A STUDY OF URBAN BUSINESS CENTERS

WITH EMPHASIS ON RETAIL STRING DEVELOPMENTS

Study Areas:

Boston, Massachusetts
and
Baltimore, Maryland

by

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REQUIREMENTS FOR THE DEGREE OF

MASTER IN CITY PLANNING

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1954

May 21, 1954

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Head of Department

May 21, 1954

Professor Pietro Belluschi, Dean
Department of Architecture and Planning
Massachusetts Institute of Technology
Cambridge, Massachusetts

Dear Professor Belluschi:

In partial fulfillment of the requirements for the degree of

Master in City Planning, I submit this thesis entitled, A Study of

Urban Business Centers With Emphasis on Retail String Developments.

Respectfully,

Leslie H. Graef

. . . cities are highly dynamic. They are packed and
packaged accommodations for people who are always in motion.

                                        Richard Neutra

PREFACE

The immediate focus of this research was a concern about the gen-

erous criticism frequently heard in discussions on strip commercial de-

velopments. Few urban topics are alluded to more often than the strip

zoning of major city thoroughfares. Yet, little study seems to have been

made of the problem.

It has not been possible to fully cover the subject here. In one

sense this study is exploratory; it attempts to define a strip develop-

ment in terms of land use and other physical characteristics. In a

larger sense the study is aimed at the question of whether or not these

units represent a form of commercial development which should be carried

over into future planned urban patterns.

This thesis was produced in two different settings. The material

on shopping in the Boston Metropolitan Area was collected while the writ-

er was in attendance at the Massachusetts Institute of Technology. The

survey of a typical string development was developed in Baltimore, Mary-

land, after the writer had accepted a position with the Baltimore County

Planning Commission.

The writer gratefully acknowledges the assistance given him by the

several members of the staff of the Department of City and Regional Plan-

ning of the Massachusetts Institute of Technology. Their advice and in-

struction was immeasurably helpful in giving direction to the research

phases of the report.

The contributions of Mr. Kenneth Walter and Mr. Robert Ahern are

gratefully acknowledged. Mr. Walter provided the basic data on store

types which he developed as part of a research project for a doctorate

from Syracuse University. Mr. Ahern, of the Boston Globe Newspaper staff, assisted by giving information regarding the commercial census sponsored by his firm and conducted by Mr. Walter in 1947.

Valuable assistance was also rendered by many members of the Boston and Baltimore City Planning Commission staffs.

Dr. Walter Isard (formerly of Harvard University, now at the Massachusetts Institute of Technology) offered guidance in the formulation of the store type affinity measurement, and his help is gratefully acknowledged.

To those who aided in the final preparation of the thesis, Betty and John Ault and the writer's wife, the author is indeed indebted.

L.H.G.

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CHAPTER I

INTRODUCTION

Historically, the market place has been the focal point of all populous settlements. Here transportation lines meet, bringing people who buy in contact with those who sell. In large cities today numerous competing business centers of various sizes and types, with interpenetrating market areas, serve a heterogeneous, mobile population. To the end that these centers efficiently meet the shopping need, zoning and, more recently, planning have been applied to guide their development. Still, many problems of present-day commercial location and agglomeration remain unstudied and unsolved.

The wave of construction of planned, post-war suburban shopping centers in this country has focused research and lay attention on decentralized commercial facilities. Shopping districts "left behind" in our densely built-up urban areas have been given but lip service. This challenge is clearly stated by the Regional Plan Association of New York (1951):

> "While much of the increase in volume of the metropolitan
> area's retail trade will undoubtedly be handled by the new
> suburban shopping center developments, established business
> districts both in the big central cities and the smaller
> suburban towns should work to hold their volume of business
> and continue to serve their normal trading area."[1]

[1]Regional Plan Association, Inc., "Suburban Branch Stores in the New York Metropolitan Region." Regional Plan Bulletin #78, Dec. 1951.

Established shopping centers, although plagued by congestion and threatened by cancerous blight, involve too great an investment by urban populations, both in capital and in a way of life to be written off the record. These commercial land uses should be preserved in their healthier aspects and directed toward betterment where necessary.

Existing Conditions

Depreciated Property - Blight does not confine itself to housing; it also affects business properties. Unimproved land between stores, vacant store buildings, stores physically old and rundown, numerous retail operations intermixed in the same block frontage with residential and light manufacturing uses, and store buildings unsuited for present-day business operations dot the commercial landscape. If the elements of commercial decay were exclusively pinpointed in older neighborhoods, where other land uses are likewise blighted, the task of rebuilding to today's shopping standards would be a more simplified one. Redevelopment, as it has been applied to combat substandard housing, could be adapted to rundown business properties to bring new stores, as well as new dwelling units, to these areas. However, the symptoms of commercial blight occur even in the apparently more substantial localities of the metropolitan area. Therefore, we must also look to causes other than the obsolescence of neighborhoods to describe the current deficiencies of shopping service to the urban population.

Functionally Related Juxtaposing Retail Uses - By observation there appear to be repeated cases of haphazardly related juxtaposing retail uses in many centers. Especially does this seem true for strip retail

frontages on major traveled streets. An example of inappropriate re-
tail neighbors would be a funeral parlor located next to a local gro-
cery store in a minor shopping complex. Ratcliff, in his study of
retail site selection, states that:

> "an inappropriate use type may extend its baneful influence
> beyond its own site. It tends to . . . repel retail types
> which are appropriate to near-by locations. Thus the pre-
> sence of improperly located retail stores in a shopping
> area may delay the process of maturing, stunt land values,
> or unnaturally divert the course of growth."[2]

Turnover in Business Property Use - The experience in many older
centers over a period of years has been one of constant turnover in the
use of its shops. To some extent this is normal in a dynamic, competi-
tive, economic environment, especially since leasing is a prevalent
financial arrangement for occupancy. However, the success of any re-
tail operation depends largely on satisfying a sufficient number of
customers to warrant their repeated purchases; in other words, in de-
veloping a reputation of good will based on service rendered. This im-
plies minimizing the moving of a store's operation from place to place.

Mortality Studies - Other studies on commercial centers make
frequent reference to the high mortality rates of U. S. business ventures.

> "Business deaths have varied from 250,000 - 450,000 estab-
> lishments annually since 1900, while from 300,000 to
> 500,000 new business enterprises have been launched each
> year in the United States during the same period."[3]

[2]Richard U. Ratcliff, The Problem of Retail Site Selection. University
of Michigan, School of Business Administration, 1939, p. 2.

[3]U. S. Department of Commerce, Small Retailers Face the War, Washington,
D. C., 1943.

Traffic - The problem of in-town shopping districts cannot be divorced from traffic requirements. It is well known that congestion, aggravated by excessive uncontrolled on-street parking, adversely affects shopping. Traffic requirements generally have outgrown present street facilities. This is apparent at most shopping concentrations where volumes of traffic swell to peak loads. Usually the only available parking space at these shopping facilities is that which is on-street and misappropriated from moving traffic use. Also, vehicular congestion extends beyond the farthest reaches of the shopping centers themselves, necessitating repeated stop-and-go movements with valuable time losses to the consumer on a shopping tour.

