

AN ANALYSIS OF RETAIL PHARMACY LOCATION
PATTERNS FOR NEIGHBORHOOD SITES
IN SALT LAKE COUNTY

by

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Reader, Supervisory Committee



Supervisory



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CHAPTER I

INTRODUCTION

Definition of the Problem

Importance of Location Analyses

Location is the most important factor in the success or failure of any retail business. Since it is the primary process in the establishment of any new business its significance will determine to a great degree whether or not that business will ultimately be successful.

As the required investment for new retail stores increases, it becomes essential that greater losses are not incurred by the choice of an inadequate location. Dun and Bradstreet¹ shows that a lack of adequate sales constitutes the largest single reason for retail business failures (fifty and nine-tenths per cent); poor location is considered one of the minor reasons. Nevertheless, it is not feasible to separate these two causes. Sales are primarily dependent upon location, especially in stores which sell items that are bought because of the convenience of location of the store.

Expressed more positively, location analyses are for the prevention of business losses but even more important, for the promotion of a business success.

¹ The Failure Record Through 1960 (New York: Dun and Bradstreet Inc., 1961), p. 13.

Methods Used in Location Analyses

Today there is an increase in the use of scientific tools in the process of retail site selection. This is a distinct contrast to the more or less haphazard approach that was used in past decades. A few of the causal forces for this change have been the required studies requested by financial institutions, information in depth needed by lessors, and factual material considered desirable by city and county planning commissions when rezoning matters are discussed.

Although buying habits are difficult to measure and appraise, they are of primary importance in discussing the approaches used in location analyses. Since buying habits vary with the type of merchandise purchased, it would be well to discuss the types of consumer goods as originally proposed by Copeland.² He classified consumer goods into three categories: convenience goods, shopping goods, and specialty goods. Convenience goods are those that are purchased with a minimum of effort. They are typically of small unit value and are bought soon after the idea of purchase enters the customer's mind. Most convenience goods stores are neighborhood stores with small average sales and a heavy reliance on persons living in the immediate area. The neighborhood retail pharmacy is one institution which adequately fits the definition of a convenience-goods store

² M. T. Copeland. Principles of Merchandising, (Chicago: Shaw and Co., 1924) Chap. ii-iv.

and one with which this study will be primarily concerned. Shopping goods are those that are purchased normally only after quality, price, and style are compared in a number of stores. Generally, the purchase of these goods involves a significant expenditure of money, takes place infrequently, as compared with convenience goods, and may not occur for some time after the idea of buying has entered the customer's mind. As a result of these characteristics, shopping-goods retailers have found it best to locate stores close together to facilitate store-to-store shopping. Specialty goods have a unique appeal to many customers so that they are willing to make a special purchasing effort. Quality is the main appeal and some inconvenience of traveling to such a store is of less importance than is true of other goods. In general, stores handling specialty goods tend to locate in or near the central or larger secondary-shopping centers.

Several research techniques for locating convenience-goods stores have been proposed, developed, and tested. Most of these draw a trading area around the proposed location and try to determine if there is an adequate number of customers within to support the type of business.

Reilly's "law" of retail gravitation, written in 1929, has been used, with minor changes, as a method to determine choice locations, although its original purpose was to analyze the attractiveness of two competing cities for business from a rural population. However,

in metropolitan areas it is extremely difficult to employ gravitation models since competition is to be found in so many different directions at so many different levels. Another drawback of the "law" is that driving-time distinctions may be only a matter of minutes.³

Other methods used to determine choice locations have ranged from estimating the sales volume of competitors (to see what per cent of unsatisfied expenditures a new store would attract) to that of individually interviewing those who live in the proposed area. If these procedures are carried out by an outside source, someone other than the prospective owner, they can be expensive and therefore impractical for the majority of small retail businesses. Unfortunately, nearly all the individuals in retail business do not possess sufficient background to carry out such procedures by themselves.

Applicability of Location Patterns

According to the 1958 Bureau of Census, the largest group of retail independent pharmacies in Utah are those with a gross volume of \$150,000 or less.⁴ Therefore, the applicability of any location studies and their cost could be logically directed toward the financial resources of these businesses.

As the size of a city increases, the share of the available retail business secured by stores located in the central business

³ Saul B. Cohen, William Applebaum, "Evaluating Store Sites and Determining Store Results," Economic Geography, XXXVI, No. 1 (January, 1960), p. 19.

⁴ Thirty-nine per cent are below \$75,000.

district decreases. This has been the case in retail pharmacy sales in Salt Lake City since they have decreased in the central business district by thirty-three per cent from 1948 to 1958.⁵ This shift of sales from the central business district to suburban areas makes the selection of an adequate site more important now than it has ever been in the past. If definite customer patterns can be found for existing stores, they can be utilized to test proposed locations for these new situations.

Statement of Purpose

The typical retail pharmacist has had inadequate experience in the problem of site selection and must rely heavily on external sources for such information and assistance. Unfortunately, he often chooses not to seek outside help and more often than not costly mistakes are made that could have been prevented. Therefore, it is the purpose of this study to provide a means for an individual to weigh the feasibility of a location without being burdened with the costs of a study that may be premature or unnecessary. In other words, the results of this study should provide an adequate screening procedure before a more complete study is started.

Although the investigations included in this thesis were made with the independent retail pharmacist in mind, it is hoped that the

⁵ Milton P. Matthews, "Marketing Views for Pharmacists," Utah Pharmaceutical Association Journal, LXX, (October, 1961), p. 16.

results may be applicable to other retail convenience-goods establishments as well.

The secondary purpose of this study is to provide qualitative information related to increased price awareness and its influence on customer buying patterns. In other words, will the strong price appeal cause customers to drive beyond the nearest, most convenient pharmacy to patronize another store?

CHAPTER II

METHODOLOGY

Procedure

Three hundred and twenty-five interviews were obtained from customers leaving independent neighborhood pharmacies in selected locations throughout Salt Lake County, Utah. In order that the respondent would not feel that the survey was store-initiated and would therefore answer the questions with bias, the interviewer remained outdoors in the majority of the cases.

Time

The interviews took place over a period of two months, during January and February of 1962. Generally the hours spent interviewing were during the time the store owner believed that he had the greatest hourly volume. This period was in most cases no more than three hours per day and often less. For most of the stores, this time was from four to six in the evening. This somewhat explains why it necessitated over forty-three hours to gather the data, or on the average, one interview every eight minutes.

Questionnaire Form and Use

After a preliminary trial of the questionnaire (see Appendix), in the form of a pilot study, it was learned that if question number two (Is this the closest drug store to your home?) was

asked first, people were more willing to cooperate since they then had some insight into the purpose of the interview.

Only adults, estimated to be over twenty years old, were sought out for questioning and in the case of a couple being questioned, sex and age were assigned on the basis of the individual who contributed the most information.

A few of the first people interviewed were unable to give the per cent of buying done in each store mentioned in question four. They showed a tendency to accept any per cent that was mentioned by the interviewer. Therefore, in place of this procedure, it was decided instead to ask the customer where the "majority" of his or her drug needs were bought. Only when a customer was not doing the majority of the drug purchasing at the store nearest home was he asked for the reason why, i.e., likes and dislikes. Although the questionnaire had two purchase classifications below one dollar, these were later grouped for purposes of statistical analyses.

Most of the customers were willing to give their addresses but if any sign of reluctance occurred, the interviewer stated that it was necessary for plotting customer residences on a map of the area. After this explanation all but nine persons yielded the information.

Stores

All of the stores selected are independently-owned neighborhood retail pharmacies. Four of the stores are located along Highland

Drive: a heavily traveled route running south-east from the Sugarhouse shopping district. The other two stores are located near heavily-traveled intersections in the west and southwest sections of Salt Lake County.

With one exception, all stores have less than a twenty-car parking capacity. This exception is the only store located in a shopping center per se: the remainder of the stores are situated in what may be classified as neighborhood clusters. However, one store is located in an area where there has been an increase in commercial business and the area has lost some of its neighborhood identity for that of a "string-street"-type of location.

All of the stores are over one-year old, with only one having a fountain. Each store has charge and delivery services although they are promoted much more by some stores than by others. Only two of the stores are located in areas where the population is widely scattered. The others are situated in more populated centers with two of the four likely to have further residential growth.

Editing and Tabulation

Questionnaires were edited after each group was obtained and the information was entered on a summary data sheet (see Appendix). Each sheet had all the information from each store, except for the addresses of the respondents. A copy of these data sheets was

forwarded to each store manager who cooperated in the study. The data from these sheets were transferred to Key-Sort cards for ease of both simple and cross-tabulation.

Plotting

The addresses of those interviewed were transferred from the interview sheets to maps obtained from the United States Geological Survey. Of the three hundred and twenty-five interviews, nine could not be illustrated due to inadequate addresses. Another forty-four were not plotted due to the extreme distance from the store.

Half-Mile Increments

Three one-half mile concentric circles were drawn around each store to determine the drawing power of the stores. Although distance is not the single determinant of a trading area, the outer limit was chosen since it has been stated that a neighborhood center of from eight to ten stores will draw easily from a distance of one and one-half miles.¹

Quadrants

Four quadrants were drawn to divide the concentric one-half mile increments in order better to understand the nature of customer

¹ J. Ross McKeever, "Shopping Centers Re-Studied," Technical Bulletin No. 30, Urban Land Institute, February 1957, p. 22.

concentration. For four of the six stores the ordinate and abscissa are plotted in true north-south and east-west directions, respectively. In the remaining two stores, both located along the upper half of Highland Drive, the ordinate is made to parallel Highland Drive as closely as possible. By doing so one must assume that the majority of each of these stores' customers travels along Highland Drive to get to the store rather than by using intersecting streets. A closer look at the maps of each of these stores will show that this assumption is mostly true.

