	2.18	950.0	8.58	3,739.2	-2,789.2	8.58	3,739.2	-2,789.2	10.34	4,506.2	-3,556.2	2.18	950.0	0	5.67	2,471.0	-1,521.0
Southeast, L.A.	199.2	4.40	976.5	6.49	1,292.8	-416.3	6.49	1,292.8	-416.3	7.74	1,541.8	-665.3	4.40	876.5	0	3.33	663.3	213.2
Orange County:																		
All	23.8	9.09	216.3	8.77	208.7	7.6	8.77	208.7	7.6	8.12	193.3	23.0	9.09	216.3	0	4.68	111.4	104.9
Subtotal or average	729.7	3.55	2,589.3	8.10	5,910.3	-3,321.0	8.02	5,852.2	-3,262.9	9.46	6,903.8	-4,314.5	3.55	2,589.3	0	5.60	4,087.2	-1,497.9
Customer pickup at facilities[5]	136.3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Distribution outside study area[5]	203.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total or average	1,069.1	2.42	2,589.3	5.53	5,910.3	-3,321.0	5.47	5,852.2	-3,262.9	6.46	6,903.8	-4,314.5	2.42	2,589.3	0	3.82	4,087.2	-1,497.9
Grand total or average	1,069.1	12.16	13,004.9	13.76	14,710.9	-1,706.0	12.87	13,762.5	-757.6	14.31	15,300.3	-2,295.4	10.71	11,447.2	1,557.7	11.54	12,334.5	670.4

[1] No cartage cost on these items because they were received at facility or point of sale.

[2] Based on total volume excluding volume received by handtrucks.

[3] Excludes maintenance and repairs or electricity required to operate the proposed central refrigeration plant. These costs are included in the ownership and operating cost of central refrigeration.

[4] The ownership and operating cost of the proposed central system is shown here but not compared with the cost in present facilities. Elements of the refrigeration costs in present facilities are included in facility rental or facility services.

[5] Costs are not included as they were beyond the scope of this report.

TABLE 24. — Estimated annual costs of moving meat and meat products to, through, and from facilities of the proposed food distribution center for the Los Angeles area compared with present costs

Movement of commodities	Present volume	Present cost per ton	Present cost	Possible food distribution center sites													
				Branford-Pacoima-Jessup Park			Carson			Industry			Naomi-Trinity-Stanford			Santa Fe Springs		
				Cost per ton	Total cost	Savings	Cost per ton	Total cost	Savings	Cost per ton	Total cost	Savings	Cost per ton	Total cost	Savings	Cost per ton	Total cost	Savings
	1,000 tons	Dollars	1,000 dollars	Dollars	1,000 dollars	1,000 dollars	Dollars	1,000 dollars	1,000 dollars	Dollars	1,000 dollars	1,000 dollars	Dollars	1,000 dollars	1,000 dollars	Dollars	1,000 dollars	1,000 dollars
To Facilities																		
Cartage from:																		
Commercial warehouses	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Team tracks	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Piers and airports	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Receipts without cartage[1]	64.5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Subtotal or average	64.5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Interwholesaler transfers from noncandidate firms	29.1	10.30	299.7	12.55	365.3	-65.6	10.76	313.2	-13.5	13.17	383.3	-83.6	10.92	317.7	-18.0	10.80	314.4	-14.7
Avoidable delay[2]	(20.0)	0.34	6.8	0.03	0.6	6.2	0.03	0.6	6.2	0.03	0.6	6.2	0.03	0.6	6.2	0.03	0.6	6.2
Total or average	93.6	3.27	306.5	3.91	365.9	-59.4	3.35	313.8	-7.3	4.10	383.9	-77.4	3.40	318.3	-11.8	3.37	315.0	-8.5
Within Facilities																		
Interwholesaler transfers from candidate firms	(6.4)	10.30	65.9	6.60	42.2	23.7	6.60	42.2	23.7	6.60	42.2	23.7	6.60	42.2	23.7	6.60	42.2	23.7
Facility labor:																		
Unloading	(100.0)	1.70	169.7	1.53	153.0	16.7	1.53	153.0	16.7	1.53	153.0	16.7	1.53	153.0	16.7	1.53	153.0	16.7
Handling within	(100.0)	6.58	657.9	3.79	379.0	278.9	3.79	379.0	278.9	3.79	379.0	278.9	3.79	379.0	278.9	3.79	379.0	278.9
Loading out	(100.0)	2.34	234.0	2.11	211.0	23.0	2.11	211.0	23.0	2.11	211.0	23.0	2.11	211.0	23.0	2.11	211.0	23.0
Subtotal or average	(100.0)	11.28	1,127.5	7.85	785.2	342.3	7.85	785.2	342.3	7.85	785.2	342.3	7.85	785.2	342.3	7.85	785.2	342.3
Other cost:																		
Public warehouse charges	(100.0)	-	229.0	-	160.0	69.0	-	160.0	69.0	-	160.0	69.0	-	160.0	69.0	-	160.0	69.0
Handling equipment use	(100.0)	.22	22.0	.44	44.0	-22.0	.44	44.0	-22.0	.44	44.0	-22.0	.44	44.0	-22.0	.44	44.0	-22.0
Facility rental[3]	(100.0)	4.40	439.9	15.31	1,531.2	-1,091.3	14.14	1,414.1	-974.2	14.55	1,455.2	-1,015.3	20.89	2,088.5	-1,648.6	15.39	1,539.2	-1,099.3
Facility services[3]	(100.0)	1.33	133.0	.88	88.0	45.0	.88	88.0	45.0	.88	88.0	45.0	.88	88.0	45.0	.88	88.0	45.0
Central refrigeration[4]	(100.0)	-	-	4.24	423.6	-	4.24	423.6	-	4.24	423.6	-	4.24	423.6	-	4.24	423.6	-
Waste, theft, and deterioration	(100.0)	.67	67.0	.34	34.0	33.0	.34	34.0	33.0	.34	34.0	33.0	.34	34.0	33.0	.34	34.0	33.0
Subtotal or average	(100.0)	8.91	890.9	22.81	2,280.8	-1,389.9	21.64	2,163.7	-1,272.8	22.05	2,204.8	-1,313.9	28.38	2,838.1	-1,947.2	22.89	2,288.8	-1,397.9
Total or average	(100.0)	21.18	2,018.4	30.66	3,066.0	-1,047.6	29.49	2,948.9	-930.5	29.90	2,990.0	-971.6	36.23	3,623.3	-1,604.9	30.74	3,074.0	-1,055.6
From Facilities																		
Distribution to points within study area:																		
Los Angeles County:																		
North County	1.0	44.69	44.7	25.13	25.1	19.6	32.39	32.4	12.3	55.74	55.7	-11.0	46.12	46.1	-1.4	48.88	48.9	-4.2
San Fernando Valley	7.2	24.98	179.9	14.62	105.3	74.6	25.58	184.2	-4.3	32.45	233.6	-53.7	25.82	185.9	-6.0	28.34	204.1	-24.2
Malibu	.3	26.10	7.8	20.53	6.2	1.6	23.92	7.2	.6	31.37	9.4	-1.6	26.23	7.9	-.1	28.89	8.7	-.9
West Central L.A.	10.6	24.87	263.6	22.08	234.1	29.5	23.40	248.0	15.6	34.94	370.4	-106.8	26.30	278.8	-15.2	28.82	305.5	-41.9
Verdugo	6.1	19.52	119.1	18.21	111.1	8.0	20.05	122.3	-3.2	22.61	137.9	-18.8	19.19	117.1	2.0	20.20	123.2	-4.1
West San Gabriel Valley	6.0	20.41	122.5	23.38	140.3	-17.8	23.89	143.3	-20.8	18.92	113.5	9.0	19.34	116.0	6.5	19.78	118.7	3.8
East San Gabriel Valley	5.3	19.95	105.7	25.36	134.4	-28.7	22.99	121.9	-16.2	13.90	73.7	32.0	18.97	100.5	5.2	18.86	100.0	5.7

TABLE 24. — Estimated annual costs of moving meat and meat products to, through, and from facilities of the proposed food distribution center for the Los Angeles area compared with present costs—Continued

Movement of commodities	Present volume	Present cost per ton	Present cost	Possible food distribution center sites															
				Branford-Pacoima-Jessup Park			Carson			Industry			Naomi-Trinity-Stanford			Santa Fe Springs			
				Cost per ton	Total cost	Savings	Cost per ton	Total cost	Savings	Cost per ton	Total cost	Savings	Cost per ton	Total cost	Savings	Cost per ton	Total cost	Savings	
	1,000 tons	Dollars	1,000 dollars	Dollars	1,000 dollars	1,000 dollars	Dollars	1,000 dollars	1,000 dollars	Dollars	1,000 dollars	1,000 dollars	Dollars	1,000 dollars	1,000 dollars	Dollars	1,000 dollars	1,000 dollars	
Southwest, L.A.	12.4	18.41	228.3	29.37	364.2	-135.9	14.06	174.3	54.0	33.48	415.2	-186.9	23.78	294.9	-66.6	23.57	292.3	-64.0	
East Central, L.A.	5.7	16.36	93.3	32.84	187.2	-93.9	25.84	147.3	-54.0	27.73	158.1	-64.8	15.27	87.0	6.3	21.10	120.3	-27.0	
Southeast, L.A.	7.7	18.27	140.7	34.49	265.6	-124.9	24.40	187.9	-47.2	26.10	201.0	-60.3	20.32	156.5	-15.8	15.78	121.5	19.2	
Orange County:																			
All	17.6	19.63	345.5	25.00	440.0	-94.5	20.29	357.1	-11.6	19.53	343.7	1.8	20.44	359.7	-14.2	16.42	289.0	56.5	
Subtotal or average	79.9	20.66	1,651.1	25.20	2,013.5	-362.4	21.60	1,725.9	-74.8	26.44	2,112.2	-461.1	21.91	1,750.4	-99.3	21.68	1,732.2	-81.1	
Customer pickup at facilities[5]	12.8	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Distribution outside study area[5]	.9	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Total or average	93.6	17.64	1,651.1	21.51	2,013.5	-362.4	18.44	1,725.9	-74.8	22.57	2,112.2	-461.1	18.70	1,750.4	-99.3	18.51	1,732.2	-81.1	
Grand total or average	93.6	42.48	3,976.0	58.18	5,445.4	-1,469.4	53.19	4,988.6	-1,012.6	58.61	5,486.1	-1,510.1	60.81	5,692.0	-1,716.0	54.71	5,121.2	-1,145.2	

[1] No cartage cost on these items because they were received at facility or point of sale.