Zoning - Since zoning was generally lacking before 1915, when many of the centers involved in the study were already partially formed, the patterns of commercial operations were tuned to the demands of a pedestrian and streetcar population. In the early days of zoning the practice of strip-zoning was adopted, recognizing not only the existing arrangement of stores, but also formalizing the demands of many speculative major street frontage owners for commercial zoning. Few zoning ordinances were based on a survey of needs.

The near-revolutionary method of individual vehiculation has lately emphasized the need for a more precise application of zoning, equipped to meet the needs brought about by a changing commercial pattern in urban areas.

S cope of Study

Many new shopping centers have been built recently in the suburbs of U. S. cities. Business has followed in the wake of the residential

"explosion" into the countryside.

Mr. Morse of the Massachusetts State Planning Board has stated:

> "...the big suburban increase (in the Boston Metropolitan
> Area) came in the band ten to fifteen miles from the city
> (1939-1949) ... this is particularly interesting because,
> in the preceding ten years, 1929 to 1939, the biggest gain
> during the coming decade will appear in the fifteen to
> twenty mile band."[4]

In some cases fully developed shopping centers have even preceded

the real influx of new houses. "Northgate" in Seattle and "Shopper's

World", in Framingham, are two such examples.

The aggregate of facilities located at new centers, however, repre-

sents but a fraction of the total urban commercial plant. This study

has not been primarily concerned with these units, or with the cities'

central business districts. Both of these types of commercial opera-

tions are characteristically unique and have been, therefore, isolated

from the study. It is the balance of the shopping agglomerations, the

established, older commercial districts of our urban areas which have

been selected for analysis. These "centers"[5] have been analyzed accord-

ing to various conformation types, ranging from well-compacted centers

on the one hand to scattered-in-string-fashion on the other. An attempt

has been made to identify the quality of shopping service offered to the

community by the several types of centers according to their retail

composition. Since string developments seem to embody almost all of

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[4]Melvin L. Morse, Movements of Retail Trade in Massachusetts, 1939-1948,
State Planning Board, 1951, p. 1.

[5]The term "center," implying a tightly grouped setting of stores, is here
intended to mean all agglomerations of retail operations, regardless of
size or shape.

the complexities of the problem of commercial location, they have been given special emphasis. An investigation of a typical string development, related in the following chapter, identifies these problems.

It has not been possible to incorporate in this short report a complete study agenda of the economic, social and physical phases of the urban shopping function. Pointed discussion is, however, given the definition of the above-mentioned shopping center nucleations; the breakdown of store-type composition for all classified commercial areas; the analysis of affinity of more than 150 different kinds of retail outlets for these centers; and the type of service rendered to local consumers.

Traffic congestion and the lack of off-street parking are the reasons most often cited in describing the inefficiencies of in-town shopping centers. There is little doubt that the above citations are justifiable.

Beyond this, the desired end product of the study has been to analyze the basic structure of agglomerated retail land uses to uncover other inadequacies of present urban shopping center pattern, and to suggest courses of action for more purposeful accommodation of the buying public through planning procedures.

Method of Approach

In order to analyze store types represented in various centers, it was first necessary to define the shopping center types and then record the kinds and number of stores housed at each agglomeration. The data used was that for the Boston Metropolitan Area, enumerated and field checked in 1947 by Kenneth W. Walters for a shopping project sponsored by the Boston Globe newspapers. Covering the area beyond the C.B.D.

out to a radius of 10 miles, this Boston retail census represents one
of the better studies of this type.

The assumption is made that the functional relationship between
stores for various types of centers is in the process of maturing.
Therefore, the affinity of shops for certain locational prerequisites
has been mathematically compared for significant preferences. For
example, auto accessory stores are frequently found in string develop-
ments, and less often in small shopping centers. This indicates that
the physical and economic characteristics of a string commercial dis-
trict, rather than those of a small center, more nearly satisfy the
locational requirements of this type of store.

Since customer preferences fundamentally dictate store locations,
a sample study of shopping habits was conducted for a typical string
development. The stringment, located on a major radial about four
miles northeast of the heart of downtown Baltimore, has been described
in store type content, and the use made of the many stores by local
residents has been surveyed and analyzed.

On the basis of the two analyses, municipal zoning classifications
are proposed and suggestions are made in application of these zoning
districts to an actual situation.

Both thoroughfare congestion and the parking problem are examined
in general terms to give fuller meaning to the solutions formulated.

The data secured from case studies for Boston and Baltimore, together
with the proposals, apply specifically to these two cities and the cen-
ters chosen for study. It is possible, however, that the problems and
patterns apply to many other cities, and that the analyses and solu-
tions may therefore be relevant elsewhere.

CHAPTER II

AN INVESTIGATION OF STRIP DEVELOPMENT PROBLEMS

Selected Examples

In order to understand better the peculiarities of retail strip developments a specific case was selected for preliminary investigation. Apparently typical of such units is the string of stores lining the frontage on both sides of Massachusetts Avenue for three-fourths of a mile, from Porter Square in Cambridge, extending northwesterly toward Arlington. (see Map II-1, p&.1)

History - Cambridge, first named Newtowne, began as a settlement in 1630, comprising scattered small farms. In time there was a need to connect these farms with the Common, where the Court House was located (now Harvard Square), by building a serviceable road. This thoroughfare, with minor revisions in alignment, is today's Massachusetts Avenue.

Around the 1800's, Porter Square became the focal point for cattle trading. Massachusetts Avenue grew in importance accordingly. Farms and estates in the vicinity were subsequently subdivided and partially developed for residences. In 1841 the Fitchburg Railroad line was extended out to Porter Square, thereby offering commuter service to this "growing suburb" from downtown Boston. Thereafter, the cattle center disappeared and carriage manufacturing and warehousing took over. By 1900 the northwestern portion of Cambridge had been substantially built up, and retail uses as we know them today began to crowd out residential uses along Massachusetts Avenue.
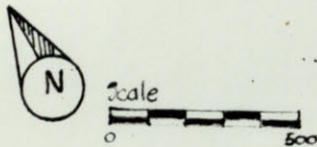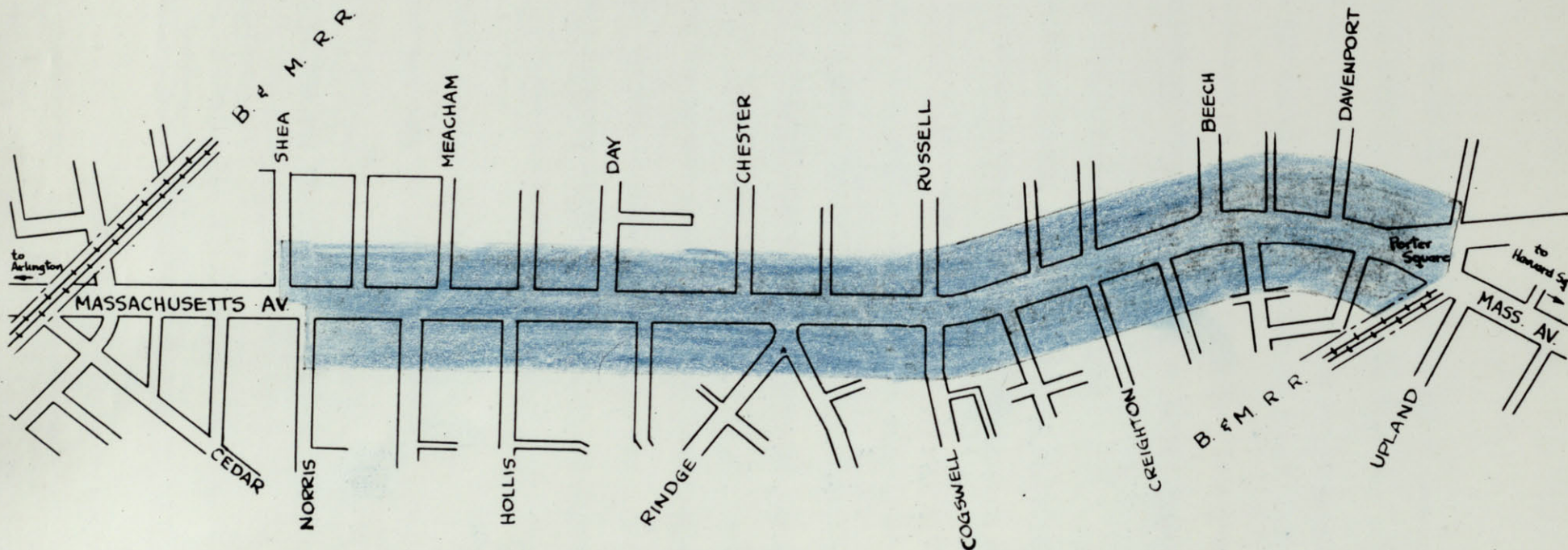
LOCATION OF STUDY AREA