The method of numbering the quadrants for the four stores along Highland Drive is as follows: Quadrant I, northeast; Quadrant II, northwest; Quadrant III, southwest; Quadrant IV, southeast. The quadrants for the two remaining stores, both in the western half of Salt Lake County, are numbered as follows: Quadrant I, southeast; Quadrant II, northeast; Quadrant III, northwest; Quadrant IV, southwest. This procedure made the quadrant farthest from the central business district Quadrant IV and the quadrant nearest the central business district Quadrant II for all of the stores.

Inboard and Outboard

The inboard area is defined as that area between the store location and the central business district, and the outboard is that area beyond the store location away from the central business district. The total number of residences in the inboard area represents the sum of the residences in Quadrants I and II and that of the outboard area, the sum of the residences in Quadrants III and IV.

CHAPTER III

RESULTS

In order that the information obtained from the interviews may be of greater value the data have been divided into two general sections. The location patterns section is concerned with the quantitative material pertaining to the store sites, the residential composition of the customers about the store site, and descriptive information such as physical barriers which hamper accessibility to the store site. The interview analysis section discusses information which is not directly concerned with store location but rather is related to consumer buying habits.

Aggregate Location Patterns

Distance Analysis

Stores varied in respect to the number of customers who reside in each one-half mile concentric circle. This factor generally was dependent upon the character of each particular neighborhood.

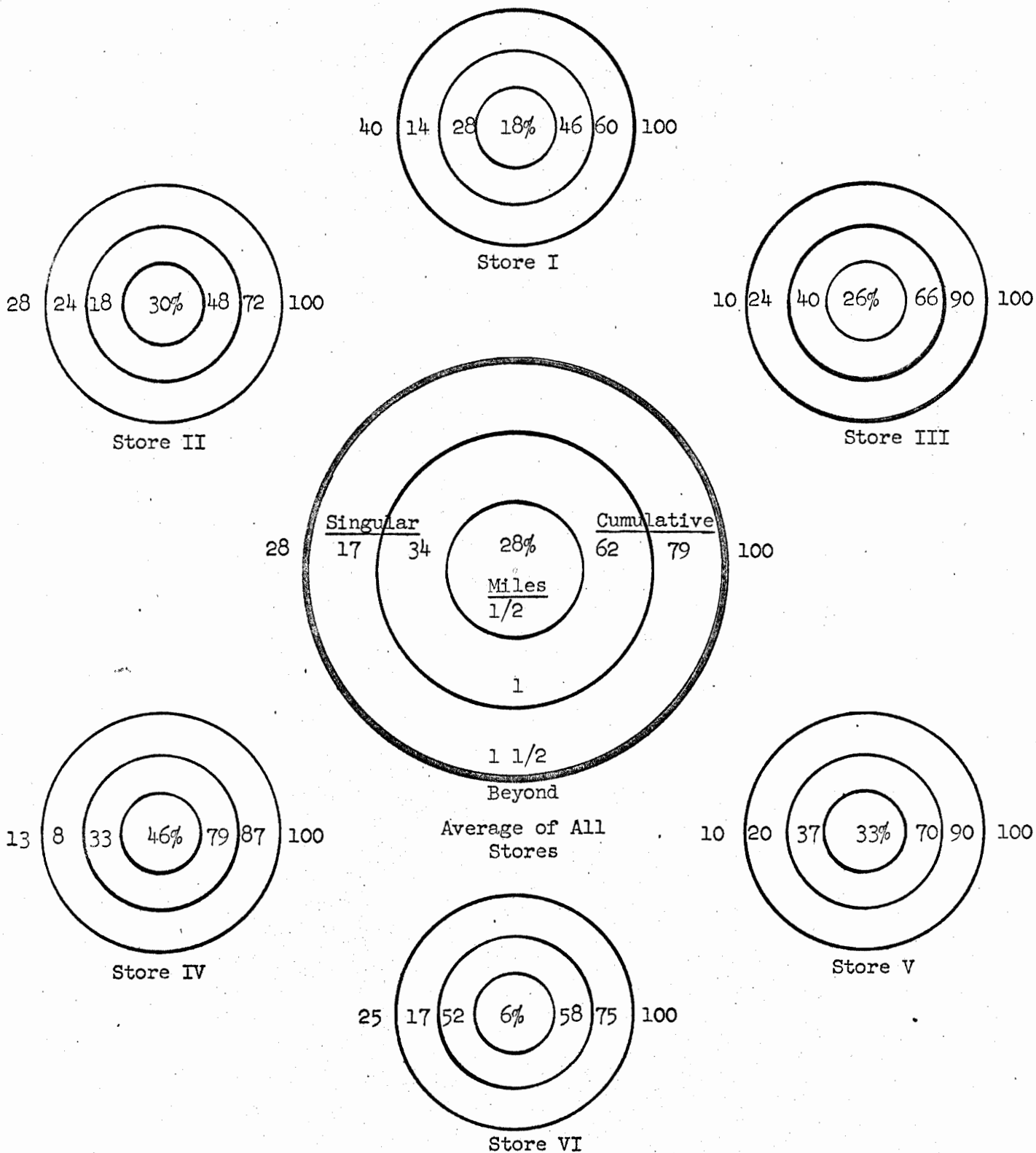
With respect to results on customer proximity, the most illustrative is that nearly four-fifths (seventy nine and four-tenths per cent) of all the customers interviewed live within one and one-half miles of the store (Table 1). These are not just the people who do the majority of their drug purchasing at each location, but also includes others who are doing supplementary buying. Adding the latter gives greater importance to the innermost half-mile radii.

TABLE 1
DISTANCE TRAVELED BY CUSTOMERS

Store	1/2 Mile		1 Mile		1 1/2 Miles		Beyond 1 1/2 Miles	
	Number	Per Cent	Number	Per Cent	Number	Per Cent	Number	Per Cent
1. West Jordan	9	18	39	28	7	14	20	40
2. West Side	15	30	9	18	12	24	14	28
3. Warren	12	26	19	40	11	24	5	10
4. Kolob	33	46	24	33	6	8	9	13
5. Hyland	16	33	18	37	10	20	5	10
6. Chesley	3	6	25	52	8	17	12	25
Total	88	.	109	.	54	.	65	.
Per Cent	28	.	34	.	17	.	21	.
Cumulative	28	.	62	.	79	.	100	.

CHART 1

PER CENT OF CUSTOMERS RESIDING WITHIN AN AREA
DEFINED BY ONE-HALF MILE INCREMENTS



In one sense it might be considered difficult to draw any highly technical conclusions from these results since each store is indicative of its own surroundings. However, the fact that eighty per cent of a neighborhood retail pharmacy's customers will live within one and one-half miles of the store is important.

Quadrant Composition

As conclusive supportive evidence that the population of Salt Lake County is oriented toward the central business district, Chart 2 illustrates that for each location studied the quadrant farthest from the central business district (IV) had the highest number of customer residences. Since nearly half of a store's customers will come from the quadrant farthest from the central business district, the usefulness of knowing this value should prove to be effective in determining the relative merit of prospective locations. This topic will be considered in more detail on page

Inboard and Outboard Composition

As would be anticipated by the previous results, the outboard volume exceeds the inboard volume of residences (Chart 3). The inboard category averaged thirty-five and two-tenths per cent with a range from twenty-two to forty-four per cent. The outboard group averaged sixty-four and eight-tenths per cent with a range from fifty-six to eighty-eight per cent. This verifies the following statement by Inus about another type of retail institution:

CHART 2

PER CENT OF CUSTOMERS
RESIDING IN EACH QUADRANT

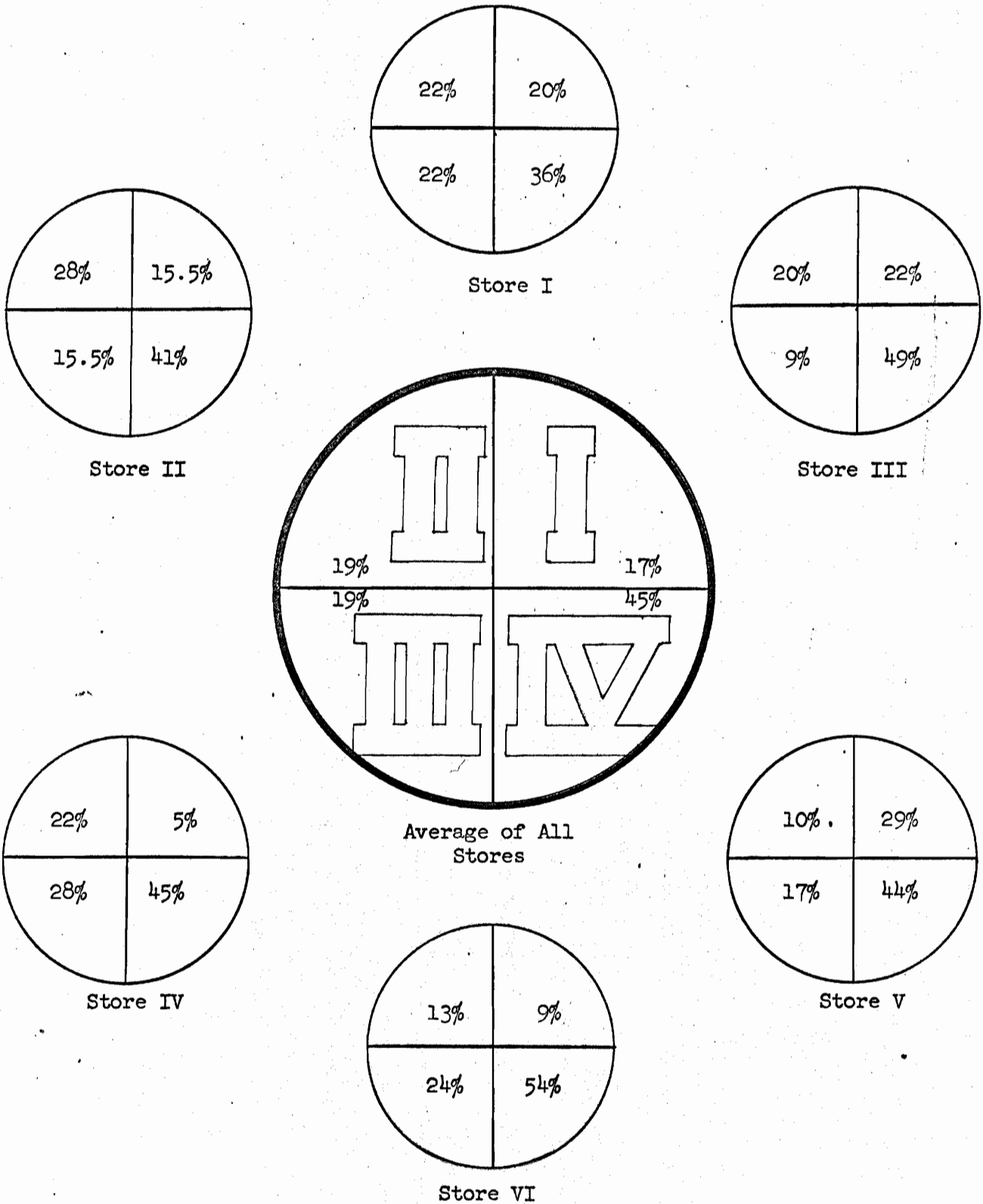
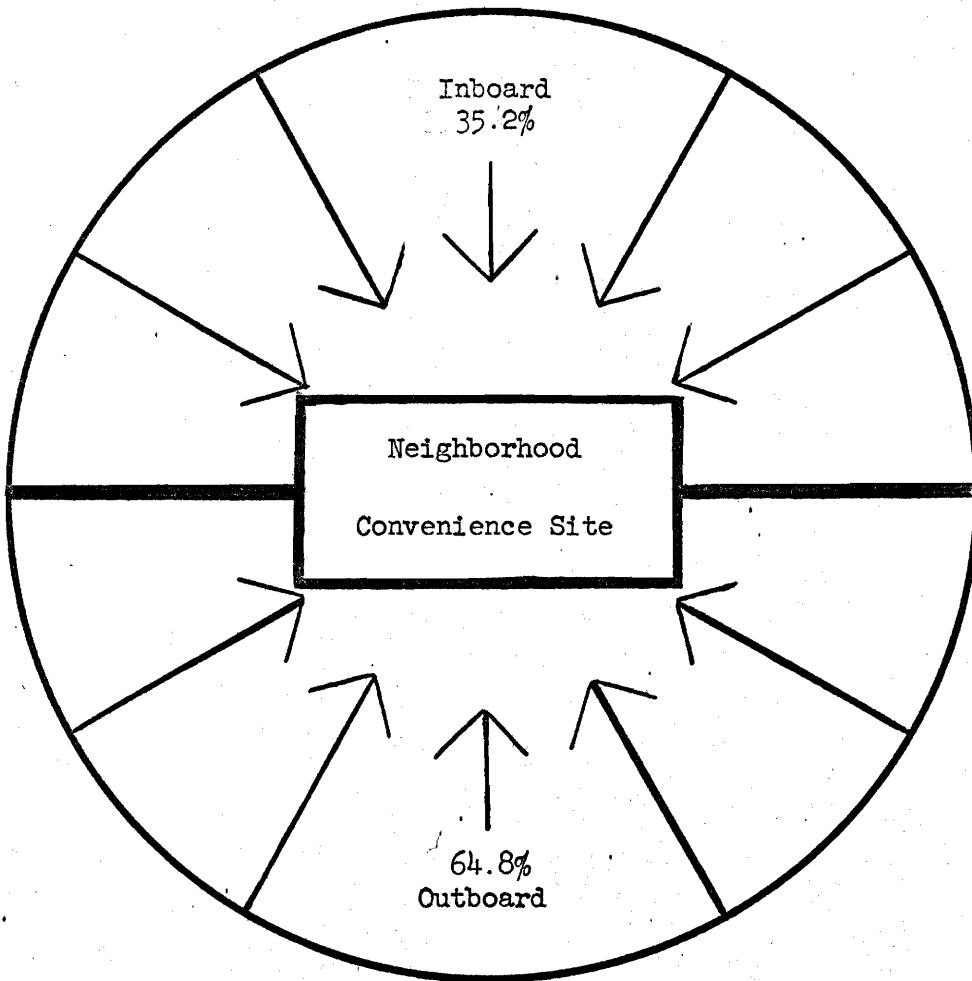


TABLE 2
CUSTOMERS RESIDING IN
INBOARD AND OUTBOARD AREAS

Store	Inboard		Outboard	
	Number	Per Cent	Number	Per Cent
1. West Jordan	15	42	21	58
2. West Side	17	44	22	56
3. Warren	19	42	26	58
4. Kolob	18	27	49	73
5. Hyland	19	40	29	60
6. Chesley	10	22	36	88
Total	99	.	182	.
Average	16.5	.	30.3	.
Per Cent	35.2	.	64.8	.

CHART 3

PER CENT OF CUSTOMERS RESIDING
IN INBOARD AND OUTBOARD AREAS



Population living beyond the proposed location on the side away from the central business district is likely to contribute at least twice as much sales volume per capita as the population living between the proposed project and the central business district.²

Individual Location Patterns

Store I - West Jordan Pharmacy

This store, of all the stores surveyed, had the highest number of customers living more than one and one-half miles away (Table 1). This is primarily due to the rural nature of the area surrounding the location. As seen by the map of this site, a well established city with an abundance of shopping facilities lies approximately one and one-half miles due east (Midvale, Utah). The influence of this will be discussed later when the amount of purchasing done at this store is considered (see page 38). West Jordan Pharmacy had the second largest number of customers residing on the inboard side (forty-two per cent). The store with the highest per cent was also located on the west side of the county. The exact reason for these differences when compared to the stores located along Highland Drive on the east side of the county is difficult to determine.

Store II - West Side Drug

This store, as with Store I, had the largest number of customers from the southwest quadrant (IV) and had the largest inboard per cent (forty three and five-tenths) of all the businesses studied.

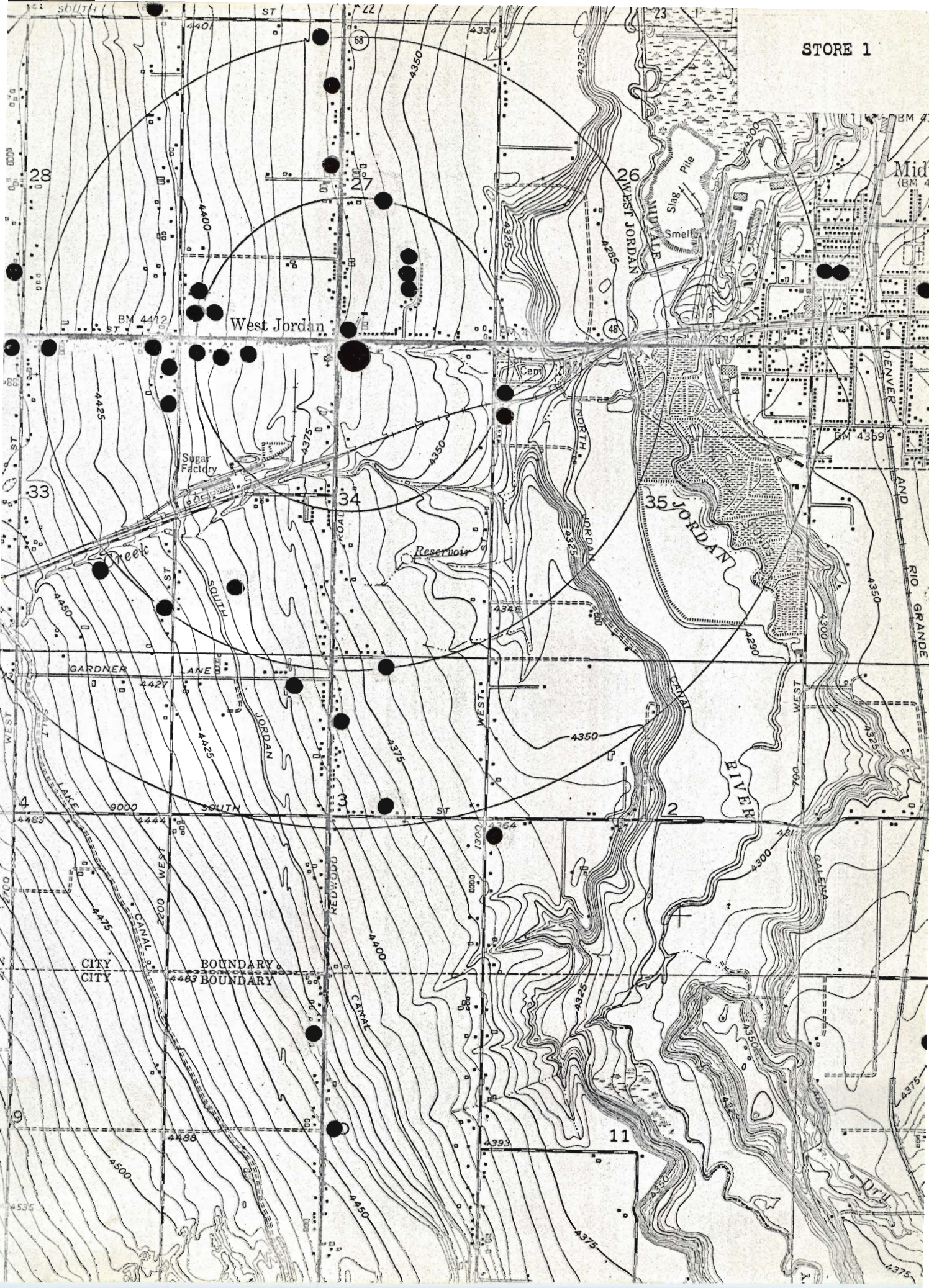
² Harold R. Inus, Projecting Sales Potentials for Department Store in Regional Shopping Centers, Store Location and Development Studies, Clark University (Worcester, Mass.: By the author, 1961), p. 34.