[2] Based on total volume except volume received by handtrucks.

[3] Excludes maintenance, repairs, and electricity required to operate the proposed central refrigeration plant. These costs are included in the ownership and operating cost of central refrigeration.

[4] The ownership and operating cost of the proposed central system is shown here but not compared with the cost in present facilities. Elements of the refrigeration costs in present facilities are included in facility rental or facility services.

[5] Costs not included as they were beyond the scope of this report.

TABLE 25. — Estimated annual costs of moving poultry and eggs to, through, and from facilities of the proposed food distribution center for the Los Angeles area compared with present costs

Movement of commodities	Present volume	Present cost per ton	Present cost	Possible food distribution center sites																
				Branford-Pacoima-Jessup Park			Carson			Industry			Naomi-Trinity-Stanford			Santa Fe Springs				
				Cost per ton	Total cost	Savings	Cost per ton	Total cost	Savings	Cost per ton	Total cost	Savings	Cost per ton	Total cost	Savings	Cost per ton	Total cost	Savings		
To Facilities	1,000 tons	Dollars	1,000 dollars	Dollars	1,000 dollars	1,000 dollars	Dollars	1,000 dollars	1,000 dollars	Dollars	1,000 dollars	1,000 dollars	Dollars	1,000 dollars	1,000 dollars	Dollars	1,000 dollars	1,000 dollars		
Cartage from:																				
Commercial warehouses	3.3	9.82	32.4	0.97	3.2	29.2	0.97	3.2	29.2	0.97	3.2	29.2	0.97	3.2	29.2	0.97	3.2	29.2		
Team tracks	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
Piers and airports	2.2	26.40	59.4	53.27	117.2	-57.8	13.77	30.3	29.1	35.00	77.0	-17.6	28.00	61.6	-2.2	21.04	46.3	13.1		
Receipts without cartage[1]	67.3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
Subtotal or average	72.8	1.26	91.8	1.65	120.4	-28.6	.46	33.5	58.3	1.10	80.2	11.6	.89	64.8	27.0	.68	49.5	42.3		
Interwholesaler transfers from noncandidate firms	2.0	3.17	6.3	7.93	15.9	-9.6	6.59	13.2	-6.9	5.66	11.3	-5.0	2.70	5.4	.9	4.64	9.3	-3.0		
Avoidable delay	(0)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
Total or average	74.8	1.31	98.1	1.82	136.3	-38.2	.62	46.7	51.4	1.22	91.5	6.6	.94	70.2	27.9	.79	58.8	39.3		
Through Facilities																				
Interwholesaler transfers from candidate firms	(.7)	3.17	2.2	1.59	1.1	1.1	1.59	1.1	1.1	1.59	1.1	1.1	1.59	1.1	1.1	1.59	1.1	1.1		
Facility labor:																				
Unloading	(75.5)	2.02	152.5	.79	59.6	92.9	.79	59.6	92.9	.79	59.6	92.9	.79	59.6	92.9	.79	59.6	92.9		
Handling within	(75.5)	3.06	231.0	2.51	189.5	41.5	2.51	189.5	41.5	2.51	189.5	41.5	2.51	189.5	41.5	2.51	189.5	41.5		
Loading out	(75.5)	3.16	238.6	1.45	109.5	129.1	1.45	109.5	129.1	1.45	109.5	129.1	1.45	109.5	129.1	1.45	109.5	129.1		
Subtotal or average	(75.5)	8.27	624.3	4.76	359.7	264.6	4.76	359.7	264.6	4.76	359.7	264.6	4.76	359.7	264.6	4.76	359.7	264.6		
Other cost:																				
Public warehouse charges	-	-	69.4	-	11.7	57.7	-	11.7	57.7	-	11.7	57.7	-	11.7	57.7	-	11.7	57.7		
Handling equipment use	(75.5)	.36	27.2	.97	73.2	-46.0	.97	73.2	-46.0	.97	73.2	-46.0	.97	73.2	-46.0	.97	73.2	-46.0		
Facility rental[2]	(75.5)	3.35	252.9	8.38	632.7	-379.8	8.26	582.8	-329.9	7.94	599.5	-346.6	11.56	872.6	-619.7	8.42	636.0	-383.1		
Facility services[2]	(75.5)	.67	50.6	.61	46.1	4.5	.61	46.1	4.5	.61	46.1	4.5	.61	46.1	4.5	.61	46.1	4.5		
Central refrigeration[3]	(75.5)	-	-	2.96	223.5	-	2.96	223.5	-	2.96	223.5	-	2.96	223.5	-	2.96	223.5	-		
Waste, theft, and deterioration[4]	(75.5)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
Subtotal or average	(75.5)	5.30	400.1	13.07	987.2	-587.1	12.42	937.3	-537.2	12.64	954.0	-553.9	16.25	1,227.1	-827.0	13.12	990.5	-590.4		
Total or average	(75.5)	13.57	1,024.4	17.84	1,346.9	-322.5	17.18	1,297.0	-272.6	17.40	1,313.7	-289.3	21.02	1,586.8	-562.4	17.88	1,350.2	-325.8		
From Facilities																				
Distribution to points within study area:																				
Los Angeles County:																				
North County	[5]0	16.00	.8	160.00	6.4	-5.6	202.50	8.1	-7.3	390.00	15.6	-14.8	415.00	16.6	-15.8	447.50	17.9	-17.1		
San Fernando Valley	11.6	17.12	198.6	14.90	172.8	25.8	20.94	242.9	-44.3	20.72	240.4	-41.8	20.94	242.9	-44.3	22.35	259.3	-60.7		
Malibu	1.4	23.58	33.0	17.14	24.0	9.0	27.28	38.2	-5.2	23.00	32.2	.8	24.85	34.8	-1.8	22.42	31.4	1.6		
West Central, L.A.	13.6	18.60	253.0	17.64	239.9	13.1	16.74	227.7	25.3	18.16	247.0	6.0	18.87	256.6	-3.6	20.43	277.9	-24.9		
Verdugo	7.5	17.46	131.0	17.50	131.3	-.3	21.28	159.6	-28.6	18.68	140.1	-9.1	18.14	136.1	-5.1	18.86	141.5	-10.5		
West San Gabriel Valley	4.6	18.27	84.0	20.97	96.5	-12.5	18.23	83.9	.1	21.91	100.8	-16.8	18.58	85.5	-1.5	18.91	87.0	-3.0		
East San Gabriel Valley	1.3	20.16	26.2	27.38	35.6	-9.4	19.23	25.0	1.2	25.23	32.8	-6.6	20.69	26.9	-.7	20.53	26.7	.5		

TABLE 25. — Estimated annual costs of moving poultry and eggs to, through, and from facilities of the proposed food distribution center for the Los Angeles area compared with present costs—Continued

Movement of commodities	Present volume	Present cost per ton	Present cost	Possible food distribution center sites															
				Branford-Pacoima-Jessup Park			Carson			Industry			Naomi-Trinity-Stanford			Santa Fe Springs			
				Cost per ton	Total cost	Savings	Cost per ton	Total cost	Savings	Cost per ton	Total cost	Savings	Cost per ton	Total cost	Savings	Cost per ton	Total cost	Savings	
	1,000 tons	Dollars	1,000 dollars	Dollars	1,000 dollars	1,000 dollars	Dollars	1,000 dollars	1,000 dollars	Dollars	1,000 dollars	1,000 dollars	Dollars	1,000 dollars	1,000 dollars	Dollars	1,000 dollars	1,000 dollars	
Southwest, L.A.	4.1	21.47	88.0	29.53	121.1	-33.1	27.92	114.5	-26.5	16.70	68.5	19.5	21.00	86.1	1.9	20.87	85.6	2.4	
East Central, L.A.	11.0	16.48	181.3	25.15	276.7	-95.4	22.43	246.7	-65.4	21.38	235.2	-53.9	15.18	167.0	14.3	18.42	202.6	-21.3	
Southeast, L.A.	2.5	19.07	47.7	25.68	64.2	-16.5	21.12	52.8	-5.1	20.16	50.4	-2.7	18.08	45.2	2.5	15.52	38.8	8.9	
Orange County:																			
All	1.8	22.25	40.1	26.72	48.1	-8.0	21.44	38.6	1.5	22.44	40.4	-.3	21.59	38.9	1.2	18.27	32.9	7.2	
Subtotal or average	59.4	18.24	1,083.7	20.48	1,216.6	-132.9	20.84	1,238.0	-154.3	20.26	1,203.4	-119.7	19.13	1,136.6	-52.9	20.23	1,201.6	-117.9	
Customer pickup at facilities[6]	6.9	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Distribution outside study area[6]	8.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Total or average	74.8	14.49	1,083.7	16.26	1,216.6	-132.9	16.55	1,238.0	-154.3	16.09	1,203.4	-119.7	15.20	1,136.6	-52.9	16.06	1,201.6	-117.9	
Grand total or average	74.8	29.49	2,206.2	36.09	2,699.8	-493.6	34.51	2,581.7	-375.5	34.87	2,608.6	-402.4	37.34	2,793.6	-587.4	34.90	2,610.6	-404.4	

[1] No cartage cost on these items because they were received at facility or point of sale.