MASSACHUSETTS AVE STRING DEVELOPMENT

Cambridge, Massachusetts
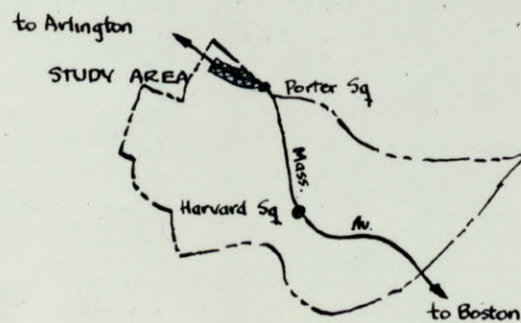
EXHIBIT II-1

<u>Collection of Data</u> - Previous retail land use patterns are sometimes difficult to uncover. In this case it was possible to enumerate the specific stores occupying the frontage use of Massachusetts Avenue for the years 1923[1], 1937[2] and 1951[3]. While no attempt at generalization of this sample study data is intended here, some characteristics of strip developments do become apparent.

<u>Physical and Economic Characteristics</u>

<u>Number of Stores Included in Study, by Period</u> - In 1923 there were 130 retail stores (including vacancies) located on the three-quarter mile long stretch of Massachusetts Avenue; in 1937, 149; and in 1951, 122 (see table II-2, p9.1). Comparing the figures of 1937 with those of 1923, there was a 15% increase in number of stores, while an 18% drop is recorded between 1937-1951. Net loss for the 28-year period is 6%. The earlier increase may be attributed to the resurgence of retailing following the "great" depression. The later period probably reflects the trend toward the operation of an increased number of larger stores (offering a greater variety of goods) at the expense of the many smaller stores. The net fluctuation over the 28 years is relatively small.

<u>Lengths of Stay on Premises by Retail Uses</u> - The above quick analysis does not tell the full story of the internal stress and strain experienced throughout the years in this string business development. For each of the two 14-year periods (1923-37, 1937-51), approximately

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[1]Bluebook of Cambridge, Boston Suburban Co. 1923.
[2]Polk's Directory, Cambridge, Mass., 1937.
[3]Field Observation, by writer, 1951.

EXHIBIT II-2

NUMBER OF STORES BY RETAIL GROUP AND PERCENT

OF TOTAL FOR 1923, 1937, 1951

Retail group	1923		1937		1951	
	No. of stores	% of total	No. of stores	% of total	No. of stores	% of total
1. Food	41	32	24	16	13	11
2. Apparel Sales	12	9	1	1	1	1
3. Apparel Serv.	20	16	18	12	20	16
4. Automotive	7	5	9	6	7	6
5. Gen'l Mdse. (no dept.stores)	7	5	7	5	7	6
6. Spec.stores	6	5	7	5	8	6
7. Prof.Servs.	6	5	7	5	8	6
8. Personal Care	7	5	14	9	7	6
9. Hshld.Supplies	7	5	9	6	9	7
10. " Maintenance	7	5	16	11	10	8
11. Eating Establishment	3	2	16	11	15	12
12. Commercial Rec.	1	1	3	2	3	2
13. Miscellaneous	2	2	6	4	8	6
14. Vacancies	4	3	14	9	9	7
Totals	130	100	149	100	122	100

70% of the stores in one type of retail use at the beginning of the
period had a different occupancy at the end of the period (see Table
II-3, p. 101.)If exacting records had been kept, a check of occupancy
for specific business firms would probably show a higher rate of turn-
over. Quite possibly, a grocery store operation may have been replaced
several times by different entrepreneurs, each selling groceries.
Therefore, if more frequent periodic checks had been made (e.g., every
5 years) the 30% use retention for each 14-year interval would probably
be even lower.

After 28 years only 11% of the 130 stores in 1923 had the same use
in 1951. Again, it is probable that a more detailed enumeration of
other information would show a smaller percentage of use retention than
that reported here.

This information appears to be in accord with other studies on
store mortality. One such study conducted in 1939 for Poughkeepsie,
New York, for the period from 1844 to 1926[4] shows that of some 4,000
retail uses, only 6% remained for more than 20 years (see Exhibit II-4,
p. 11).

Sometimes, established retail operations have to seek new locations
because they need additional space for expanding their services. Other
stores may not require as much floor space as initially contracted for,
and therefore, they move to smaller quarters. Still other units may
be forced out of business through the normal competitive market pro-
cesses. These are a few of the justifiable causes which may be cited

[4]R. G. Hutchinson and A. R. Hutchinson, and H. Newcomer, "Business Life
and Death in a Hudson River Town", Dun and Bradstreet Review for June
1939, p. 14.

EXHIBIT II-3

LENGTH OF STAY ON PREMISES OF RETAIL USES BETWEEN:

Group Number	1923-1951 (28 yrs)	1923-1951 (14 yrs)	1937-1951 (14 yrs)
1	2	8	5
2	0	0	0
3	2	6	6
4	1	1	2
5	4	8	5
6	0	1	2
7	1	1	2
8	1	3	2
9	0	0	0
10	0	1	5
11	0	0	5
12	1	1	3
13	2	2	4
14	0	0	2
Total	14	32	43

Tabulation:

1) of the 130 stores in 1923, 14 remained through 1951, or 11%

2) of the 130 stores in 1923, 32 remained through 1937, or 25%

3) of the 149 stores in 1937, 43 remained through 1951, or 29%

EXHIBIT II-4

PERCENT OF STORE TYPES WITH LIFE SPAN OF 20 YEARS OR MORE,

1844-1926, POUGHKEEPSIE, N. Y.[4]

Store Type	Total No. of Stores		% Life Span 20 Years or More		No. of Stores
Confectionary	325	x	.02	=	7
Tobacco	230	x	.039	=	9
Groceries	1,218	x	.081	=	99
Meat Markets	323	x	.099	=	32
Saloons	641	x	.031	=	20
Restaurants	409	x	.052	=	21
Shoe Makers	331	x	.079	=	26
Tailors	263	x	.079	=	21
Barbers	278	x	.020	=	6
Totals	4,018	x	.06	=	241 = 6% remained more than 20 years

to explain partially the turnover in store use.