The inboard-outboard concept is somewhat difficult to apply to this site due to the heavy traffic volume using the intersecting streets of Second South and Eighth West where the store is located. However, if Quadrant II and III had been chosen as inboard rather than I and II, the inboard value would still remain the same (Chart 1). Also, if Quadrant II and III had been chosen, one would have to assume that more people were traveling to the city via North Temple Street due to the presence of a physical barrier (railroad tracks) due east of the store. The influence of this barrier is decreased at the North Temple crossing by a viaduct. Most of the land west of the store on the north side of Second South Street tends to be industrial in nature and partly accounts for the lack of customers from that general area.

Store III - Warren Drug

The most interesting locational aspect of this store is that ninety per cent of its customers live within one and one-half miles of the store (Chart 3). Only Store V had a similar concentration of clientele. Like the three other stores located along Highland Drive, this store had the largest number of customers from the southeast quadrant (IV). A very definite north-south orientation is noted at this location. Aside from the influence of Highland Drive, two other factors are responsible for the shape of this trading area. One is the presence of two other stores to the east

STORE 1



West Jordan

SMELTER
Slag Pile
Cement

Sugar Factory

Reservoir

JORDAN RIVER

CANYON RIVER

GALENA RIVER

GARDNER LANE

SOUTH STREET

WEST STREET

WEST STREET

CITY CITY BOUNDARY

CITY CITY BOUNDARY

REDWOOD CANYAL

11

28

27

33

34

2

4

9

BM 4412

Mid (BM 4)

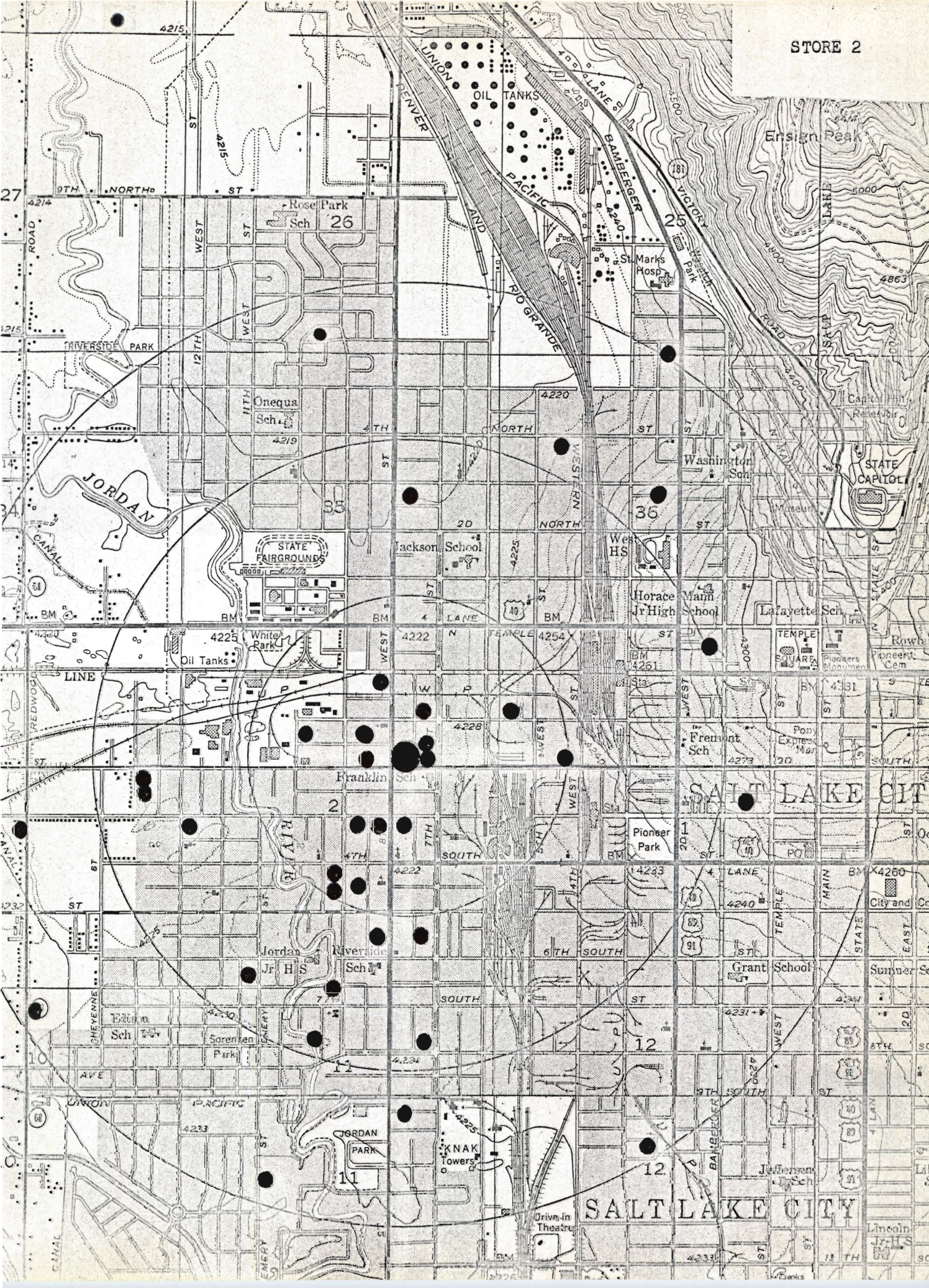
DENVER (BM 4359)

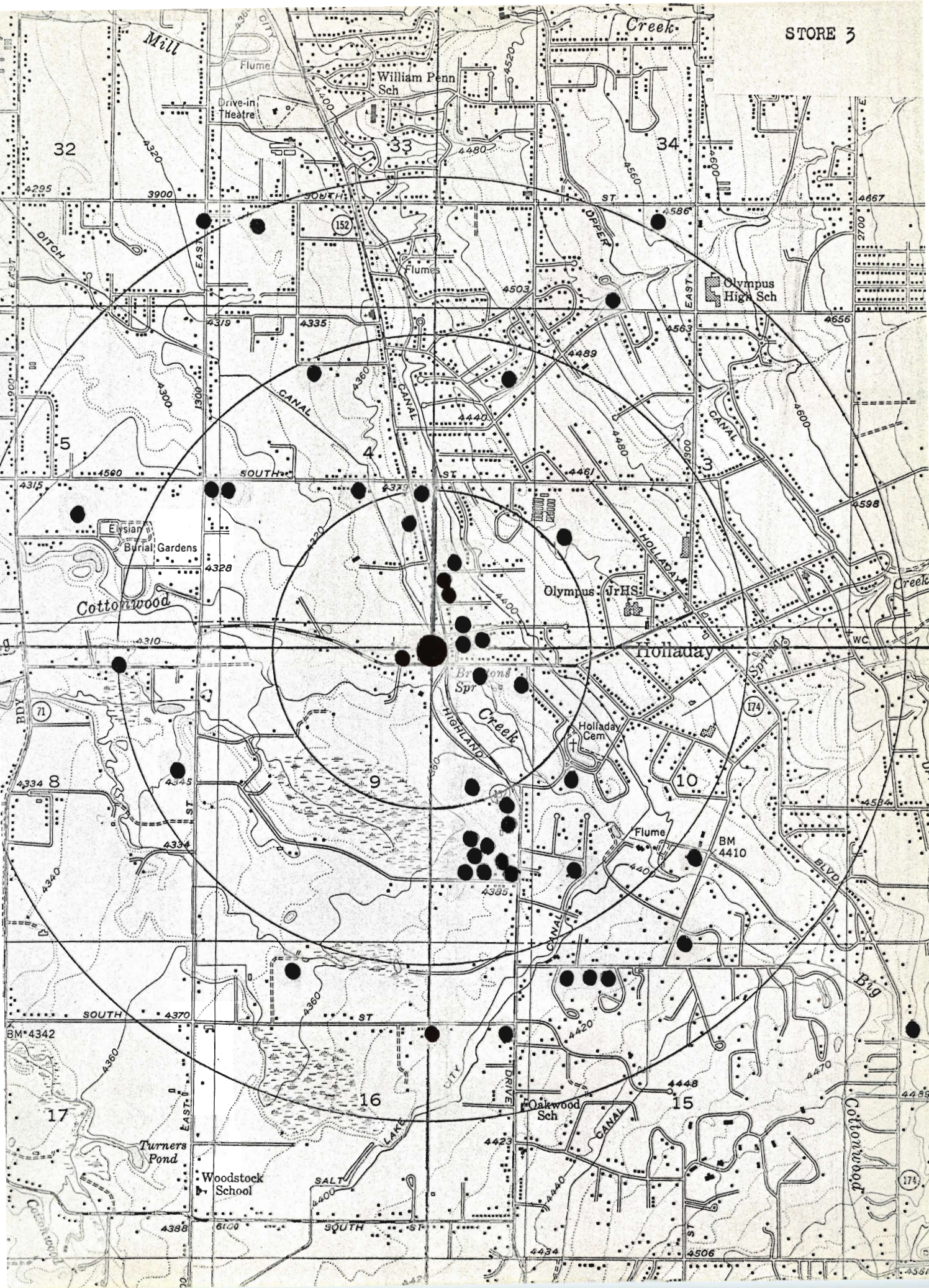
AND

RIO GRANDE

17 1/2

4375





in Holladay, less than one mile away, and the other is the absence of a highly accessible "through" street to the west.