[2] Excludes maintenance, repairs, and electricity required to operate the proposed central refrigeration plant. These costs are included in the ownership and operating cost of central refrigeration.

[3] The ownership and operating cost of the proposed central system is shown here but not compared with the cost in present facilities. Elements of the refrigeration costs in present facilities are included in facility rental or facility services.

[4] Negligible.

[5] Less than 50 tons.

[6] Costs not included as they were beyond the scope of this report.

TABLE 26. — Estimated annual costs of moving frozen foods through, and from facilities of the proposed food distribution center for the Los Angeles area compared with present costs

Movement of commodities	Present volume	Present cost per ton	Present cost	Possible food distribution center sites													
				Branford-Pacoima-Jessup Park			Carson			Industry			Naomi-Trinity-Stanford			Santa Fe Springs		
				Cost per ton[1]	Total cost	Savings	Cost per ton	Total cost	Savings	Cost per ton	Total cost	Savings	Cost per ton	Total cost	Savings	Cost per ton	Total cost	Savings
	1,000 tons	Dollars	1,000 dollars	Dollars	1,000 dollars	1,000 dollars	Dollars	1,000 dollars	1,000 dollars	Dollars	1,000 dollars	1,000 dollars	Dollars	1,000 dollars	1,000 dollars	Dollars	1,000 dollars	1,000 dollars
To Facilities																		
Cartage from:																		
Commercial warehouses	9.0	7.06	63.5	0	0	63.5	0	0	63.5	0	0	63.5	0	0	63.5	0	0	63.5
Team tracks	.3	30.33	9.1	24.10	7.2	1.9	24.10	7.2	1.9	24.10	7.2	1.9	24.10	7.2	1.9	24.10	7	1.9
Piers and airports	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Receipts without cartage[2]	22.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Subtotal or average	31.3	2.32	72.6	.23	7.2	65.4	.23	7.2	65.4	.23	7.2	65.4	.23	7.2	65.4	.23	7.2	65.4
Interwholesaler transfers from noncandidate firms	4.7	10.47	49.2	11.91	56.0	-6.8	10.68	50.2	-1.0	11.83	55.6	-6.4	10.47	49.2	0	10.47	49.2	0
Avoidable delay	(0)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total or average	36.0	3.38	121.8	1.76	63.2	58.6	1.59	57.4	64.4	1.74	62.8	59.0	1.57	56.4	65.4	1.57	56.4	65.4
Through Facilities																		
Interwholesaler transfers from candidate firms	(29.2)	10.47	305.7	7.99	233.3	72.4	7.99	233.3	72.4	7.99	233.3	72.4	7.99	233.3	72.4	7.99	233.3	72.4
Facility labor:																		
Unloading	(65.2)	1.88	123.0	1.05	68.5	54.5	1.05	68.5	54.5	1.05	68.5	54.5	1.05	68.5	54.5	1.05	68.5	54.5
Handling within	(65.2)	3.52	229.6	2.92	190.4	39.2	2.92	190.4	39.2	2.92	190.4	39.2	2.92	190.4	39.2	2.92	190.4	39.2
Loading out	(65.2)	4.21	274.7	1.40	91.3	183.4	1.40	91.3	183.4	1.40	91.3	183.4	1.40	91.3	183.4	1.40	91.3	183.4
Subtotal or average	(65.2)	14.31	933.0	8.95	583.5	349.5	8.95	583.5	349.5	8.95	583.5	349.5	8.95	583.5	349.5	8.95	583.5	349.5
Other cost:																		
Public warehouse charges	-	-	62.8	0	0	62.8	0	0	62.8	0	0	62.8	0	0	62.8	0	0	62.8
Handling equipment use	(65.2)	.20	13.1	1.13	73.7	-60.6	1.13	73.7	-60.6	1.13	73.7	-60.6	1.13	73.7	-60.6	1.13	73.7	-60.6
Facility rental[3]	(65.2)	2.42	158.2	5.96	388.4	-230.2	5.49	358.0	-199.8	5.65	368.3	-210.1	8.19	534.2	-376.0	5.99	390.4	-232.2
Facility services[3]	(65.2)	.14	8.9	.14	8.9	0	.14	8.9	0	.14	8.9	0	.14	8.9	0	.14	8.9	0
Central refrigeration[4]	(65.2)	-	-	1.16	75.6	-	1.16	75.6	-	1.16	75.6	-	1.16	75.6	-	1.16	75.6	-
Waste, theft, and deterioration	(65.2)	1.12	73.2	1.12	73.2	0	1.12	73.2	0	1.12	73.2	0	1.12	73.2	0	1.12	73.2	0
Subtotal or average	(65.2)	4.85	316.2	9.51	619.8	-303.6	9.04	589.4	-273.2	9.20	599.7	-283.5	11.74	765.6	-449.4	9.54	621.8	-305.6
Total or average	(65.2)	19.16	1,249.2	18.45	1,203.3	45.9	17.99	1,172.9	76.3	18.15	1,183.2	66.0	20.69	1,349.1	-99.9	18.49	1,205.3	43.9
From Facilities																		
Distribution to points within study area:																		
Los Angeles County:																		
North County	.2	23.14	4.6	19.26	3.9	0.7	27.25	5.5	-0.9	32.24	6.4	-1.8	28.16	5.6	-1.0	29.30	5.9	-1.3
San Fernando Valley	4.1	21.86	89.6	25.38	104.1	-14.5	23.28	95.4	-5.8	28.34	116.2	-26.6	23.50	96.4	-6.8	25.31	103.8	-14.2
Malibu	1.4	20.29	28.4	16.42	23.0	5.4	19.59	27.4	1.0	23.35	32.7	-4.3	20.76	29.1	-0.7	20.76	29.1	-0.7
West Central, L.A.	7.9	20.53	162.2	18.75	148.1	14.1	19.44	153.6	8.6	25.31	200.0	-37.8	20.91	165.2	-3.0	22.17	175.1	-12.9
Verdugo	1.5	15.57	23.4	19.43	29.1	-5.7	21.17	31.8	-8.4	23.73	35.6	-12.2	20.39	30.6	-7.2	21.36	32.0	-8.6
West San Gabriel Valley	2.8	18.73	52.4	23.49	65.8	-13.4	23.58	66.0	-13.6	19.33	54.1	-1.7	19.72	55.2	-2.8	20.04	56.1	-3.7

TABLE 26. — Estimated annual costs of moving frozen foods through, and from facilities of the proposed food distribution center for the Los Angeles area compared with present costs—Continued

Movement of commodities	Present volume	Present cost per ton	Present cost	Possible food distribution center sites														
				Branford-Pacoima-Jessup Park			Carson			Industry			Naomi-Trinity-Stanford			Santa Fe Springs		
				Cost per ton		Savings	Cost per ton	Total cost	Savings	Cost per ton	Total cost	Savings	Cost per ton	Total cost	Savings	Cost per ton	Total cost	Savings
	1,000 tons	Dollars	1,000 dollars	Dollars	1,000 dollars	1,000 dollars	Dollars	1,000 dollars	1,000 dollars	Dollars	1,000 dollars	1,000 dollars	Dollars	1,000 dollars	1,000 dollars	Dollars	1,000 dollars	1,000 dollars
East San Gabriel Valley	1.7	22.27	37.9	28.34	48.2	-10.3	25.51	43.4	-5.5	15.35	26.1	11.8	21.02	35.7	2.2	20.91	35.5	2.4
Southwest, L.A.	2.6	20.46	53.2	23.28	60.5	-7.3	14.75	38.4	14.8	25.52	66.4	-13.2	20.27	52.7	0.5	20.13	52.3	0.9
East Central, L.A.	3.6	18.62	67.0	23.51	84.6	-17.6	20.27	73.0	-6.0	21.02	75.7	-8.7	15.22	54.8	12.2	17.64	63.5	3.5
Southeast, L.A.	2.8	19.75	55.3	25.22	70.6	-15.3	20.13	56.4	-1.1	20.91	58.5	-3.2	17.64	49.4	5.9	15.61	43.7	11.6
Orange County:																		
All	4.8	23.34	112.0	28.30	135.8	-23.8	22.84	109.6	2.4	21.90	105.1	6.9	22.98	110.3	1.7	18.30	87.8	24.2
Subtotal or average	33.4	20.54	686.0	23.16	773.7	-87.7	20.97	700.5	-14.5	23.26	776.8	-90.8	20.51	685.0	1.0	20.50	684.8	1.2
Customer pickup at facilities[5]	.3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Distribution outside study area[5]	2.3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total or average	36.0	19.06	686.0	21.49	773.7	-87.7	19.46	700.5	-14.5	21.58	776.8	-90.8	19.03	685.0	1.0	19.02	684.8	1.2
Grand total or average	36.0	57.14	2,057.0	56.67	2,040.2	16.8	53.63	1,930.8	126.2	56.19	2,022.8	34.2	58.07	2,090.5	-33.5	54.07	1,946.5	110.5

[1] Rail receipts on tracks located adjacent to other facilities on the center.

[2] No cartage cost on these items because they were received at facility or point of sale.

[3] Excludes maintenance, repairs, and electricity required to operate the proposed central refrigeration plant. These costs are included in the ownership and operating cost of central refrigeration.

[4] The ownership and operating cost of the proposed central system is shown here but not compared with the cost in present facilities. Elements of the refrigeration costs in present facilities are included in facility rental or facility services.

[5] Costs not included as they were beyond the scope of this report.