However, indications are that a good many of the stores are marginal in character and destined for a short life span. Some are started on a "shoestring." Every day, prospective entrepreneurs, unfamiliar with the science of retail operation, open new stores. We see that commercial speculation and inflated land values help to lead some stores to financial ruin. And we observe a relatively inflexible urban retail store plant which seems to fail often in the accommodation of expanding

and contracting businesses which desire to stay put. The problem of
the marginal retail operation must be met.

Street Frontage Land Use – Table II-5/shows ˋpage 13ˋ the percentage of
linear frontage occupied by retail and non-retail uses in this develop-
ment. Since the "center" was selected as a retail complex, the various
types of retail sales and service units show the highest percentage –
50.4%.

The next highest percentage of "use," is for 25 intersecting
streets and alleys – 16.7%. Obviously there are short blocks in the
Massachusetts Avenue development. Does it not appear that the amount
of frontage "given up" to access is excessive, especially in comparison
with the percent land usage set aside for off-street parking – 0.8?

Successively smaller amounts of frontage use are in institutional,
residential, industrial and warehousing, office, and vacant land use.
These uses constitute breaks in the continuous retail frontage, often
giving definition to some smaller, compact, more functionally inter-
related groupings of stores situated within the stringment.

Retail Land Use Composition – Of the 122 stores in the development
in 1951 (see Exhibit II-2, p. 9.1), 16% were apparel service shops
(cleaning, tailoring, etc.), 12% were eating establishments, and 11%
food outlets. The balance of the retail classifications show an equi-
valent representation (ranging from 6-8% each) except for apparel
sales and commercial recreation, which comprise but 1% and 2% of the
total number of stores, respectively. In this string development,
then, what are usually called the "convenience stores" (including

EXHIBIT II-5

RETAIL AND NON-RETAIL FRONTAGE USE
MASSACHUSETTS AVENUE STRING DEVELOPMENT, 1952[1]

Use*	Frontage	%
Total	7,500'	100.0
Retail	3,790	50.4
Streets	1,250	16.7
Institutional	910	12.2
Resid.with H.O. (home occup.)	600	8.0
S.F. Residence	440	5.9
Indus.&Wrehse.	160	2.1
Grd.Flr.Offices	110	1.5
Apts.	70	0.9
Parking	60	0.8
Vacant land	60	0.8
Other	50	0.7

*Ground floor or street level use.

short order restaurants and taverns) have the greatest representation.
The high type general merchandise operations (department stores) are
missing here, and the apparel sales stores (clothing, shoes, etc) have
but one representative in the shopping string.

Significant changes in the store type representation over the 28-
year period for this center will be discussed in a later chapter with

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[1]Source: Field observation

regard to shopping trends. It is important to note here that such changes have taken place. For instance, the number of food stores decreased from 41 to 24 to 13 for the three census years. This token evidence subscribes to the current trend toward food "department stores" in lieu of many smaller "corner" grocery establishments. Trends such as this must be taken into account in any solutions set forth.

Non-Retail Use - Only a few wholesale, warehouse and manufacturing uses have located in this section of Massachusetts Avenue frontage. The number increased from 1 in 1923 to 8 in 1937, and then decreased to 3 in 1951. One possible reason for so small a representation of these types of uses has been the lack of vacant land. Also, the frontage properties probably have had a commercial valuation too high to justify other than shopping operations. Interestingly enough the drop in non-retail usage registered in 1951 is probably due in part to the vehicular congestion on Massachusetts Avenue. Congestion is not conducive to the efficient operation of the extensive amount of trucking usually generated by warehousing and light manufacturing uses.

Of the 27 residences used for dwelling purposes in 1923, only 7 remained in 1951. Three had been demolished and replaced by stores, 9 have been combined with home occupations other than doctors' offices, while 8 have been put into physician office use.

Taxable Base for Strip Development Compared to Compact Center - Data in the form of assessed valuation for land and buildings per square foot of property, for one of the blocks in the string group was collected and compared to that for a block of stores at Harvard Square. This was

done for the three study years. In each tally the selected samples were the apparent 100% locations for their respective centers. It was found that while the sample block of string properties was assessed at approximately 65% of that for the sample block of the compact community shopping center in 1923, the percentage dropped to 49% in 1937, and to 36% in 1951. See table below. The Massachusetts Avenue com-

EXHIBIT II-6

COMPARISON OF ASSESSED VALUES OF A BLOCK FOR THE
MASSACHUSETTS STRING DEVELOPMENT WITH A BLOCK
OF THE SHOPPING CENTER AT HARVARD SQUARE, 1923, 1937, 1951

	A.V./sq. foot of property		% $\frac{\text{string A.V.}}{\text{compact A.V.}}$
	String	Compact	
1923	3.16	4.85	65
1937	6.12	12.46	49
1951	7.60	21.23	36

mercial frontage, therefore, appears to be steadily decreasing in square footage value (at the rate of approximately 1% per year), compared to the Harvard Square business block. Approximately the same rate of decrease applies also if only the assessed value of land (without buildings) per square foot of ownership is considered.

Incidentally, a block of residential properties (some with home occupational uses) located midway in the retail string development has had land (without improvements) assessments consistently about 2/3 of that for the frontage in retail occupancy. Evidently, local assessors have recognized the variation of land values along the frontage of Massachusetts Avenue, even though the laity generally tends

to value all major road frontage land equally, considering each property potentially developable for commercial purposes.

Strip Zoning - Zoning was first applied to Cambridge and the study area in 1924. The designers of these first by-laws had no intention of fostering extensive strip development. This is evident because of the designation of frontage between Russell and Shea Streets in an R-1 District, which prohibited business uses (See Map II-7, p. 16.1). However, several businesses were already established therein, and so, in 1943 the revised districting zoned the whole frontage for business, with the exception of a small residential island between retail zones (see Map II-8, p. 16.2).

The initial zoning code allowed residence and business uses in its B-1 District (that which was applied to major business street frontage). It also permitted non-obnoxious industry in this same category. Some refinements were made in the 1943 revised code. The Business A District (designed for major road frontage) prohibited not only all industry, but also gas stations, parking lots, warehouses and wholesale businesses. This action exemplifies the trend in some quarters, to zone more precisely as new zoning by-laws are deemed necessary and adopted.

Traffic - Vehicular counts at several points along the route of the string development for 1923, 1939 and 1950 have been tabulated. From these counts a generalized flow pattern has been constructed to show the approximate values for 1923, 1937 and 1951 (see Map II-9, p. 16.3). The increase in annual average 24-hour traffic flow from 1923 to 1937 was about 47%, while, roughly a 16% increase occurred

B & M. R.R.