Store IV - Kolob Drug

This store had the highest number of customers within the first one-half mile (forty-six per cent), over eighteen per cent above the average (Chart 3). It is interesting to note that one of the quadrants (I) for this store had the lowest per cent of customers recorded for any single quadrant in the entire study (Chart 1). Unlike the other stores along Highland Drive, this store had a larger number of customers from the west of the store site (Quadrant II and III). This makes the trading area for this location more elliptical in an east-west direction rather than a north-south direction. The shape of this trading area may be due to a physical factor of a heavy traffic flow along 3900 South Street and the competitive factor of two other stores, one being one mile to the north and the other less than one and one-half miles to the south. The importance of 3900 South Street should not be overlooked. Because of the geography of the area there are only three through streets within about a mile. These are 3300 South Street, 3900 South Street, and 4500 South Street. Unfortunately, the shopping center in which this store is located is slightly south of the intersection and, therefore, at a slight disadvantage in attracting the 3900 South Street traffic.



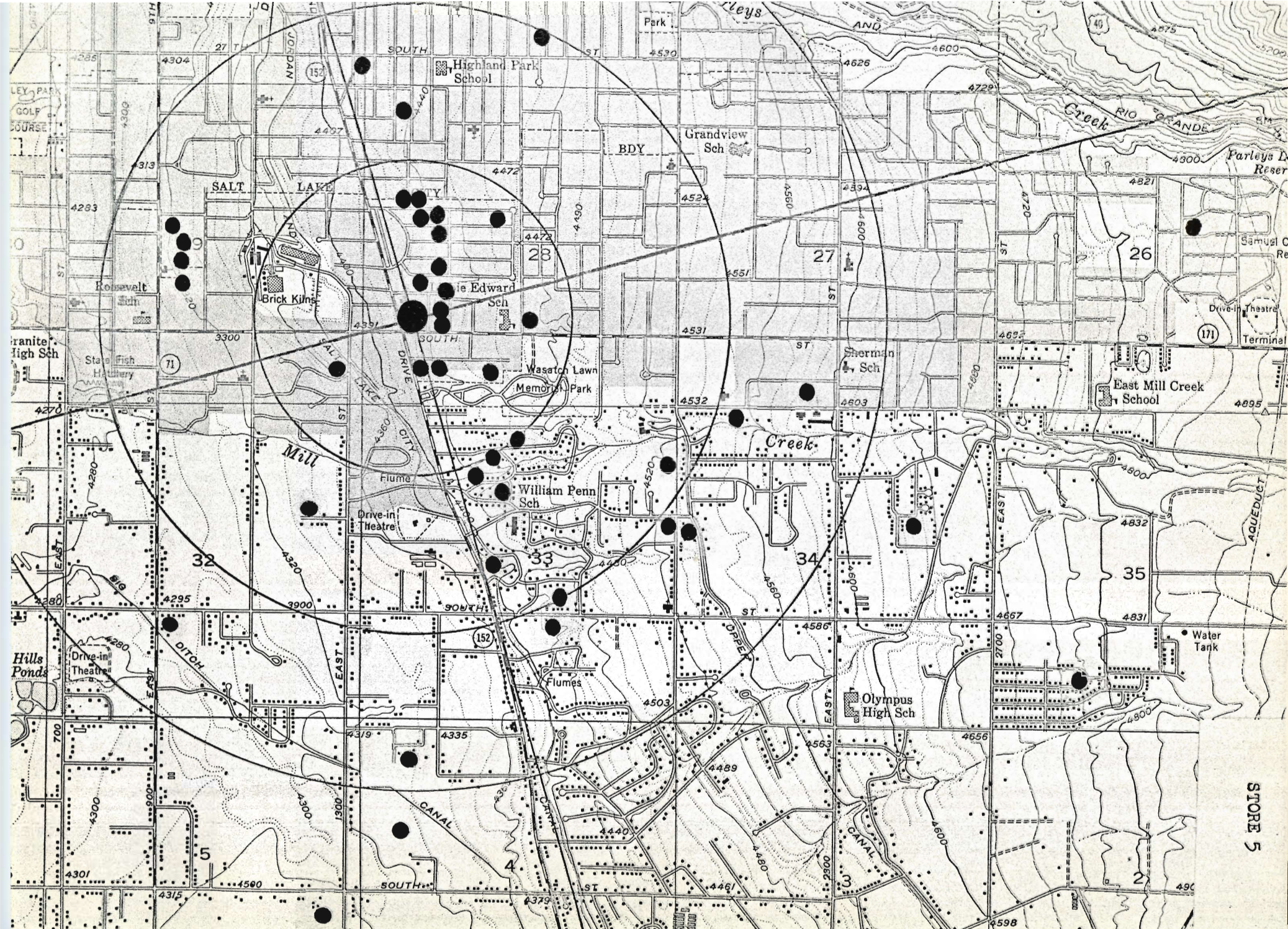
STORE 4

Store V - Hyland Pharmacy

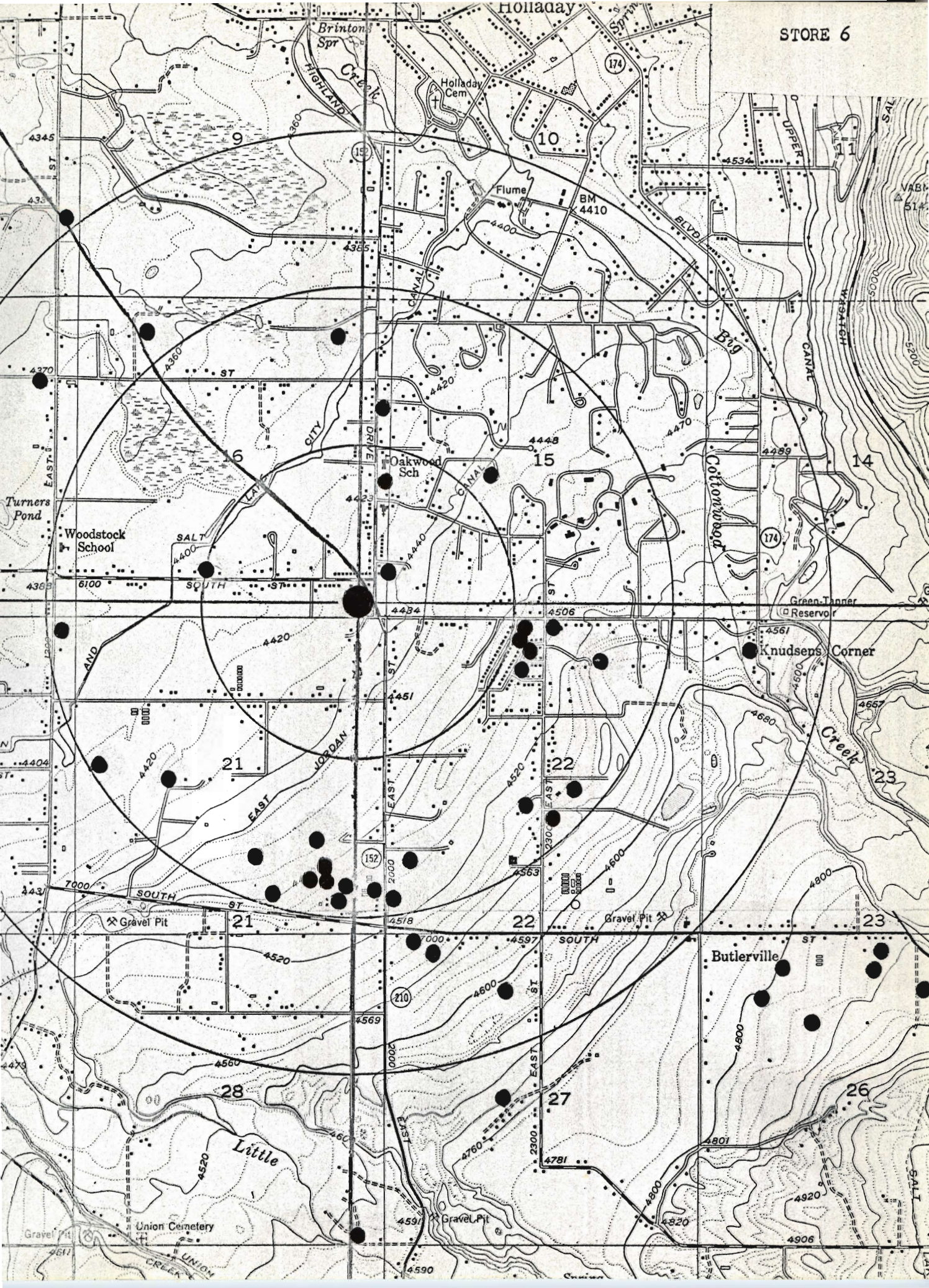
As in the case of Store III, ninety per cent of the customers of this store reside within a one and one-half mile radius of the store. This store probably has a larger number of physical barriers near its location than any other store included in the study. These barriers include a hill, a lack of through streets, a cemetery, and a brick kiln. However, customer patronage is not deterred by the presence of either a cemetery or a brick kiln. As shown on the map, customers came from beyond both of these obstacles to patronize this store. It is interesting to note the large number of customers who reside due north of the store, especially since there is a store equally close to these residences at the intersection of 3010 South Street and Highland Drive. This store, of those along Highland Drive, had the largest number of customers living in Quadrant I (twenty-nine per cent), although the quadrants are oriented with the ordinates running parallel to Highland Drive. Even if the ordinate had been rotated to have the abscissa parallel with 3300 South Street, there would have been only a five per cent decrease in the number of customers in Quadrant I and no change in the ranking would have occurred.