TABLE 27. — Estimated annual costs of moving manufactured dairy products to, through, and from facilities of the proposed food distribution center for the Los Angeles area compared with present costs

Movement of commodities	Present volume	Present cost per ton	Present cost	Possible food distribution center sites														
				Branford-Pacoima-Jessup Park			Carson			Industry			Naomi-Trinity-Stanford			Santa Fe Springs		
				Cost per ton	Total cost	Savings	Cost per ton	Total cost	Savings	Cost per ton	Total cost	Savings	Cost per ton	Total cost	Savings	Cost per ton	Total cost	Savings
To Facilities	1,000 tons	Dollars	1,000 dollars	Dollars	1,000 dollars	1,000 dollars	Dollars	1,000 dollars	1,000 dollars	Dollars	1,000 dollars	1,000 dollars	Dollars	1,000 dollars	1,000 dollars	Dollars	1,000 dollars	1,000 dollars
Cartage from:																		
Commercial warehouses	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Team tracks	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Piers and airports	1.7	23.97	40.7	58.99	100.3	-59.6	15.17	25.8	14.9	38.76	65.9	-25.2	30.34	51.6	-10.9	28.65	48.7	-8.0
Receipts without cartage[1]	52.5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Subtotal or average	54.2	.75	40.7	1.85	100.3	-59.6	.48	25.8	14.9	1.22	65.9	-25.2	.95	51.6	-10.9	.90	48.7	-8.0
Interwholesaler transfers from noncandidate firms	3.5	4.90	17.2	7.18	25.1	-7.9	3.12	10.9	6.3	2.98	10.4	6.8	2.66	9.3	7.9	2.04	7.1	10.1
Avoidable delay	(0)	0	0	-	-	-	-	-	-	-	-	-	-	-	-	-		-
Total or average	57.7	1.00	57.9	2.17	125.4	-67.5	.64	36.7	21.2	1.32	76.3	-18.4	1.06	60.9	-3.0	.97	55.8	2.1
Through Facilities																		
Interwholesaler transfers from candidate firms	(1.4)	4.90	6.9	1.84	2.6	4.3	1.84	2.6	4.3	1.84	2.6	4.3	1.84	2.6	4.3	1.84	2.6	4.3
Facility labor:																		
Unloading	(59.1)	2.07	122.3	.81	47.9	74.4	.81	47.9	74.4	.81	47.9	74.4	.81	47.9	74.4	.81	47.9	74.4
Handling within	(59.1)	6.69	395.1	4.13	244.1	151.0	4.13	244.1	151.0	4.13	244.1	151.0	4.13	244.1	151.0	4.13	244.1	151.0
Loading out	(59.1)	5.08	300.0	2.32	137.1	162.9	2.32	137.1	162.9	2.32	137.1	162.9	2.32	137.1	162.9	2.32	137.1	162.9
Subtotal or average	(59.1)	13.95	824.3	7.30	431.7	392.6	7.30	431.7	392.6	7.30	431.7	392.6	7.30	431.7	392.6	7.30	431.7	392.6
Other cost:																		
Public warehouse charges	-	-	3.3	-	3.3	0	-	3.3	0	-	3.3	0	-	3.3	0	-	3.3	0
Handling equipment use	(59.1)	.96	56.7	.96	56.7	0	.96	56.7	0	.96	56.7	0	.96	56.7	0	.96	56.7	0
Facility rental[2]	(59.1)	4.88	288.2	16.45	972.1	-683.9	15.15	895.1	-606.9	15.58	920.7	-632.5	22.74	1,344.0	-1,055.8	16.53	977.1	-688.9
Facility services[2]	(59.1)	1.06	62.6	.79	46.7	15.9	.79	46.7	15.9	.79	46.7	15.9	.79	46.7	15.9	.79	46.7	15.9
Central refrigeration[3]	(59.1)	-	-	2.05	121.0	-	2.05	121.0	-	2.05	121.0	-	2.05	121.0	-	2.05	121.0	-
Waste, theft and deterioration[4]	(59.1)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Subtotal or average	(59.1)	6.96	410.8	20.30	1,199.8	-789.0	19.00	1,122.8	-712.0	19.43	1,148.4	-737.6	26.59	1,571.7	-1,160.9	20.39	1,204.8	-794.0
Total or average	(59.1)	20.90	1,235.1	27.61	1,631.5	-396.4	26.30	1,554.5	-319.4	26.74	1,580.1	-345.0	33.90	2,003.4	-768.3	27.69	1,636.5	-401.4
From Facilities																		
Distribution to points within study area:																		
Los Angeles County:																		
North County	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
San Fernando Valley	1.8	26.09	47.0	19.01	34.2	12.8	25.99	47.8	-.8	30.31	54.6	-7.6	26.06	46.9	.1	27.59	49.7	-2.7
Malibu	.4	21.11	8.4	19.92	8.0	.4	20.80	8.3	.1	22.83	9.1	-.7	21.43	8.6	-.2	22.12	8.9	-.5
West Central, L.A.	2.3	25.84	59.4	23.74	54.6	4.8	24.65	56.7	2.7	31.98	73.6	-14.2	26.47	60.9	-1.5	28.02	64.5	5.1
Verdugo	1.2	24.34	29.2	22.72	27.3	1.9	24.20	29.0	.2	26.53	31.8	-2.6	23.56	28.3	.9	24.40	29.3	-.1
West San Gabriel Valley	1.2	27.30	32.8	32.41	38.9	-6.1	32.78	39.3	-6.5	26.20	31.4	1.4	26.86	32.2	.6	27.39	32.9	-.1
East San Gabriel Valley	1.2	22.95	27.5	28.37	34.0	-6.5	26.13	31.4	-3.9	27.82	33.4	-5.9	22.88	27.5	0	22.82	27.4	.1

TABLE 27. — Estimated annual costs of moving manufactured dairy products to, through, and from facilities of the proposed food distribution center for the Los Angeles area compared with present costs—Continued

Movement of commodities	Present volume	Present cost per ton	Present cost	Possible food distribution center sites																
				Branford-Pacoima-Jessup Park			Carson			Industry			Naomi-Trinity-Stanford			Santa Fe Springs				
				Cost per ton	Total cost	Savings	Cost per ton	Total cost	Savings	Cost per ton	Total cost	Savings	Cost per ton	Total cost	Savings	Cost per ton	Total cost	Savings		
	1,000 tons	Dollars	1,000 dollars	Dollars	1,000 dollars	1,000 dollars	Dollars	1,000 dollars	1,000 dollars	Dollars	1,000 dollars	1,000 dollars	Dollars	1,000 dollars	1,000 dollars	Dollars	1,000 dollars	1,000 dollars		
Southwest, L.A.	2.4	21.17	50.8	24.15	58.0	-7.2	18.35	44.0	6.8	25.62	61.5	-10.7	22.20	53.3	-2.5	22.10	53.0	-2.2		
East Central, L.A.	4.1	21.10	86.5	29.04	119.1	-32.6	25.33	103.9	-17.4	25.98	106.5	-20.0	19.30	79.1	7.4	22.62	92.7	-6.2		
Southeast, L.A.	2.7	20.90	56.4	25.77	69.6	-13.2	22.21	60.0	-3.6	22.64	61.1	-4.7	20.69	55.9	.5	18.98	51.3	5.1		
Orange County:																				
All	2.2	23.38	51.4	26.94	59.3	-7.9	23.49	51.7	-.3	22.83	50.2	1.2	23.53	51.8	-.4	20.55	45.2	6.2		
Subtotal or average	19.5	23.05	449.4	25.79	503.0	-53.6	24.21	472.1	-22.7	26.32	513.2	-63.8	22.79	444.5	4.9	23.33	454.9	-5.5		
Customer pickup at facilities[5]	31.4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
Distribution outside study area[5]	6.8	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
Total or average	57.7	7.79	449.4	8.72	503.0	-53.6	8.18	472.1	-22.7	8.89	513.2	-63.8	7.70	444.5	4.9	7.88	454.9	-5.5		
Grand total or average	57.7	30.22	1,742.4	39.17	2,259.9	-517.5	35.76	2,063.3	-320.9	37.60	2,169.6	-427.2	43.48	2,508.8	-766.4	37.21	2,147.2	-404.8		

[1] No cartage cost on these items because they were received at facility or point of sale.

[2] Excludes maintenance, repairs, and electricity required to operate the proposed central refrigeration plant. These costs are included in the ownership and operating cost of central refrigeration.

[3] The ownership and operating cost of the proposed central system is shown here but not compared with the cost in present facilities. Elements of the refrigeration costs in present facilities are included in facility rental or facility services.

[4] Negligible.

[5] Costs not included as they were beyond the scope of this report.

TABLE 28. — Estimated annual costs of moving grocery products through, and from facilities of the proposed food distribution center for the Los Angeles area compared with present costs