SHEA

MEACHAM

DAY

CHESTER

RUSSELL

BEECH

DAVENPORT

to Arlington

MASSACHUSETTS AV.

CEDAR

NORRIS

HOLLIS

RINDGE

COGSWELL

CREIGHTON

N SCALE
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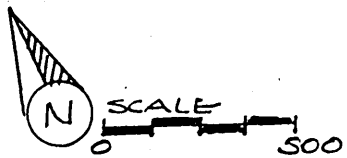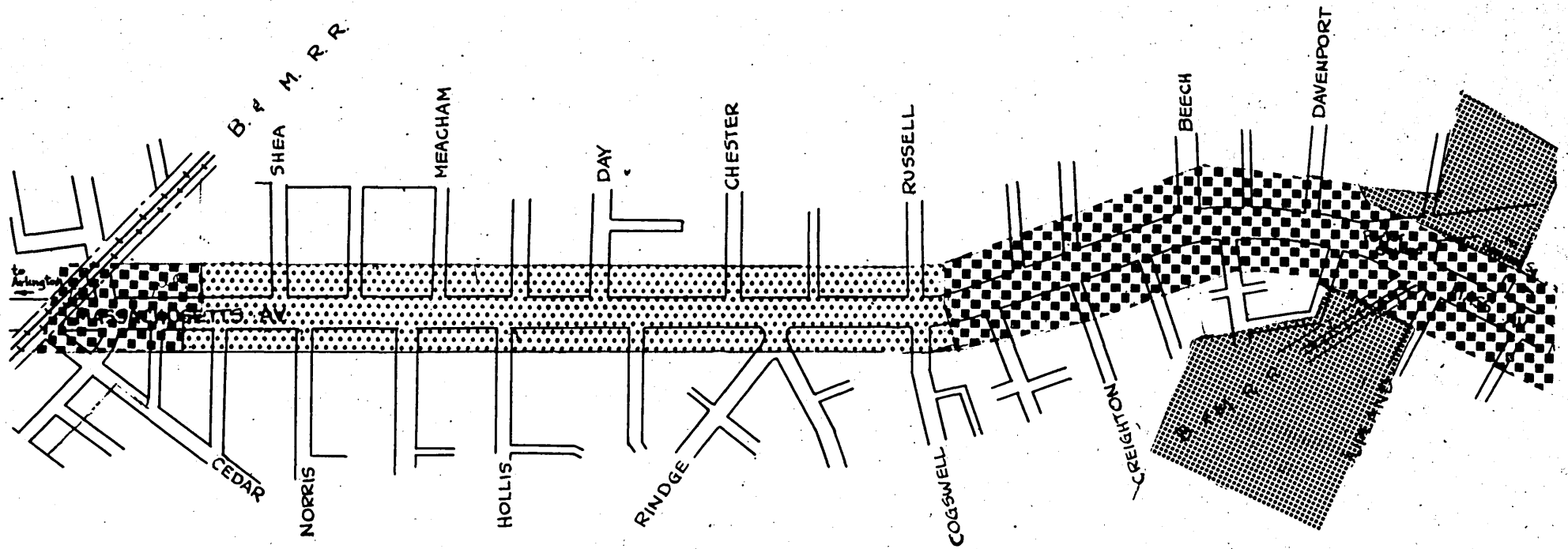
ZONING DISTRICTS 1924-1943

Massachusetts Ave. String Development
Cambridge, Massachusetts.

B-2, business

B-1, business - obnoxious industry prohibited

R-1, residential - business & industry prohibited

Source: Zoning Code.

EXHIBIT II-7

II-7

16 f.

ZONING DISTRICTS 1943-PRESENT

Massachusetts Ave. String Development
Cambridge, Massachusetts
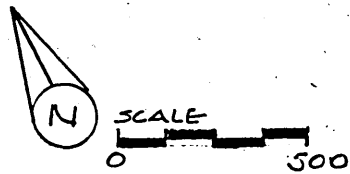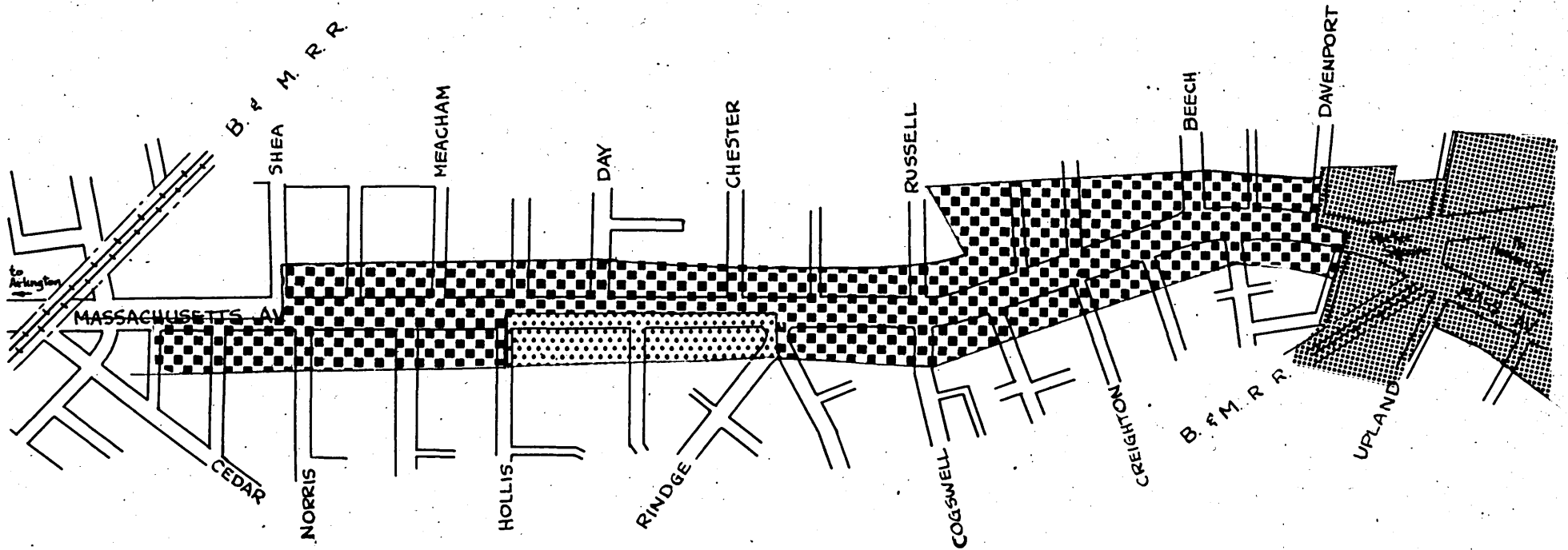
EXHIBIT II-8

C-2 residential - business prohibited

B-A business — gas stations, warehouse, wholesale prohibited

B-B business — industry prohibited

SCALE
0   500

N

II-8

16.2

GENERALIZED TRAFFIC FLOW - 1923, 1937, 1951
at and near Porter Square, Cambridge, Massachusetts

1923 - Average annual 24 hr. flow *- extrapolated, from vehicular registr.
1937 " " " " - assume 1937 = 1939
1951 " " " " - increase by 6% from 1950
* Source: Mass. St. Dept. of Highways.