Store VI - Chesley Drug

Due to the dispersed population in the area, this store has the minimum of customers (six per cent) from within the first one-half mile. Over half (fifth-four per cent) of the persons interviewed



STORE 5



at this store reside in one quadrant. For all the stores studied, this is the maximum recorded for any single quadrant. Because of the concentration of population there, this site also had the largest per cent of customers (eighty-eight per cent) living on the outboard side for any of the stores studied. A reason for this situation is the new Cottonwood diagonal road which has been built. This road comes from a west-northwesterly direction and terminates in front of the store. This undoubtedly influences the amount of outboard customers since accessibility to the store is at a maximum when traveling southeast. In other words, the store is on the "going home" side at the termination of the divided expressway. However, the diagonal nearly completely obstructs any traffic moving south along Highland Drive from the north of 6100 South Street and contributes to the fact that this store has the lowest per cent of inboard customers. Another barrier for the person living in the northwest area from the site is the limited access on the Cottonwood Diagonal itself.

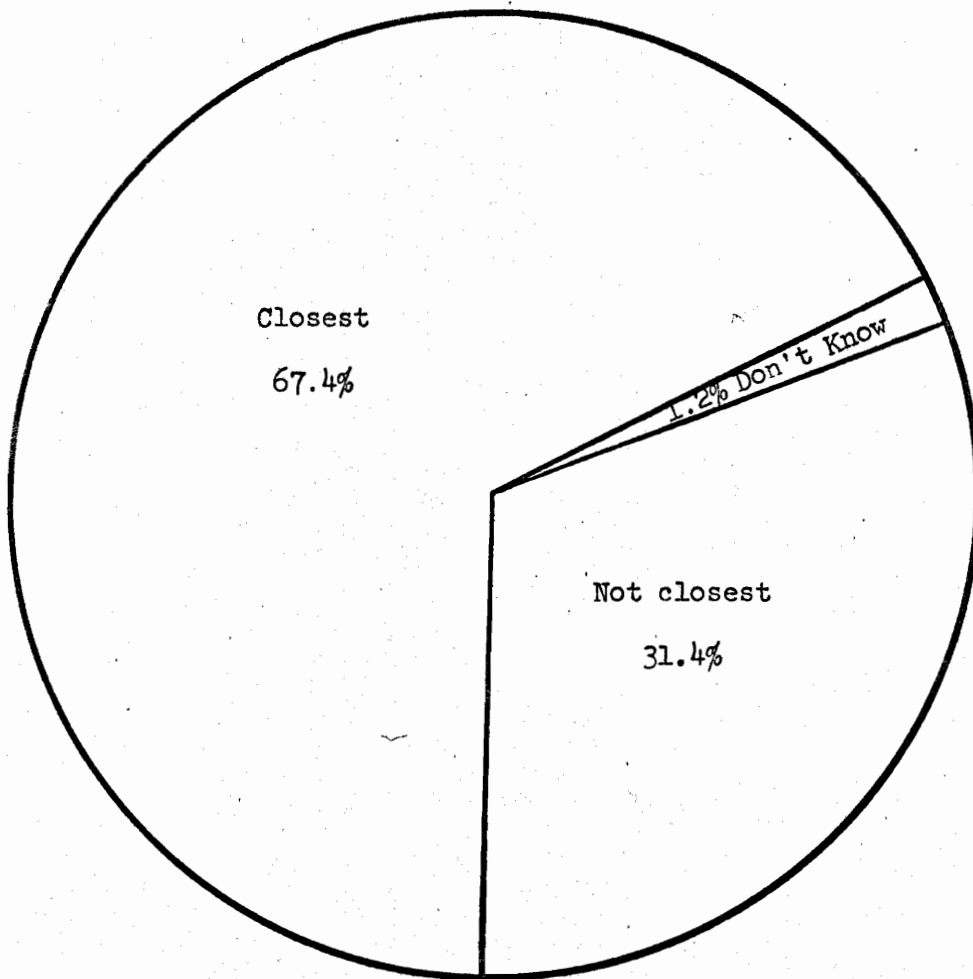
Aggregate Interview Analysis

Proximity

Over two-thirds (sixty-seven and four tenths per cent) of the persons interviewed at each store stated that the retail pharmacy where they were when interviewed was the one closest to their homes (Chart 4). A large per cent (eighty-three and eight-tenths per cent) of those who were at the closest store to their home said they made

CHART 4

PROXIMITY OF THE RESIDENCE OF THE CUSTOMERS
TO THE STORE WHERE THEY WERE INTERVIEWED



the majority of their purchases at the same store. In other words, less than one-fifth (sixteen and two-tenths per cent) of the persons interviewed and who lived nearest one of the survey stores, do the majority of their drug purchasing elsewhere.

The sex of the person interviewed had little effect on the shopping habits of the customers. More females (fifty-two and five-tenths per cent) shopped at the closer store than did males (forty-seven and five-tenths per cent) (Table 3).

Method of Transportation

As might have been anticipated, most customers (ninety-five and one-tenth per cent) interviewed use their cars as a means of transportation to the retail pharmacies studied. All of the remainder walked and none came by bus or taxi (Table 4). The range for each store for those driving was from a low of eighty-four per cent to a high of one hundred per cent. This range was influenced by the degree of population concentration in the immediate area for each of the stores studied.

It is interesting to note that a larger per cent of the younger age groups drove than did the older age groups (Table 5).

Majority of Purchases

Sixty-eight per cent of the persons questioned did the majority of their drug purchasing at the store at which they were interviewed (Chart 5). This ranged from fifty-six per cent to eight-four per cent for all the stores (Table 6). However, this differed according

TABLE 3

PROXIMITY OF RESIDENCE TO THE STORE CORRELATED WITH
THE SEX OF THE CUSTOMERS INTERVIEWED

Sex	Closest (Per Cent)	Not Closest (Per Cent)
Male	47.5	60.8
Female	52.5	39.2
Total	100.0	100.0

TABLE 4

USUAL METHOD OF TRANSPORTATION USED BY CUSTOMERS

Store	Drive (Number)	Walk (Number)	Other (Number)
1. West Jordan	49	1	0
2. West Side	42	8	0
3. Warren	49	1	0
4. Kolob	71	4	0
5. Hyland	48	2	0
6. Chesley	50	0	0
Total	309	16	0
Per Cent	95.1	4.9	0

TABLE 5

COMPARISON OF THE USUAL METHOD OF TRANSPORTATION
CORRELATED WITH
THE ESTIMATED AGE OF THE CUSTOMERS INTERVIEWED

Age	Transportation			
	(Number)	Walk (Per Cent)	(Number)	Drive (Per Cent)
20-30	1	2	48	98
30-40	7	4	177	96
40-50	8	11	66	88
50-60	1	14	6	86
50-above	1	100	0	0
Total	18	.	297	.

CHART 5

PER CENT OF CUSTOMERS PURCHASING THE
MAJORITY OF THEIR DRUG NEEDS AT
THE STORE WHERE THEY WERE
INTERVIEWED

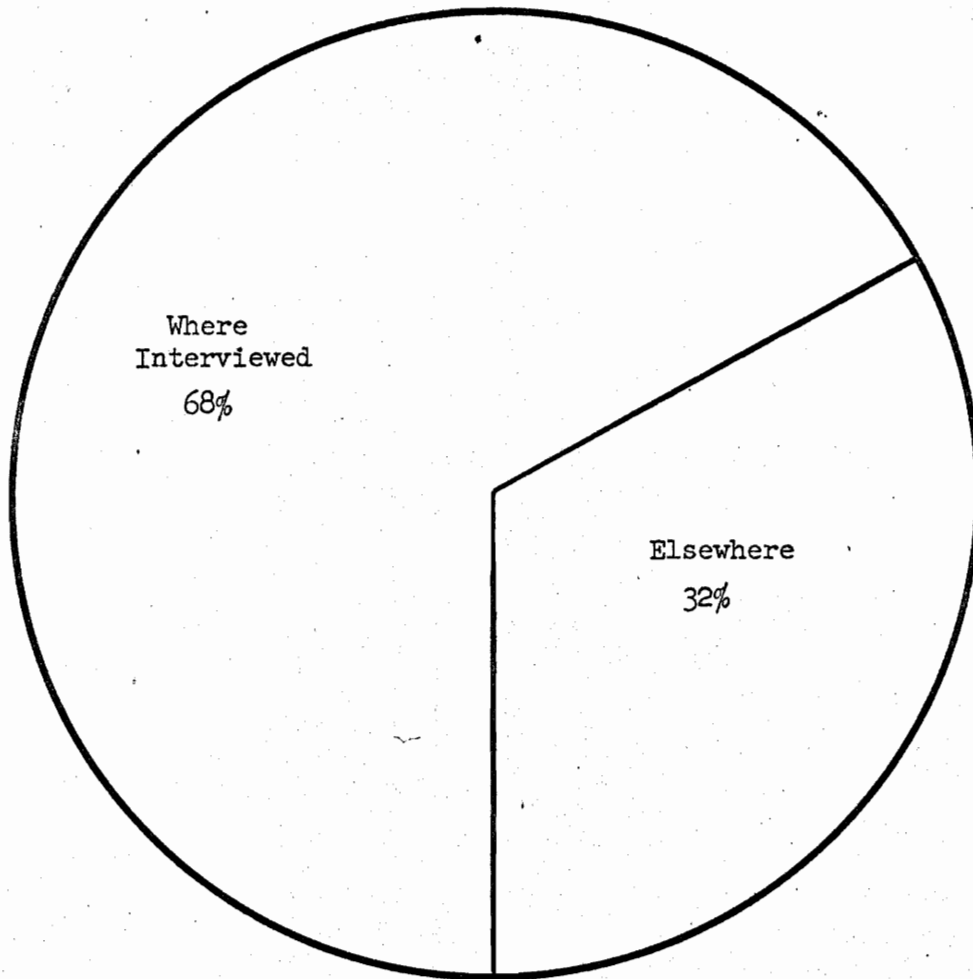


TABLE 6

PER CENT OF CUSTOMERS PURCHASING THE MAJORITY
OF THEIR DRUG NEEDS AT THE STORE WHERE THEY
WERE INTERVIEWED

Store	Where Interviewed	Elsewhere
1. West Jordan	56	44
2. West Side	60	40
3. Warren	68	32
4. Kolob	67	33
5. Hyland	74	26
6. Chesley	84	16
Per Cent (average)	68	32

to age groups. The 20-30 and 30-40 age groups had the majority of the purchases at the store where they were interviewed: sixty-seven and three-tenths per cent and sixty-seven and four-tenths per cent, respectively. Conversely, the 40-50 age group purchased the majority of their drug needs elsewhere.