Movement of commodities	Present volume	Present cost per ton	Present cost	Possible food distribution center sites														
				Branford-Pacoima-Jessup Park			Carson			Industry			Naomi-Trinity-Stanford			Santa Fe Springs		
				Cost per ton	Total cost	Savings	Cost per ton	Total cost	Savings	Cost per ton	Total cost	Savings	Cost per ton	Total cost	Savings	Cost per ton	Total cost	Savings
To Facilities	1,000 tons	Dollars	1,000 dollars	Dollars	1,000 dollars	1,000 dollars	Dollars	1,000 dollars	1,000 dollars	Dollars	1,000 dollars	1,000 dollars	Dollars	1,000 dollars	1,000 dollars	Dollars	1,000 dollars	1,000 dollars
Cartage from:																		
Commercial warehouses	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Team tracks	3.1	23.03	71.4	0	0	71.4	0	0	71.4	0	0	71.4	0	0	71.4	0	0	71 4
Piers and airports	9.7	23.16	224.7	26.94	261.3	-36.6	11.22	108.8	115.9	30.81	298.9	-74.2	21.89	212.3	12.4	21.61	209.6	15.1
Receipts without cartage[1]	136.4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Subtotal or average	149.2	1.98	296.1	1.75	261.3	34.8	.73	108.8	187.3	2.00	298.9	-2.8	1.42	212.3	83.8	1.40	209.6	86.5
Interwholesaler transfers from candidate firms	4.5	20.18	90.8	24.22	109.0	-18.2	20.58	92.6	-1.8	21.80	98.1	-7.3	19.58	88.1	2.7	19.58	88.1	2.7
Avoidable delay	(0)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total or average	153.7	2.52	386.9	2.41	370.3	16.6	1.31	201.4	185.5	2.58	397.0	-10.1	1.95	300.4	86.5	1.94	297.7	89.2
Through Facilities																		
Interwholesaler transfers from noncandidate firms	(4.8)	20.18	96.9	13.46	64.6	32.3	13.46	64.6	32.3	13.46	64.6	32.3	13.46	64.6	32.3	13.46	64.6	32.3
Facility labor:																		
Unloading	(158.5)	4.30	681.3	1.47	233.0	448.3	1.47	233.0	448.3	1.47	233.0	448.3	1.47	233.0	448.3	1.47	233.0	448.3
Handling within	(158.5)	10.09	1,598.8	8.07	1,279.1	319.7	8.07	1,279.1	319.7	8.07	1,279.1	319.7	8.07	1,279.1	319.7	8.07	1,279.1	319.7
Loading out	(158.5)	2.15	340.7	.96	152.2	188.5	.96	152.2	188.5	.96	152.2	188.5	.96	152.2	188.5	.96	152.2	188.5
Subtotal or average	(158.5)	17.15	2,717.7	10.91	1,728.9	988.8	10.91	1,728.9	988.8	10.91	1,728.9	988.8	10.91	1,728.9	988.8	10.91	1,728.9	988.8
Other cost:																		
Public warehouse charges	-	-	1.7	0	0	1.7	0	0	1.7	0	0	1.7	0	0	1.7	0	0	1.7
Handling equipment use	(158.5)	1.07	169.5	1.13	179.1	-9.6	1.13	179.1	-9.6	1.13	179.1	-9.6	1.13	179.1	-9.6	1.13	179.1	-9.6
Facility rental[2]	(158.5)	3.23	512.2	7.81	1,237.6	-725.4	7.20	1,141.1	-628.9	7.41	1,174.2	-662.0	10.72	1,699.7	-1,187.5	7.85	1,244.1	-731.9
Facility services[2]	(158.5)	1.22	193.3	1.14	180.6	12.7	1.14	180.6	12.7	1.14	180.6	12.7	1.14	180.6	12.7	1.14	180.6	12.7
Central refrigeration[3]	(158.5)	-	-	.38	60.5	-	.38	60.5	-	.38	60.5	-	.38	60.5	-	.38	60.5	-
Waste, theft, and deterioration	(158.5)	3.20	506.4	.80	126.8	379.6	.80	126.8	379.6	.80	126.8	379.6	.80	126.8	379.6	.80	126.8	379.6
Subtotal or average	(158.5)	8.73	1,383.1	11.26	1,784.6	-401.5	10.65	1,688.1	-305.0	10.86	1,721.2	-338.1	14 17	2,246.7	-863.6	11.30	1 791.1	-408.0
Total or average	(158.5)	25.87	4,100.8	22.17	3,513.5	587.3	22.56	3,417.0	683.8	21.77	3.450.1	650.7	25.08	3,975.6	125.2	22 21	3,520.0	580.8
From Facilities																		
Distribution to points within study area:																		
Los Angeles County:																		
North County	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
San Fernando Valley	20.7	19.77	409.2	10.91	225.8	183.4	17.48	361.8	47.4	21.99	455.2	-46.0	17.30	358.1	51.1	19.25	398.5	10.7
Malibu	5.1	8.69	44.3	13.07	66.7	-22.4	19.42	99.0	-54.7	17.63	89.9	-45.6	15.41	78.6	-34.3	16.48	84.0	-39.7
West Central, L.A.	14.9	13.42	200.0	13.69	204.0	-4.0	14.34	213.7	-13.7	19.25	286.8	-86.8	15.55	231.7	-31.7	16.57	246.9	-46.9
Verdugo	2.0	16.48	33.0	14.41	28.8	4.2	15.72	31.4	1.6	17.98	36.0	-3.0	15.19	30.4	2.6	15.97	31.9	1.1
West San Gabriel Valley	16.1	15.07	242.6	17.61	283.5	-40.9	17.73	285.9	-42.9	14.23	229.1	13.5	14.61	235.2	7.4	14.88	239.6	3.0
East San Gabriel Valley	14.5	17.01	246.6	21.99	318.9	-72.3	19.22	278.7	-32.1	10.89	157.9	88.7	15.52	225.0	21.6	15.46	224.2	22.4

TABLE 28. — Estimated annual costs of moving grocery products through, and from facilities of the proposed food distribution center for the Los Angeles area compared with present costs—Continued

Movement of commodities	Present volume	Present cost per ton	Present cost	Possible food distribution center sites														
				Branford-Pacoima-Jessup Park			Carson			Industry			Naomi-Trinity-Stanford			Santa Fe Springs		
				Cost per ton	Total cost	Savings	Cost per ton	Total cost	Savings	Cost per ton	Total cost	Savings	Cost per ton	Total cost	Savings	Cost per ton	Total cost	Savings
	1,000 tons	Dollars	1,000 dollars	Dollars	1,000 dollars	1,000 dollars	Dollars	1,000 dollars	1,000 dollars	Dollars	1,000 dollars	1,000 dollars	Dollars	1,000 dollars	1,000 dollars	Dollars	1,000 dollars	1,000 dollars
Southwest, L.A.	11.4	18.27	208.3	17.48	199.3	9.0	10.40	118.6	89.7	19.22	219.1	-10.8	15.20	173.3	35.0	15.08	171.9	36.4
East Central, L.A.	10.1	9.51	96.1	17.80	179.8	-83.7	15.20	153.5	-57.4	15.52	156.8	-60.7	10.82	109.3	-13.2	13.24	133.7	-37.6
Southeast, L.A.	16.0	10.80	172.8	19.25	308.0	-135.2	15.08	241.3	-68.5	15.46	247.4	-74.6	13.24	211.8	-39.0	11.17	178.7	-5.9
Orange County:																		
All	17.1	20.20	345.4	33.76	577.3	-231.9	14.74	252.1	93.3	16.30	278.7	66.7	17.23	294.6	50.8	13.32	227.8	117.6
Subtotal or average	127.9	15.62	1,998.3	18.70	2,392.1	-393.8	15.92	2,035.6	-37.3	16.86	2,156.9	-158.6	15.23	1 948.0	50.3	15.15	1 937.2	61.1
Customer pickup at facilities[4]	7.5	-	-	-	-	-	-	-	-			-	-		-	-		-
Distribution outside study area[4]	18.3	-	-	-	-	-	-	-	-	-	-	-	-		-	-	-	-
Total or average	153.7	13.00	1,998.3	15.56	2,392.1	-393.8	13.24	2,035.6	-37.3	14.03	2,156.9	-158.6	12.67	1,948.0	50.3	12.60	1,937.2	61.1
Grand total or average	153.7	42.20	6,486.0	40.83	6,275.9	210.1	36.79	5,654.0	832.0	39.06	6,004.0	482.0	40.49	6,224.0	262.0	37.44	5,754.9	731.1

[1] No cartage cost on these items because they were received at facility or point of sale.

[2] Excludes maintenance, repairs, and electricity required to operate the proposed central refrigeration plant. These costs are included in the ownership and operating cost of central refrigeration.

[3] The ownership and operating cost of the proposed central system is shown here but not compared with the cost in present facilities. Elements of the refrigeration costs in present facilities are included in facility rental or facility services.

[4] Costs not included as they were beyond the scope of this report.

TABLE 29. — Estimated annual costs of moving fish and shellfish[1] to, through, and from facilities of the proposed food distribution center for the Los Angeles area compared with present costs