29,000 Vehicles/day

SCALE
0   500

II-9

16.3

EXHIBIT II-8

between 1937 and 1951. The lesser rate of increase in the latter 14-year period suggests that Massachusetts Avenue has become "congested." With some 29,000 vehicles per day accommodated by Massachusetts Avenue at its intersection with Somerville Avenue (where the 100% location of the string development is found), the facility probably has reached its limit of traffic bearing capacity for peak hours.

Outline of Problems

The foregoing investigation points up these stringment problems subject to study and analysis.

1. What opportunities are available for the replanning of string developments providing for a more sufficient commercial setting for the kind of stores which report a high average rate of turnover and/or store mortality?

2. Is the intermixture of string frontage uses functional or haphazard?

3. What types of retail uses are best suited to a string location?

4. How shall string developments be zoned and districted?

CHAPTER III

DISCUSSION OF THE SHOPPING FUNCTION

PART 1. LOCATION AS A FACTOR IN SHOPPING

Before analyzing detailed store-type data we would do well to discuss the implications of the shopping function in our daily lives.

A successful retail operation, one which returns a profit, must generate a sufficient volume of sales to cover more than its operating costs. While there are many factors involved in the establishment and conduct of a particular business, the matter of proper site selection cannot be over-emphasized.

Causes for Store Failure

In a study on store mortality by the U. S. Department of Commerce, it was stated that:

> "Relatively few of the operators of the new stores had attempted specifically to analyze their opportunities for successfully operating the establishment. Typically this explanation was given as to the reason for operating the store: 'I wanted to operate a business of my own; this location was available and looked pretty good, so I started out.' Not even a cursory examination had been made in most cases of the extent to which new industries had come into the community, or of the changes which had occurred in population, general purchasing power, and buying habits. Stores soundly located appeared to have been by accident as much as by design . . . One-fifth of these stores were so poorly located and financed that liquidation seemed likely within a year."[1]

While the study covered only a small sampling of retailers (238), it did include businesses located from coast to coast in 59 different

[1]U. S. Department of Commerce, Small Retail Store Mortality, June 1943, pp. 35,36.

sizes of cities.

Another investigation of retail failures (not especially aimed at uncovering store location difficulties) found that nearly 40% of bankrupt businesses were caused by incompetence or inexperience on the part of owners or managers.[2] If even a small percentage of these bankruptcies was caused primarily by inadequate consideration of specific locational requirements, a significant number of stores must be involved in view of the great number of stores going out of business every year. (Ch. 1, p.3)

Who Suffers When Stores Fail? - When a store goes out of business, various segments of the population sustain losses. Stein and Bauer, in 1934, made these statements:

> "The store keeper loses his investment; the wholesale and distribution agency spreads the loss over the general price-level, thus raising prices to the consumer; the landlord loses back rent and must look forward to a period of vacancy and the cost of renovation for a new tenant; the community suffers because of unsightly vacancies, and eventually, possible devaluation of surrounding properties and the city which loses a source of tax income."[3]

Moreover, if a major retailer goes bankrupt, smaller neighboring stores, some of which tend to be parasitic to the heavier traffic generator, may also be forced to close down. If a retail building becomes repeatedly vacant, the landlord, desiring at least some rental return may succumb to a contract with a wholesale or light manufacturing plant, thereby decreasing the overall generating ability of the immediate group

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[2]National Cash Register Company, Better Retailing, A Handbook for Merchants, Dayton, Ohio, 1949, p. 1-1.

[3]Clarence S. Stein and Catherine Bauer, "Low Cost Housing and Shopping Centers", Architectural Record, February 1934, p. 176, paraphrased.

of stores.

Establishing Effective Store Location

The ultimate decision for selecting a retail site rests with the investor or prospective proprietor who ventures risk of capital. He must consider these important questions:

1. What will be the probable drawing power of the operation in terms of distance which customers will be willing to travel to make purchases?

2. What are the peculiarities of the population in this service area which determine the proportion of expendable income likely to be available to the specific store in question?

3. What is the nature and quantity of competition - or lack of competition?

Answers to the above questions indicate the approximate rent-paying ability of the store. Then the entrepreneur is equipped to investigate different site possibilities. Hence, these questions arise:

1. What is a good location within a potential supporting service area which affords ease of access to the stores? This requires a study of local travel habits for automobilists, pedestrians and transit riders.

2. What are the special physical requirements of housing the selling transaction - such as, store or land space needs - which would modify the above?

3. Should the outlet locate in the company of other existing stores (and what type of neighbors are most beneficial), or

will an isolated location suffice? If the former what

type of shopping center?

The foregoing is split into two operational phases in order to

emphasize the latter. Current popular reference material on the pro-

cedure of establishing a new store seems to treat lightly the hows and

wherefores of the locational problem. Typical is a concluding state-

ment from Robinson and Haas in their book, How to Establish and Operate

a Retail Store:

> "Most of the problems involved in selecting a location
> revolve about the factors of operating costs and sales
> volume."[4]

These writers do, however, suggest frequent pitfalls experienced

in locating retail units:

1. Many prospective merchants are too easily influenced by a
   store space.

2. Many merchants have made the mistake of picking a cheap or
   low-rent location in order to conserve their savings and
   investment.

3. Some merchants have erred in locating in the same block
   with established competitors.[5]

Since the market place is the primary point of contact between

buyer and seller, it is important for the entrepreneur to put his

operation in the path of consumer movement. Shopping motives, habits

and trips must be clearly understood in order to select a proper loca-

tion.

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[4]O. P. Robinson and K. B. Haas, Prentiss Hall, Inc., New York, N. Y.,
1946, p. 47.

[5]O. P. Robinson and K. B. Haas, How to Establish and Operate a Retail
Store, Prentiss Hall, Inc., New York, N. Y., 1946, p. 46.

CHAPTER III

PART 2. SHOPPING HABITS AND STORE AGGLOMERATION

Land use regularities in urban development patterns are born from the need of <u>conveniently</u> servicing large concentrations of people. The key to efficient accommodation of any type of urban activity lies in the ability of attendants to reach the facility with as little loss of motion and time as possible, while conducting the business at hand with minimum effort. The shopping function is no exception.

<u>Consumer Demands and Preferences</u>

<u>Present Trends in Living and Shopping Habits Demonstrating Optimum Convenience as Goal</u> – Consumer practices show an ever-changing picture. With 6 out of every 10 families owning automobiles today, we find that the family auto has become an indispensable means of transportation for many shoppers. Shopping mileage per passenger car in 1951 was reported as 588 miles.[1] This means that three years ago at least 10 miles of travel for shopping were registered on the speedometer of every automobile every week in the United States. Shopping mileage probably has increased significantly in the short three year period between then and today.