Customer Attitudes

This portion of the survey is biased since only those persons who were doing the majority of their buying at the nearest store to their homes were asked for specific reasons why they were doing so. This group comprised only sixteen per cent of the total survey. Habit was the most frequent reason given for store patronage. Two separate factors are responsible for habit being the most frequent reason. One is that some people were still doing the majority of their drug buying at the same store although they had moved from the area and there was another store closer to their home. The other factor is that some people were doing the majority of their buying at another store even though a newer one had been established closer to their residence. At first glance this might seem to be contrary to the original hypothesis stated in Chapter I (see page 4), but further thought shows that it is difficult to alter the routine of buying habits in a relatively short period of time.

Size of the Purchase

The average size of the purchase in the stores studied was relatively small. Thus, forty-two per cent of the purchases made

during the survey were less than one dollar, and eighty per cent were less than four dollars (Table 7). There was little significant difference between those who walked to the store and those who drove as far as the size of the purchase was concerned.

Age

The 30-40 age bracket comprised the model group of those interviewed (fifty-nine and five-tenths per cent). This figure ranged from forty-four per cent to seventy-two per cent, illustrating the diversification in the age of the various neighborhoods (Table 9). The average age was 36.3 years with a standard deviation of 6.8 years.

Sex

More men (fifty-two and three-tenths per cent) than women (forty-seven and seven-tenths per cent) were interviewed (Table 10). This is probably explained on the basis of the time of day during which the interviews were conducted (see Methodology).

Individual Interview Analyses

Store I - West Jordan Pharmacy

Although seventy-six per cent of the people interviewed at this store said that this was the closest one to their homes, thirty-seven per cent of these said that they made the majority of their purchases elsewhere. This is over twice as much as the average (sixteen and two-tenths per cent). This situation is not so alarming

TABLE 7
AVERAGE SIZE OF PURCHASE BY CUSTOMERS

Store	\$0.- 0.99	\$1.- 1.99	\$2.- 2.99	\$3.- 3.99	\$4.- 4.99	\$5.- 5.99	\$6.- 6.99	\$7.- 7.99	\$8.- ABOVE	Mean Purchase *
1. West Jordan	22	9	5	7	1	2	2	0	2	\$2.14
2. West Side	24	10	4	4	2	2	0	0	4	2.10
3. Warren	13	7	9	4	3	3	0	1	10	3.56
4. Kolob	30	14	11	8	2	3	1	0	6	2.33
5. Hyland	25	5	4	6	3	2	2	0	3	2.28
6. Chesley	23	4	4	7	1	2	1	1	7	2.82
Total	137	49	37	36	12	14	6	2	32	.
Per Cent	42.2	15.1	11.4	11.1	3.7	4.3	1.8	0.6	9.8	.
Cumulative Per Cent	42.2	57.3	68.7	79.8	83.5	87.8	89.6	90.2	100.0	.

* Mean purchase for all stores was \$2.52.

TABLE 8

SIZE OF THE PURCHASE CORRELATED WITH
THE PROXIMITY OF THE RESIDENCE OF
THE CUSTOMERS TO THE STORE
WHERE THEY WERE INTERVIEWED

Size of the Purchase	Closest		Not Closest	
	Number	Per Cent	Number	Per Cent
\$0.-0.99	93	42.4	45	44.1
1.-1.99	36	16.4	17	16.7
2.-2.99	26	11.9	9	8.8
3.-3.99	26	11.9	11	10.8
4.-4.99	8	3.7	4	3.9
5.-5.99	12	5.5	2	1.9
6.-6.99	5	2.2	1	1.0
7.-7.99	3	1.4	1	1.0
8.-above	10	4.6	12	11.8
Total	219	100.0	102	100.0

TABLE 9
ESTIMATED AGE OF CUSTOMERS INTERVIEWED

Store	20-30	30-40	40-50	50-60	60-above	Mean Age*
1. West Jordan	9	33	8	0	0	34.8
2. West Side	2	32	14	1	1	38.4
3. Warren	7	29	13	1	0	36.6
4. Kolob	20	42	11	2	0	34.4
5. Hyland	5	22	22	1	0	38.8
6. Chesley	6	36	8	0	0	35.6
Total	49	194	76	5	1	.
Per Cent	15.1	59.7	23.4	1.5	0.3	.

* Mean of all stores was 36.3 years; standard deviation 6.8 years.

TABLE 10
SEX OF THE CUSTOMERS INTERVIEWED

Store	Male	Female
1. West Jordan	20	30
2. West Side	26	24
3. Warren	25	25
4. Kolob	42	33
5. Hyland	30	20
6. Chesley	27	23
Total	170	155
Per Cent	52.3	47.7

when one understand that this is a relatively new store (1961) in the area and that many of the persons interviewed are still purchasing the majority of their drug needs at the store which they have previously patronized; the location of this store was in Midvale. The average purchase (\$2.14) in the store was sixteen per cent below the average for all stores.

Store II - West Side Drug

Sixteen persons interviewed in the entire study walked to the store rather than drove and fifty per cent of these were customers of this store, verifying its "true" neighborhood characteristics (Table 5). This may be due to many factors such as the clustering of homes near the store site and the general lower income of the residents in this area which would be responsible for the lack of cars or second cars available for shopping purposes. Only one person in the fifty-six per cent who stated that this was the closest store to their home did the majority of his buying elsewhere. The average purchase (\$2.10) in this store was seventeen per cent below the average for all stores.

Store III - Warren Drug

Seventy-four per cent of the persons interviewed at this store stated that it was the closest one to their home; of these, thirteen per cent said they did the majority of their buying elsewhere. Sixty per cent of those interviewed did the majority of their

shopping at this store. This was slightly below the average of sixty-eight per cent for the six stores (Table 6). This is counter-balanced by the fact that this store had the highest average purchase of \$3.56, forty-one per cent above the average for all the stores surveyed (Table 7).

Store IV - Kolob Drug

Seventy-seven per cent of the persons interviewed at this store stated that it was the closest one to their home. This was the maximum figure for all the stores and exceeded the average by nearly ten per cent (Table 11). Twenty-five per cent of the people in the survey who walked to the store rather than drove were customers of this store. All the persons who said they made the majority of their purchases here also stated that this was the closest store to their home. This was the only store to have a one hundred per cent tabulation, although the others were comparatively high. The average purchase (\$2.33) in this store was eight per cent below the average for all the stores surveyed and the average age (34.4 years) was the lowest recorded (Table 9).

Store V - Hyland Pharmacy

Although seventy per cent of the customers interviewed at this store said they were closer to this than to any other, only nine per cent of these did the majority of their shopping elsewhere. The average purchase (\$2.28) in this store was ten per cent below the average for all stores and the average age (38.8 years) was the maximum recorded.

TABLE 11

PROXIMITY OF THE RESIDENCE OF THE CUSTOMERS
TO THE STORE WHERE THEY WERE INTERVIEWED

Store	Closest		Not Closest		Don't Know	
	Number	Per Cent	Number	Per Cent	Number	Per Cent
1. West Jordan	38	76	12	24	0	0
2. West Side	28	56	22	44	0	0
3. Warren	37	74	13	26	0	0
4. Kolob	58	77	13	17	4	5
5. Hyland	23	46	27	54	0	0
6. Chesley	35	70	15	30	0	0
Total	219	.	102	.	4	.
Per Cent	67.4	.	31.4	.	1.2	.

Store VI - Chesley Drug

Exactly eight-four per cent of the people interviewed at this store did the majority of their drug purchasing here, although thirty-three per cent of this group claimed that it was not the closest store to their home. This is most likely due to the fact that a newer store has recently opened (August 1961) approximately one-half mile to the south on Highland Drive. Since the majority of this store's customers live in the southeast quadrant, the newer store would be closer. This is the only store of those studied where all of those interviewed came by automobile. The average purchase (\$2.82) in this store was eleven per cent above the average for all stores.

CHAPTER IV
SUMMARY AND CONCLUSIONS

Location Patterns and Future Trends

The presence of definite location patterns was demonstrated in the previous chapter, but in order to make them more valuable it is necessary to understand how they relate to the entire field of location studies and more generally to the field of retailing.

Location Patterns

In order to evaluate the subsequent discussion of the applicability of patterns, the salient features of the customer residential concentration will be reviewed. One of the most important features of the location patterns section is that nearly four-fifths of a store's customers live within a one and one-half mile radius of the store and an equal number do the majority of their purchasing there. Since people are naturally oriented toward the city, the majority of the customers live on the outboard side. On this side, the quadrant farthest in mileage from the city (Quadrant IV) has the largest number of customers.

The automobile plays a highly important, perhaps the most important, role in the customers' buying habits and all future locations should evaluate even more closely such factors as adequate parking facilities, proper side of the street location, distance from the corner, relative building visibility, access, and many

other concepts related to automobile driving. The fact that ninety-five per cent of a neighborhood store's customers will drive to the store rather than walk is highly significant. One site with unfavorable characteristics in regard to the above-named factors can have a sales volume of half that of other similar stores, according to unpublished research studies of the College of Business, University of Utah.