Movement of commodities	Present volume	Present cost per ton	Present cost	Possible food distribution center sites													
				Branford-Pacoima-Jessup Park			Carson			Industry			Naomi-Trinity-Stanford			Santa Fe Springs		
				Cost per ton	Total cost	Savings	Cost per ton	Total cost	Savings	Cost per ton	Total cost	Savings	Cost per ton	Total cost	Savings	Cost per ton	Total cost	Savings
To Facilities	1,000 tons	Dollars	1,000 dollars	Dollars	1,000 dollars	1,000 dollars	Dollars	1,000 dollars	1,000 dollars	Dollars	1,000 dollars	1,000 dollars	Dollars	1,000 dollars	1,000 dollars	Dollars	1,000 dollars	1,000 dollars
Cartage from:																		
Commercial warehouses	8.3	9.89	82.1	0	0	82.1	0	0	82.1	0	0	82.1	0	0	82.1	0	0	82.1
Team tracks	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Piers and airports	.9	18.33	16.5	19.55	17.6	−1.1	16.18	14.6	1.9	20.47	18.4	−1.9	18.54	16.7	−.2	18.24	16.4	.1
Receipts without cartage[2]	13.5	.34	[3]4.6	0	0	4.6	0	0	4.6	0	0	4.6	0	0	4.6	0	0	4.6
Subtotal or average	22.7	4.55	103.2	.78	17.6	85.6	.64	14.6	88.6	.81	18.4	84.8	.74	16.7	86.5	.72	16.4	86.8
Interwholesaler transfers from noncandidate firms	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Avoidable delay	(0)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total or Average	22.7	4.55	103.2	.78	17.6	85.6	.64	14.6	88.6	.81	18.4	84.8	.74	16.7	86.5	.72	16.4	86.8
Through Facilities																		
Interwholesaler transfers from candidate firms	(0)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Facility labor:																		
Unloading	(22.7)	2.86	65.0	2.76	62.7	2.3	2.76	62.7	2.3	2.76	62.7	2.3	2.76	62.7	2.3	2.76	62.7	2.3
Handling within[4]	(22.7)	26.41	600.6	24.30	551.6	49.0	24.30	551.6	49.0	24.30	551.6	49.0	24.30	551.6	49.0	24.30	551.6	49.0
Loading out	(22.7)	3.13	71.3	2.82	64.0	7.3	2.82	64.0	7.3	2.82	64.0	7.3	2.82	64.0	7.3	2.82	64.0	7.3
Subtotal or average	(22.7)	32.40	736.9	29.88	678.3	58.6	29.88	678.3	58.6	29.88	678.3	58.6	29.88	678.3	58.6	29.88	678.3	58.6
Other cost:																		
Public warehouse charges	-	-	102.6	0	0	102.6	-	0	102.6	0	0	102.6	0	0	102.6	0	0	102.6
Handling equipment use	(22.7)	2.85	64.7	3.04	69.1	−4.4	3.04	69.1	−4.4	3.04	69.1	−4.4	3.04	69.1	−4.4	3.04	69.1	−4.4
Facility rental[5]	(22.7)	13.58	308.3	64.10	1,455.1	−1,146.8	59.29	1,345.9	−1,037.6	61.03	1,385.4	−1,077.1	86.82	1,970.8	−1,662.5	64.43	1,462.6	−1,154.3
Facility services[5]	(22.7)	5.09	115.5	4.66	105.8	9.7	4.66	105.8	9.7	4.66	105.8	9.7	4.66	105.8	9.7	4.66	105.8	9.7
Central refrigeration[6]	(22.7)	-	-	13.03	295.8	-	13.03	295.8	-	13.03	295.8	-	13.03	295.8	-	13.03	295.8	-
Waste, theft, and deterioration[7]	(22.7)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Subtotal or average	(22.7)	26.03	591.1	84.84	1,925.8	−1,334.7	80.03	1,816.6	−1,225.5	81.77	1,856.1	−1,265.0	107.56	2,441.5	−1,850.4	85.17	1,933.3	−1,342.2
Total or average	(22.7)	58.43	1,328.0	114.72	2,604.1	−1,276.1	109.91	2,494.9	−1,166.9	111.65	2,534.4	−1,206.4	137.44	3,119.8	−1,791.8	115.05	2,611.6	−1,283.6
From Facilities																		
Distribution to points within study area:																		
Los Angeles County:																		
North County	.1	50.83	5.1	34.55	3.5	1.6	63.06	6.3	−1.2	80.39	8.0	−2.9	66.05	6.6	−1.5	70.28	7.0	−1.9
San Fernando Valley	2.4	37.31	89.5	20.85	50.0	39.5	49.28	118.3	−28.8	66.71	160.1	−70.6	47.72	114.5	−25.0	56.40	135.4	−45.9
Malibu	.3	37.23	11.2	19.98	6.0	5.2	36.03	10.8	0.4	49.35	14.8	−3.6	40.16	12.1	−0.9	45.00	13.5	−2.3
West Central, L.A.	1.3	45.30	58.9	33.01	42.9	16.0	35.35	46.0	12.9	56.33	73.2	−14.3	40.62	52.8	6.1	45.24	58.8	0.1
Verdugo	1.0	50.23	50.2	35.12	35.1	15.1	41.63	41.6	8.6	50.57	50.6	−0.4	38.67	38.7	11.5	42.23	42.2	8.0
West San Gabriel Valley	.9	42.43	38.2	48.56	43.7	−5.5	50.36	45.3	−7.1	35.00	31.5	6.7	36.20	32.6	5.6	37.62	33 9	4.3
East San Gabriel Valley	1.2	40.18	48.2	66.71	80.1	−31.9	57.66	69.2	−21.0	20.73	24.9	23.3	41.36	49.6	−1.4	40.89	49.1	−0.9
Southwest, L.A.	1.5	33.86	50.8	49.28	73.9	−23.1	18.57	27.9	22.9	57.65	86.5	−35.7	37.78	56.7	−5.9	37.38	56.1	−5.3

TABLE 29. — Estimated annual costs of moving fish and shellfish[1] to, through, and from facilities of the proposed food distribution center for the Los Angeles area compared with present costs—Continued

Movement of commodities	Present volume	Present cost per ton	Present cost	Possible food distribution center sites														
				Branford-Pacoima-Jessup Park			Carson			Industry			Naomi-Trinity-Stanford			Santa Fe Springs		
				Cost per ton	Total cost	Savings	Cost per ton	Total cost	Savings	Cost per ton	Total cost	Savings	Cost per ton	Total cost	Savings	Cost per ton	Total cost	Savings
	1,000 tons	Dollars	1,000 dollars	Dollars	1,000 dollars	1,000 dollars	Dollars	1,000 dollars	1,000 dollars	Dollars	1,000 dollars	1,000 dollars	Dollars	1,000 dollars	1,000 dollars	Dollars	1,000 dollars	1,000 dollars
East Central, L.A.	3.3	24.96	82.4	49.92	164.7	-82.3	37.79	124.7	-42.3	41.36	136.5	-54.1	20.15	66.5	15.9	29.85	98.5	-16.1
Southeast, L.A.	1.8	29.47	53.0	56.33	101.4	-48.4	37.39	67.3	-14.3	40.89	73.6	-20.6	29.85	53.7	-0.7	46.15	83.1	-30.1
Orange County:																		
All	1.5	37.59	56.4	67.09	100.6	-44.2	47.39	71.1	-14.7	44.43	66.7	-10.3	48.20	72.3	-15.9	31.40	47.1	9.3
Subtotal or average	15.3	35.55	543.9	45.88	701.9	-158.0	41.08	628.5	-84.6	47.48	726.4	-182.5	36.35	556.1	-12.2	40.83	624.7	-80.8
Customer pickup at facilities[8]	2.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Distribution outside study area[8]	4.9	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total or average	22.7	23.96	543.9	30.92	701.9	-158.0	27.69	628.5	-84.6	32.00	726.4	-182.5	24.50	556.1	-12.2	27.52	624.7	-80.8
Grand total or average	22.7	87.01	1,975.1	146.41	3,323.6	-1,348.5	138.24	3,138.0	-1,162.9	144.46	3,279.2	-1,304.1	162.67	3,692.6	-1,717.5	143.29	3,252.7	-1,277.6

[1] All cost and volume information concerning fish and shellfish was collected and analyzed by the Bureau of Commercial Fisheries, U.S. Department of Interior, Washington, D.C.

[2] No cartage cost on these items because they were received at facility or point of sale.

[3] Includes 915 tons landed by commercial fishing vessels at $5.05 per ton.

[4] Includes processing charges.

[5] Excludes maintenance, repairs, and electricity required to operate the proposed central refrigeration plant. These costs are included in the ownership and operating cost of central refrigeration.

[6] The ownership and operating cost of the proposed central system is shown here but not compared with the cost in present facilities. Elements of the refrigeration costs in present facilities are included in facility rental or facility services.

[7] Negligible.

[8] Costs not included as they were beyond the scope of this report.

TABLE 30. — Estimated annual costs of moving food handled by corporate chainstores and affiliated wholesalers to, through, and from facilities of the proposed food distribution center for the Los Angeles area compared with present costs

Movement of commodities	Present volume	Present cost per ton	Present cost	Possible food distribution center sites														
				Branford-Pacoima-Jessup Park			Carson			Industry			Naomi-Trinity-Stanford			Santa Fe Springs		
				Cost per ton	Total cost	Savings	Cost per ton	Total cost	Savings	Cost per ton	Total cost	Savings	Cost per ton	Total cost	Savings	Cost per ton	Total cost	Savings
To Facilities	1,000 tons	Dollars	1,000 dollars	Dollars	1,000 dollars	1,000 dollars	Dollars	1,000 dollars	1,000 dollars	Dollars	1,000 dollars	1,000 dollars	Dollars	1,000 dollars	1,000 dollars	Dollars	1,000 dollars	1,000 dollars
Cartage from:																		
Commercial warehouses	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Team tracks	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Piers and airports	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Receipts without cartage[1]	381.9	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Subtotal or average	381.9	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Interwholesaler transfers from noncandidate firms	29.6	3.00	88.8	4.01	118.8	-30.0	3.15	93.3	-4.5	2.91	86.2	2.6	3.00	88.8	0	2.41	71.3	17.5
Avoidable delay	(0)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total or average	411.5	.22	88.8	.29	118.8	-30.0	.23	93.3	-4.5	.21	86.2	2.6	.22	88.8	0	.17	71.3	17.5
Through Facilities																		
Interwholesaler transfers from candidate firms	(6.1)	3.00	18.3	2.00	12.2	6.1	2.00	12.2	6.1	2.00	12.2	6.1	2.00	12.2	6.1	2.00	12.2	6.1
Facility labor:																		
Unloading	(417.6)	.58	244.4	.58	244.4	0	.58	244.4	0	.58	244.4	0	.58	244.4	0	.58	244.4	0
Handling within	(417.6)	3.16	1,319.5	3.16	1,319.5	0	3.16	1,319.5	0	3.16	1,319.5	0	3.16	1,319.5	0	3.16	1,319.5	0
Loading out	(417.6)	.94	392.5	.94	392.5	0	.94	392.5	0	.94	392.5	0	.94	392.5	0	.94	392.5	0
Subtotal or average	(417.6)	4.73	1,974.7	4.71	1,968.6	6.1	4.71	1,968.6	6.1	4.71	1,968.6	6.1	4.71	1,968.6	6.1	4.71	1,968.6	6.1
Other cost:																		
Public warehouse charges	--	-	2.0	0	0	2.0	0	0	2.0	0	0	2.0	0	0	2.0	0	0	2.0
Handling equipment use	(417.6)	.22	91.9	.22	91.9	0	.22	91.9	0	.22	91.9	0	.22	91.9	0	.22	91.9	0
Facility rental[2]	(417.6)	.89	371.6	1.53	640.6	-269.0	1.41	586.8	-215.2	1.44	603.0	231.4	2.17	906.4	534.8	1.54	-643.9	-272.3
Facility services[2]	(417.6)	.28	116.9	.28	116.9	0	.28	116.9	0	.28	116.9	0	.28	116.9	0	.28	116.9	0
Central refrigeration[3]	(417.6)	-	-	.22	90.8	-	.22	90.8	-	.22	90.8	-	.22	90.8	-	.22	90.8	-
Waste, theft, and deterioration	(417.6)	.49	204.6	.49	204.6	0	.49	204.6	0	.49	204.6	0	.49	204.6	0	.49	204.6	0
Subtotal or average	(417.6)	1.88	787.0	2.74	1,144.8	-357.8	2.61	1,091.0	-304.0	2.65	1,107.2	320.2	3.38	1,410.6	623.6	2.75	1,148.1	361.1
Total or average	(417.6)	6.61	2,761.7	7.46	3,113.4	-351.7	7.33	3,059.6	-297.9	7.37	3,075.8	314.1	8.09	3,379.2	617.5	7.46	3,116.7	355.0
From Facilities																		
Distribution to points within study area:																		
Los Angeles County:																		
North County	14.8	2.38	35.2	1.81	26.8	8.4	2.42	35.8	.6	3.51	51.9	16.7	2.38	35.2	0	2.83	41.9	6.7
San Fernando Valley	8.7	2.04	17.7	.20	1.7	16.0	1.89	16.4	1.3	3.37	29.3	11.6	2.04	17.7	0	2.46	21.4	3.7
Malibu	7.4	1.89	14.0	1.07	7.9	6.1	1.62	12.0	2.0	2.85	21.1	7.1	1.89	14.0	0	2.25	16.7	2.7
West Central, L.A.	17.2	2.56	44.0	4.17	71.7	27.7	2.52	43.3	.7	4.27	73.4	29.4	2.56	44.0	0	3.39	58.3	14.3
Verdugo	24.2	1.93	46.7	1.76	42.6	4.1	1.94	46.9	.2	2.53	61.2	14.5	1.93	46.7	0	2.20	53.2	6.5
West San Gabriel Valley	55.6	1.19	66.2	1.46	81.2	15.0	1.20	66.7	.5	.75	41.7	24.5	1.19	66.2	0	.90	50.0	16.2