The increase in numbers of married women gainfully employed has, no doubt, sponsored to some extent the shift of much of the daytime family purchasing to evening shopping. In 1952 the number of working wives outnumbered the single working women nearly 2 to 1. Only a few years back that situation was reversed.[2] For this and other reasons

[1]Boston Globe Newspaper Company, Boston, Mass., issue of August 13, 1952.
[2]National Cash Register Company, <u>Better Retailing, A Handbook for Merchants</u>, Dayton, Ohio, p. 1-1, 1949.

(increased extracurricular family activities, etc) it is not surprising to find that there is a real trend toward nighttime shopping for grocery and other items. The trend is especially apparent in shopping centers which provide a full complement of shopping services, thus allowing multiple purchasing.

Also, we observe that self-service and automatic vending machines are increasing in popularity, not only in supermarkets, but also in department stores, which have, until recently, championed clerk counter service.

These are a few of the trends which alter the definition of shopping convenience and which demand recognition in any locational analysis of store types in an effort to provide for more adequate shopping facilities.

Origin of Shopping Trips - In Boston and Baltimore the overwhelming majority of shopping trips begin at home (see Table III-1, p. 23.1). Excerpts from unpublished data of the Boston Metropolitan Origin and Destination Study of 1946[3] show that 91.4% of all trips by auto, transit or taxi, made for the purpose of shopping, originated at home. Only 8.6% of the shopping trips were for a combination of purposes, such as stopping to shop on the way home from work, or buying a gift on the way to the dentist's office. Of the combination trips, about one-third of the shopping journeys originated at another point of shopping. In Baltimore, an O. and D. survey for the same year[4] reported that 81.2%

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[3]Unpublished data, available at office of Massachusetts State Department of Highways, located in City of Boston.

[4]Maryland State Roads Commission in cooperation with City of Baltimore and the Public Roads Administration, Federal Works Agency, Report of the Transportation Study Baltimore Metropolitan Transportation Needs, Vol. I, Baltimore, Maryland, 1946.

EXHIBIT III-1

NUMBER OF ALL TRIPS FROM VARIOUS ORIGINS TO SHOPPING

DESTINATION, BOSTON, MASSACHUSETTS AND BALTIMORE, MARYLAND 1946[1]

From	For All Modes of Transportation to Shopping			
	Boston		Baltimore	
	No.	%	No.	%
Work	1,848	1.8	2,758	3.6
Transact business	819	0.8	2,619	3.5
Medical-dental	798	0.8	1,287	1.7
School	336	0.3	463	0.6
Recreation-Social	1,260	1.2	1,797	2.4
Eat Meal	189	0.2	179	0.2
Shopping	3,423	3.1	4,715	6.1
Serve passengers	441	0.4	562	0.7
Home	96,684	91.4	62,469	81.2
Totals	105,798	100.0	76,849	100.0

Source: see footnotes p. 23

of all shopping trips started from home. The balance, 18.8% were combination trips, of which almost one-third (same as Boston) were shopping-to-shopping trips.

It is interesting to note that for these two cities, in 1946, the amount of shopping done on the way home from work was relatively small-1.8% of all shopping trips in Boston, and 3.6% in Baltimore. Perhaps the percentage for today would be greater, due to the easy accessibility of new suburban shopping centers with their convenient parking and multi-store representation. Up-to-date O. and D. surveys would be required to support this conjecture.

At any rate, it is obvious that for the metropolitan areas of Boston and Baltimore the determination of what, when and where to buy is made in the home environment, where the bulk of the shopping trips originate. We can say that shopping tours are primarily trips unto themselves.

Factors Affecting the Decision of Where to Buy

With the home as the base point of deciding what is to be bought, a prospective customer begins a trip to the store (by automobile, bus or on foot) where purchases are to be made. The itinerary of the trip involves these possibilities:

1. That the customer knows of a store(s) where a certain purchase(s) can be made (based on previous shopping experience, stimulated through the medium of advertising, etc.) It is not generally known to what extent specific store locations dictate the characteristics of a shopper's tour. Two stores offering the desired products, if substantially separated in distance, might well necessitate two separate shopping trips instead of one.

2. That he is not sure where such a store(s) may be located, but must "shop around" for the appropriate retail outlet.

3. That he wants to shop for the best buy and, by design, will visit several stores - implying that he will go to the larger center offering a variety of the same types of goods.

4. He also may have the alternative of phoning or writing his order which subsequently is delivered by the store or through the mails.[5]

In addition to the above, the factors of time to be expended and distance to be covered influences the decision of where to buy. Paul D. Converse, in his book on Retail Trade Areas in East Central Illinois, indicates that the kind of article to be purchased influences to a great extent the distance which a customer is willing to travel for it.[6] Perishable, quickly consumed, and non-durable goods must be purchased often; therefore, stores selling these items should be located close to the customer's place of residence. Durable goods purchasing, on the other hand, is done less frequently, and, therefore, warrants a longer trip from home. In a local facilities attendance study for a segment of St. Louis in 1950, it was found that the median mileage from user's home to food shopping at small stores was 0.23 miles; to food shopping

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[5]Note: The four conditions mentioned prevail for premeditated purchasing. Impulse buying is not treated here, since this type of buying is not of primary importance in the initial site selection of many stores.

[6]Paul D. Converse, "A Study of Retail Trade Areas in East Central Illinois," Business Studies #2, Bureau of Economic and Business Research. University of Illinois, 1943.

at large stores, 0.55 miles; and to clothing, household equipment or

furniture shopping at large stores (involving purchases of $5.00 or

more), 5.39 miles.[7]

Time allotted for shopping can be broken down into two parts:

travel time (discussed above) and purchase time spent at the store.

In buying items of necessity, such as groceries and drugs, which is

the day after day and week after week experience, customers tend to

make the actual purchases as quickly as possible. For durable goods

shopping, involving some comparison buying, more time is often spent;

while for luxury goods shopping, usually an extensive tour is taken

involving much time. The latter is primarily associated with downtown

shopping visits, whereas the two former kinds of purchasing are largely

conducted in the outlying shopping centers.[8] On this basis we can make

the assumption that customers usually desire to maintain at a minimum

the amount of time spent in shopping at other than downtown facilities.

Store Agglomeration Considerations

The foregoing discussion points up one central theme; namely, that

various retail stores or services do have similar locational require-

ments, based on consumer shopping habits. These are:

1. stores which locate a similar optimum distance from

the customer,

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[7]Donald L. Foley, "The Use of Local Facilities in a Metropolis," reprint
from American Journal of Sociology,Vol. LVI, No. 3, Nov., 1950.

[8]U. S. Department of Commerce Intra-City Business Census Statistics for
Philadelphia, Penna., Bureau of Census, May, 1937.

2. stores which are visited at substantially equal time

    interval frequencies (implying an approximately equal

    consumer use intensity), and

3. stores which sell similar articles for comparison shop-

    ping.

Functionally, store groupings usually represent a combination of

these three fundamental locational characteristics.

Because retail outlets do agglomerate, they not only offer increased

shopping convenience, but also in return they gain a greater degree of

dollar support from the buying public. Baker and Funaro, in the open-

ing statement of their book on shopping centers, declare that:

> "Two stores side by side have always, under a free enter-
> prise system, done more than twice the business of a
> single store. Every merchant in the world realizes the
> value of this cumulative pull..."[9]

We know from experience that stores concentrate to form various

sizes and shapes of centers. We see at one point hundreds of stores

congregated around a community's public square; at other points we see

fives and tens of stores located at peaks of minor or major vehicular

traffic flow. Yet, there are some retail enterprises which do not

locate at a peak in traffic intensity. These are the isolated or

string businesses. This study, therefore, analyzes those stores which

exhibit agglomerative tendencies and which the isolative.