Suburban Trends

As with nearly all larger cities in many parts of the United States, Salt Lake City is experiencing an increase in population unequaled in its history. As more and more people decide to establish a residence in the area, the outer limits of the city expand to envelop newer areas. The outcome of such a "ballooning" effect is the development of more dispersed, larger metropolitan cities.

The development of larger cities has many situations related to neighborhood location sites. Primarily, as newer residential areas are built to supply the population increase, more neighborhood convenience-goods stores are built (Store I). In turn, as the outer periphery increases the need for these sites, the established stores gradually become more dominant in their trading area and decrease the chance of success of any newer neighborhood stores near them (Store V). Generally, the overall effect is that the newer neighborhood stores are only locating outside the established areas.

Secondarily, it must be remembered that although these sites may be up to fifteen miles away from the central business district, the city center is still usually the principal magnet of business activity (retail, financial, and administrative).

Due to present growth patterns, one could become falsely assured that future expansion would continue in the same direction as in the past. It is very difficult to reverse major directional trends.¹ However, this is not so great a problem in the Salt Lake Valley since, for geographical reasons, growth is generally limited to a southerly direction with the eastern half expected to show the greatest increase.

Applicability

Assuming that a location has been recommended for a store site, the prospective builder or buyer should first obtain a map of population distribution² in order to see if there is an adequate number of householders to support such a business. However, prospective future building should not be counted on for the primary support of a store, but rather regarded as additional potential.

More important than the number of people in the area is the manner in which they are located around the prospective site. As has been demonstrated, a new suburban retail pharmacy should not

¹ Max S. Wehrly, J. Ross McKeever (ed.'s) The Community Builders Handbook. Community Builder's Council of the Urban Land Institute, Washington, D. C., 1954, p. 254.

² Common sources are: 1) U. S. Censuses of Population, 2) School censuses, 3) Route lists from power and gas companies, 4) Chambers of Commerce, 5) City and County Planning Commissions.

normally be built any closer than one mile to another and preferably one and one-half miles, unless there is sufficient population in the trading area to support more than one. The ideal situation would be to have the store located on the most accessible route to the city and between the majority of the prospective customers. That is, it would be best to have the highest number of potential customers on the outboard side in the quadrant farthest from the central business district.

Once the relatively easy tasks of determining the above customer patterns are completed, a more specific analysis should be conducted. However, if the location fails any one of the three pattern tests (mileage, inboard and outboard, and quadrant composition) it should be ruled as highly speculative for a neighborhood retail pharmacy location.

Retailing Location Trends in Convenience-Goods Stores

The importance of keeping informed with the market can be no more easily demonstrated than by examining the plight of the small neighborhood grocer. His store decreased in importance because he did not prepare for future change.

During the past decade the neighborhood retail pharmacy has faced the increasing challenge of low-margin, high-volume competitors. They have taken a variety of forms ranging from the large chain drug operations to the membership discount stores. The large chain operations have had the greatest effect of testing the convenience-

goods store concept in Salt Lake City. These multi-unit operations depend upon their widespread advertising and pricing tactics to attract customers and are not primarily interested in the convenience of location for a small group. Generally, the only aspects of convenience that a chain offers are the presence of high-volume traffic routes to the store and ample parking facilities. However, the increase in the number of shopping centers has given large chain operations an opportunity also to offer convenience as a selling point. Nevertheless, large chains generally tend to locate in larger centers rather than the smaller neighborhood type. The greatest advantage to respondents (in a recent survey of Columbus, Ohio, Seattle, and Houston) was the proximity of these suburban centers to their homes.³ Thus, even shopping center developers have to recognize that convenience is a major consideration in site selection.

In the past, nearly all of the persons living in the immediate area of a neighborhood store did the majority of their purchasing at that store. Presently, only sixty-five per cent of a biased group (those interviewed at a neighborhood store) are doing the majority of their purchasing at the nearest store to their home. If the present trend continues, the future may find the neighborhood retail pharmacy decreasing in importance as did the small neighborhood grocer.

³ "Shopper Attitudes," Special Report 11-A. Highway Research Board (Washington, D. C., 1955), p. 1.

The independent neighborhood retail pharmacy can capitalize the competitive advantage of convenience in order to retain customers from being motivated to purchase at a less convenient store with generally lower prices. The neighborhood store can do so by paying increased attention to location factors. Any change in traffic patterns along main arteries of travel must be thoroughly analyzed. Most neighborhood retail pharmacies in Salt Lake County are presently located along heavily traveled streets. However, future building of expressways could decrease the traffic along these routes and therefore could decrease a competitive advantage of these stores. Other locational factors which the neighborhood store must pay increased attention to are the ease of accessibility to the store from the street and ample parking facilities. Since over ninety per cent of a neighborhood store's customers drive to the store, none of these factors can be diminished in importance. Visibility of the store from the street is another factor which many neighborhood stores have not fully capitalized upon. A store owner cannot assume that all the people in his trading area will know where he is located just because they may drive by the store. No matter how long he has been situated in the present location, he must try to attract all customers, neighborhood and supplementary, with the same aggressiveness of a new business.

Conclusions

1. A need for more valid information about location patterns of neighborhood retail pharmacies is evident. However, several quantitative relationships between the residence of customers and the stores they patronize have been found.

2. It is possible, with the aid of these relationships, to make a preliminary test of the site. If the results are affirmative, a more thorough investigation can be considered before a definitive acceptance is made. However, if the results are negative, the site should be abandoned, thus avoiding the cost of further investigations.

3. Convenience of location is one of the most important competitive advantages of the neighborhood retail pharmacy and should be strengthened whenever possible.

APPENDIX A

Interview Sheet

STORE _____ DATE _____ TIME _____

1. Do you usually walk or drive to this drug store? Walk _____
 Drive _____
 Other _____

2. Is this the closest drug store to your home? Yes _____
 No _____

3. If not, what is the name of the one nearest your home? _____

4. What drug stores do you patronize, approximately what percentage of drug needs do you buy in each, and what do you like or dislike about each store?

STORE	% BOUGHT	LIKES	DISLIKES
a. _____	_____	_____	_____
b. _____	_____	_____	_____
c. _____	_____	_____	_____

Likes

1. Convenient location
2. Good service
3. Easy parking
4. Clean, neat
5. Credit
6. Prices
7. Confidence
8. Other

Dislikes

1. Distance from home
2. Poor service
3. Poor parking facilities
4. Dusty, cluttered
5. No credit
6. Prices
7. Confidence
8. Other

5. Gross purchase at the time of interview

.50-less _____	4.00-4.99 _____
.50-1.00 _____	5.00-5.99 _____
1.00-1.99 _____	6.00-6.99 _____
2.00-2.99 _____	7.00-7.99 _____
3.00-3.99 _____	8.00-Over _____

6. Address _____

7. Male _____

Female _____

Age: 20-30 _____
 30-40 _____
 40-50 _____
 50-60 _____
 60-more _____

APPENDIX B

Summary Data Sheet

STORE _____

Hours spent _____

Interviews _____

	Number	Percentage
Walk		
Drive		
Closest		
Not closest		
Majority purchases here		
Majority purchases elsewhere		
Purchases		
.50-less		
.50-1.00		
1.00-1.99		
2.00-2.99		
3.00-3.99		
4.00-4.99		
5.00-5.99		
6.00-6.99		
7.00-7.99		
8.00-over		
Male		
Female		
Age		
20-30		
30-40		
40-50		
50-60		
60-over		

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AN ANALYSIS OF RETAIL PHARMACY LOCATION
PATTERNS FOR NEIGHBORHOOD SITES
IN SALT LAKE COUNTY

by

George Harmon Constantine, Jr.

An abstract of a thesis submitted to the faculty,
University of Utah, in partial fulfillment of the
requirement for the degree of

Master of Science

Approved by the faculty committee in
Department of Pharmacy Administration

Milton P. Matthews

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Department of Pharmacy Administration
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May, 1962

There is a great deal of importance associated with the problem of location analysis, but there is an appreciable lack of adequate methods that can be used by an independent business having limited financial means and inadequate training. Because of this condition, a study was undertaken to determine if any patterns existed which could be used to test future locations. A secondary purpose of the study was to provide limited information on other competitive aspects indirectly related to location. One such example would be an increase in price awareness and the extent to which this has changed customer buying habits in regard to the convenience of a store location.

The methodology employed to gain the information was to interview customers as they left six neighborhood independent retail pharmacies in Salt Lake County and determine their place of residence as well as some information about buying attitudes. The information was then punched on Key-Sort cards for ease of tabulation and the addresses were plotted on maps. The area around each store on the map was then divided into quadrants and half-mile increments.

The results demonstrated some very definite customer patterns. The quadrant farthest away from the central business district had the largest number of customers (forty-five per cent). Nearly four-fifths (seventy-nine per cent) of the customers live within the first one and one-half miles of the stores. More customers live on the outboard side (sixty-five per cent), the area beyond the store site away from the central business district, than on the inboard

side (thirty-five) per cent, the area between the store site and the central business district. Other results obtained from the interviews showed that sixty-seven per cent of the people were at the closest store to their home when they were interviewed, ninety-five per cent drove to the store, sixty-eight per cent did the majority of their purchasing at the store at which they were interviewed, and only sixteen per cent of the people shopped at a store that was not nearest to their home. The average purchase size was \$2.52, the average age was 36.3 years, and more men (fifty-two and three-tenths per cent) were interviewed than women (forty-seven and seven-tenths per cent). This latter result is assumed to be due to the time of the day in which the interviews were performed.

Definite customer patterns were noted for all the stores surveyed. One should be able to determine the feasibility of a given site with the application of three pattern tests derived. If the tests are affirmative, it is recommended that further evaluation of the site be done before a definite decision to locate is made. If the tests are negative, the costs of further testing can be avoided.

Since the average purchase size was relatively small and most of the store's customers lived within a limited area, it is assumed that the convenience-goods concept is still in existence and that large chain drug stores have not greatly influenced a considerable segment of the buying public.