TABLE 30.—Estimated annual costs of moving food handled by corporate chainstores and affiliated wholesalers to, through, and from facilities of the proposed food distribution center for the Los Angeles area compared with present costs

Movement of commodities	Present volume	Present cost per ton	Present cost	Possible food distribution center sites															
				Branford-Pacoima-Jessup Park			Carson			Industry			Naomi-Trinity-Stanford			Santa Fe Springs			
				Cost per ton	Total cost	Savings	Cost per ton	Total cost	Savings	Cost per ton	Total cost	Savings	Cost per ton	Total cost	Savings	Cost per ton	Total cost	Savings	
	1,000 tons	Dollars	1,000 dollars	Dollars	1,000 dollars	1,000 dollars	Dollars	1,000 dollars	1,000 dollars	Dollars	1,000 dollars	1,000 dollars	Dollars	1,000 dollars	1,000 dollars	Dollars	1,000 dollars	1,000 dollars	
East San Gabriel Valley	9.8	2.86	28.0	4.11	40.3	-12.3	5.17	50.7	22.7	.18	1.8	26.2	2.86	28.0	0	3.59	35.2	7.2	
Southwest, L.A.	25.9	1.29	33.4	1.63	42.2	-8.8	.15	3.9	29.5	.35	9.1	24.3	1.29	33.4	0	.99	25.6	7.8	
East Central, L.A.	33.8	.76	25.7	1.96	66.2	-40.5	.21	7.1	18.6	.78	26.4	-.7	.76	25.7	0	.93	31.4	5.7	
Southeast, L.A.	48.2	1.22	58.8	2.04	98.3	-39.5	1.30	62.7	-3.9	.99	47.7	11.1	1.22	58.8	0	.46	22.2	36.6	
Orange County:																			
All	165.9	2.06	341.8	2.89	479.5	-137.7	2.47	409.8	-68.0	2.01	333.5	8.3	2.06	341.8	0	1.31	217.3	124.5	
Subtotal or average	411.5	1.73	711.5	2.33	958.4	-246.9	1.84	755.3	43.8	1.69	697.1	14.4	1.73	711.5	0	1.39	573.2	138.3	
Customer pickup at facilities[4]	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Distribution outside study area[4]	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Total or average	411.5	1.73	711.5	2.33	958.4	-246.9	1.84	755.3	43.8	1.69	697.1	14.4	1.73	711.5	0	1.39	573.2	138.3	
Grand total or average	411.5	8.66	3,562.0	10.18	4,190.6	-628.6	9.50	3,908.2	-346.2	9.38	3,859.1	297.1	10.16	4,179.5	-617.5	9.14	3,761.2	-199.2	

[1] No cartage cost on these items because they were received at facility or point of sale.

[2] Excludes maintenance, repairs, and electricity required to operate the proposed central refrigeration plant. These costs are included in the ownership and operating cost of central refrigeration.

[3] The ownership and operating cost of the proposed central system is shown here but not compared with the cost in present facilities. Elements of the refrigeration costs in present facilities are included in facility rental or facility services.

[4] Costs not included as they were beyond the scope of this report.

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TABLE 31. — Estimated debt service payments less principal of land required under public financing for the proposed wholesale food distribution center for the Los Angeles area, by type of firm and site

Type of firm or facility	Branford-Pacoima-Jessup Park	Carson	Industry	Naomi-Trinity-Stanford	Santa Fe Springs
	1,000 dollars	1,000 dollars	1,000 dollars	1,000 dollars	1,000 dollars
Fresh fruits and vegetables:					
Amortization[1]	1,054.3	1,015.2	1,012.1	1,298.1	1,054.3
Contingency allowance[2]	105.4	101.5	101:2	129.8	105.4
Total debt service	1,159.7	1,116.7	1,113.3	1,427.9	1,159.7
Meat and meat products:					
Amortization[1]	760.7	730.4	728.0	950.0	760.8
Contingency allowance[2]	76.0	73.0	72.8	95.0	76.1
Total debt service	836.7	803.4	800.8	1,045.0	836.9
Poultry and eggs:					
Amortization[1]	311.5	298.4	297.3	392.9	311.4
Contingency allowance[2]	31.2	29.8	29.8	39.3	31.1
Total debt service	342.7	328.2	327.1	432.2	342.5
Frozen foods:					
Amortization[1]	191.6	183.7	183.1	241.1	191.7
Contingency allowance[2]	19.2	18.4	18.3	24.1	19.2
Total debt service	210.8	202.1	201.4	265.2	210.9
Manufactured dairy products:					
Amortization[1]	478.0	457.8	456.1	604.2	478.0
Contingency allowance[2]	47.8	45.8	45.6	60.4	47.8
Total debt service	525.8	503.6	501.7	664.6	525.8
Grocery products:					
Amortization[1]	611.5	586.4	584.4	768.5	611.6
Contingency allowance[2]	61.2	58.6	58.4	76.9	61.2
Total debt service	672.7	645.0	642.8	845.4	672.8

See footnotes at end of tabulation.

TABLE 31. — Estimated debt service payments less principal of land required under public financing for the proposed wholesale food distribution center for the Los Angeles area, by type of firm and site—Continued

Type of firm or facility	Branford-Pacoima-Jessup Park	Carson	Industry	Naomi-Trinity-Stanford	Santa Fe Springs
	1,000 dollars	1,000 dollars	1,000 dollars	1,000 dollars	1,000 dollars
Fish and shellfish:					
Amortization[1]	727.3	699.2	697.0	902.4	727.3
Contingency allowance[2]	72.7	69.9	69.7	90.2	72.7
Total debt service	800.0	769.1	766.7	992.6	800.0
Corporate chainstores and affiliated wholesalers:					
Amortization[1]	309.1	294.5	293.4	399.2	309.0
Contingency allowance[2]	30.9	29.5	29.3	39.9	30.9
Total debt service	340.0	324.0	322.7	439.1	339.9
Public refrigerated warehouses:					
Amortization[1]	208.5	203.4	202.9	240.9	208.5
Contingency allowance[2]	20.9	20.3	20.3	24.1	20.9
Total debt service	229.4	223.7	223.2	265.0	229.4
Central refrigerated system:					
Amortization[1]	863.5	863.0	863.0	866.9	863.5
Contingency allowance[2]	86.3	86.3	86.3	86.7	86.3
Total debt service	949.8	949.3	949.3	953.6	949.8
Grand total:					
Amortization[1]	5,516.0	5,332.0	5,317.3	6,664.2	5,516.1
Contingency allowance[2]	551.6	533.2	531.7	666.4	551.6
Total debt service	6,067.6	5,865.2	5,849.0	7,330.6	6,067.7

[1]Based on 6½ percent, amortized over 30 years on the total investment cost (table 11) less principal on land @ $76.50 per $1,000.

[2]Based on 10 percent of above amortization rates.

TABLE 32. — Estimated annual real estate taxes required under public financing for the proposed wholesale food distribution center for the Los Angeles area, by type of firm and site

Type of firm or facility	Branford-Pacoima-Jessup Park	Carson	Industry	Naomi-Trinity-Stanford	Santa Fe Springs
	1,000 dollars	1,000 dollars	1,000 dollars	1,000 dollars	1,000 dollars
Fresh fruits and vegetables:					
Tax[1]	335.0	291.7	339.4	430.2	342.9
Contingency[2]	33.5	29.2	33.9	43.0	34.3
Total	368.5	320.9	373.3	473.2	377.2
Meat and meat products:					
Tax[1]	242.5	210.4	244.7	316.4	248.2
Contingency[2]	24.3	21.0	24.5	31.6	24.8
Total	266.8	231.4	269.2	348.0	273.0
Poultry and eggs:					
Tax[1]	99.5	86.1	100.1	131.3	101.8
Contingency[2]	10.0	8.6	10.0	13.1	10.2
Total	109.5	94.7	110.1	144.4	112.0
Frozen foods:					
Tax[1]	61.2	53.0	61.6	80.5	62.6
Contingency[2]	6.1	5.3	6.2	8.1	6.3
Total	67.3	58.3	67.8	88.6	68.9
Manufactured dairy products:					
Tax[1]	152.7	132.2	153.7	202.0	156.3
Contingency[2]	15.3	13.2	15.4	20.2	15.6
Total	168.0	145.4	169.1	222.2	171.9
Grocery products:					
Tax[1]	195.2	169.2	196.6	256.5	199.7
Contingency[2]	19.5	16.9	19.7	25.7	20.0
Total	214.7	186.1	216.3	282.2	219.7

See footnotes at end of tabulation.

TABLE 32. — Estimated annual real estate taxes required under public financing for the proposed wholesale food distribution center for the Los Angeles area, by type of firm and site—Continued

Type of firm or facility	Branford-Pacoima-Jessup Park	Carson	Industry	Naomi-Trinity-Stanford	Santa Fe Springs
	1,000 dollars	1,000 dollars	1,000 dollars	1,000 dollars	1,000 dollars
Fish and shellfish:					
Tax[1]	231.5	201.2	234.0	300.0	236.9
Contingency[2]	23.2	20.1	23.4	30.0	23.7
Total	254.7	221.3	257.4	330.0	260.6
Corporate chainstores and affiliated wholesalers:					
Tax[1]	99.2	85.4	99.2	134.4	101.6
Contingency[2]	9.9	8.6	9.9	13.4	10.2
Total	109.1	94.0	109.1	147.8	111.8
Public refrigerated warehouse:					
Tax[1]	65.4	57.8	67.3	78.0	66.9
Contingency[2]	6.5	5.8	6.7	7.8	6.7
Total	71.9	63.6	74.0	85.8	73.6
Central refrigeration system:					
Tax[1]	263.6	240.4	280.7	265.0	269.9
Contingency[2]	26.3	24.0	28.0	26.5	26.9
Total	289.9	264.4	308.7	291.5	296.8
Grand total:					
Tax[1]	1,745.8	1,527.4	1,773.0	2,194.3	1,786.8
Contingency[2]	174.6	152.7	177.3	219.4	178.7
Total	1,920.4	1,680.1	1,950.3	2,413.7	1,965.5

[1] Based on total investment in land and facilities (table 11).

[2] 10 percent of tax payment.

TABLE 33. — Estimated total annual revenue required under public financing to finance, pay real estate taxes, and manage and maintain the facilities in the proposed wholesale food distribution center for the Los Angeles area, by type of firm and site

Type of firm or facility	Branford-Pacoima-Jessup Park	Carson	Industry	Naomi-Trinity Stanford	Santa Fe Springs
	1,000 dollars	1,000 dollars	1,000 dollars	1,000 dollars	1,000 dollars
Fresh fruits and vegetables:[1]					
Debt service	1,159.7	1,116.7	1,113.3	1,427.9	1,159.7
Real estate taxes	368.5	320.9	373.3	473.2	377.2
Management and maintenance[2]	143.4	143.4	143.4	143.4	143.4
Total	1,671.6	1,581.0	1,630.0	2,044.5	1,680.3
Meat and meat products:					
Debt service	836.7	803.4	800.8	1,045.0	836.9
Real estate taxes	266.8	231.4	269.2	348.0	273.0
Mangement and maintenance[2]	111.0	111.0	111.0	111.0	111.0
Total	1,214.5	1,145.8	1,181.0	1,504.0	1,220.9
Poultry and eggs:					
Debt service	342.7	328.2	327.1	432.2	342.5
Real estate taxes	109.5	94.7	110.1	144.4	112.0
Management and maintenance[2]	48.0	48.0	48.0	48.0	48.0
Total	500.2	470.9	485.2	624.6	502.5
Frozen foods:					
Debt service	210.8	202.1	201.4	265.2	210.9
Real estate taxes	67.3	58.3	67.8	88.6	68.9
Management and maintenance[2]	29.1	29.1	29.1	29.1	29.1
Total	307.2	289.5	298.3	382.9	308.9
Manufactured dairy products:					
Debt service	525.8	503.6	501.7	664.6	525.8
Real estate taxes	168.0	145.4	169.1	222.2	171.9
Management and maintenance[2]	73.8	73.8	73.8	73.8	73.8
Total	767.6	722.8	744.6	960.6	771.5
Grocery products:[1]					
Debt service	672.7	645.0	642.8	845.4	672.8
Real estate taxes	214.7	186.1	216.3	282.2	219.7
Management and maintenance[2]	92.0	92.0	92.0	92.0	92.0
Total	979.4	923.1	951.1	1,219.6	984.5

See footnotes at end of tabulation.

TABLE 33. — Estimated total annual revenue required under public financing to finance, pay real estate taxes, and manage and maintain the facilities in the proposed wholesale food distribution center for the Los Angeles area, by type of firm and site—Continued

Type of firm or facility	Branford-Pacoima-Jessup Park	Carson	Industry	Naomi-Trinity Stanford	Santa Fe Springs
	1,000 dollars	1,000 dollars	1,000 dollars	1,000 dollars	1,000 dollars
Fish and shellfish:[1]					
Debt service	800.0	769.1	766.7	992.6	800.0
Real estate taxes	254.7	221.3	257.4	330.0	260.6
Management and maintenance[2]	102.2	102.2	102.2	102.2	102.2
Total	1,156.9	1,092.6	1,126.3	1,424.8	1,162.8
Corporate chainstores and affiliated wholesalers:					
Debt service	340.0	324.0	322.7	439.1	339.9
Real estate taxes	109.1	94.0	109.1	147.8	111.8
Management and maintenance[2]	52.8	52.8	52.8	52.8	52.8
Total	501.9	470.8	484.6	639.7	504.5
Public refrigerated warehouse:					
Debt service	229.4	223.7	223.2	265.0	229.4
Real estate taxes	71.9	63.6	74.0	85.8	73.6
Management and maintenance[2]	18.9	18.9	18.9	18.9	18.9
Total	320.2	306.2	316.1	369.7	321.9
Central refrigeration system:					
Debt service	949.8	949.3	949.3	953.6	949.8
Real estate taxes	289.9	264.4	308.7	291.5	296.8
Management and maintenance	5.4	5.4	5.4	5.4	5.4
Total	1,245.1	1,219.1	1,263.4	1,250.5	1,252.0
Grand total:					
Debt service	6,067.6	5,865.2	5,849.0	7,330.6	6,067.7
Real estate taxes	1,920.4	1,680.1	1,955.0	2,413.7	1,965.5
Management and maintenance[2]	676.6	676.6	676.6	676.6	676.6
Total	8,664.6	8,221.9	8,480.6	10,420.9	8,709.8

[1] Includes 1 unit used as a restaurant.

[2] Prorated according to acreage requirements.

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TABLE 34. — Estimated annual rentals required per square foot under public financing for first-floor area for the proposed wholesale food distribution center for the Los Angeles area, by type of firm or facility and site[1]

Type of firm or facility	First-floor area	Estimated annual rent per square foot[2]				
		Branford-Pacoima-Jessup Park	Carson	Industry	Naomi-Trinity-Stanford	Santa Fe Springs
	1,000 square feet	Dollars	Dollars	Dollars	Dollars	Dollars
Fresh fruits and vegetables	598.4	2.80	2.65	2.70	3.40	2.80
Meat and meat products	360.0	3.35	3.20	3.30	4.20	3.40
Poultry and eggs	150.0	3.35	3.15	3.25	4.15	3.35
Frozen foods	88.0	3.50	3.30	3.40	4.35	3.50
Manufactured dairy products	247.0	3.10	2.95	3.00	3.90	3.10
Grocery products	340.1	2.90	2.70	2.80	3.60	2.90
Fish and shellfish	362.1	3.20	3.00	3.10	3.95	3.20
Corporate chainstores and affiliated wholesalers	162.1	3.10	2.90	3.00	3.95	3.10
Public refrigerated warehouses	50.4	6.35	6.10	6.25	7.35	6.40
Central refrigeration system[3]	-	-	-	-	-	-
Total or average	2,358.0	3.15	2.95	3.05	3.90	3.15

[1]Based on total annual revenue requirements shown in table 32.

[2]Rounded to nearest nickel.

[3]Not included.

TABLE 35. — Estimated total annual savings or losses incurred in moving specified commodities through the proposed wholesale food distribution center for the Los Angeles area, by type of firm or facility and site[1]

Firm classification	Present volume	Savings or losses				
		Branford-Pacoima-Jessup Park	Carson	Industry	Naomi-Trinity-Stanford	Santa Fe Springs
	1,000 tons	1,000 dollars	1,000 dollars	1,000 dollars	1,000 dollars	1,000 dollars
Fresh fruits and vegetables	1,069.1	-1,281.4	-395.7	-1,924.7	2,327.6	1,097.0
Meat and meat products	93.6	-1,152.7	-744.3	-1,235.9	-1,131.5	-826.9
Poultry and eggs	74.8	-361.1	-263.6	-288.1	-339.4	-270.9
Frozen foods	36.0	98.0	194.6	104.2	117.8	192.0
Manufactured dairy products	57.7	-313.0	-148.6	-251.1	-383.0	-199.2
Groceries	153.7	468.3	1,050.0	701.5	742.1	990.7
Fish and shellfish	22.7	-1,050.3	-909.6	-1,045.0	-1,171.5	-977.8
Corporate chainstores and affiliated wholesalers	411.5	-489.9	48.6	-178.7	-350.8	-59.8
Total	1,919.1	-4,082.1	-1,168.6	-4,117.8	-188.7	-54.9

[1]Based on public financing.