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[9]Geoffrey Baker and Bruno Funaro, "Shopping Centers; Design and Opera-
tion," Progressive Architecture Library Reinhold Publishing Company,
N. Y., 1951.

CHAPTER IV

STORE TYPE STUDY AREA

Metropolitan Boston Selected

The more urbanized portion of the Boston Metropolitan District

has been selected for the analysis of store type affinities. Included

are all cities and towns within 9 to 10 miles of downtown Boston (see

Map IV-1, p. 28.1). The central Business District of Boston has been

omitted, since this study is of outlying centers only.

Thirty-one subdivisions of the metropolitan area are involved

(including seven Boston communities), with population densities rang-

ing from 31,000 persons per square mile (Roxbury) to 1,500 persons per

square mile (Braintree).

Source Material and Use of Data

Retail Store Census - The basic material on location of store

types was collected and tabulated by Kenneth W. Walter in 1947 as part

of a doctoral thesis, subsequently submitted to the University of

Syracuse.[1] The project was sponsored by the Boston Globe Newspaper

Company and was mapped under the direction of Professor Edward Ullman

of Harvard University.

Mr. Walter's data covered over 26,000 stores in 418 secondary

shopping centers found in the 43 cities and towns of the whole Metro-

politan District. This thesis covers a major portion of Walter's

study area. It includes data on 21,655 stores and 379 shopping centers.

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[1]K. W. Walter, Secondary Shopping Centers of Metropolitan Boston, un-
published thesis, Syracuse University, 1949.

P.28.1
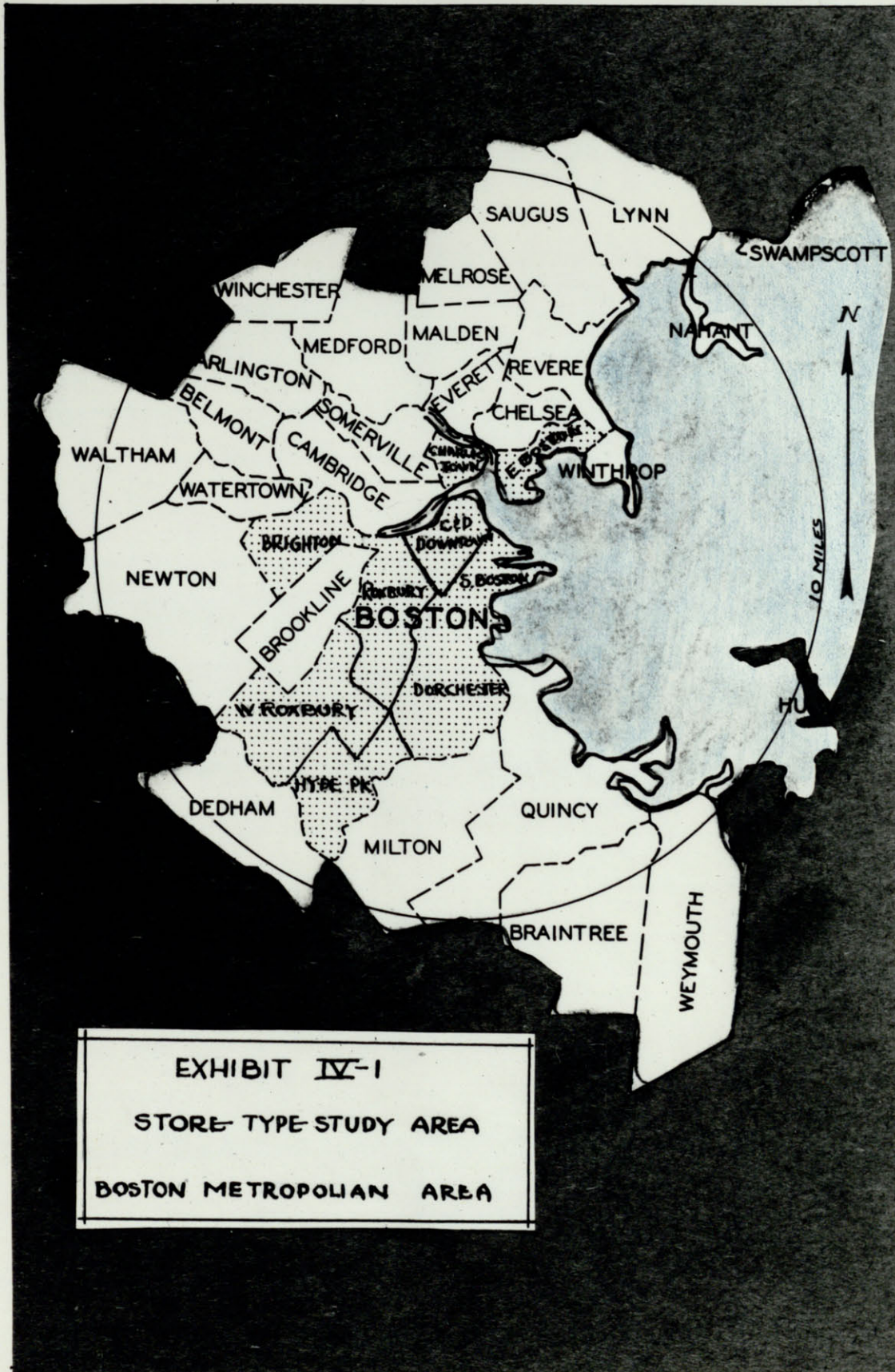
EXHIBIT IV-1

STORE TYPE STUDY AREA

BOSTON METROPOLIAN AREA

(See Map IV-2, p. 29.1). Peripheral metropolitan suburbs were deleted, since these towns are less densely populated and have proportionately small amounts of commercialization within their borders.

Walter defined a shopping center as,

> "a contiguous group of retail stores, usually more than four or five in number, having at least two kinds of retail types."[2]

Excluded were isolated stores, very small groupings of stores, and groups with only one specific retail type, such as automobile row. First floor businesses only were mapped, since second floor and other floor businesses were observed in only major centers.

The stores were classified into 171 different retail types (see Appendix, p.102). Also included were vacant stores, wholesale concerns, libraries and special clubs. Each store, after field checking, was mapped on "center" maps. Vacant, residential, manufacturing and other land uses in the various concentrations (frontages only) were plotted. The store type data, in addition to being mapped, was totaled and tabulated for each separate center.

Limitations of Data - Since isolated stores, small groupings of stores, downtown stores and other than ground floor retail uses were omitted from this original data collection, what percentage of the total number of all stores in the outlying metropolitan area have been tabulated? Checks into other sources revealed no comparative answer. For example, the U. S. Census Bulletin of 1948, Service Trades-Area Statistics, presents data on service establishments by combined metropolitan and Boston city totals only. Since Walter did not collect Central Business District information, no direct comparison appears possible.

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2 Ibid, p. 24
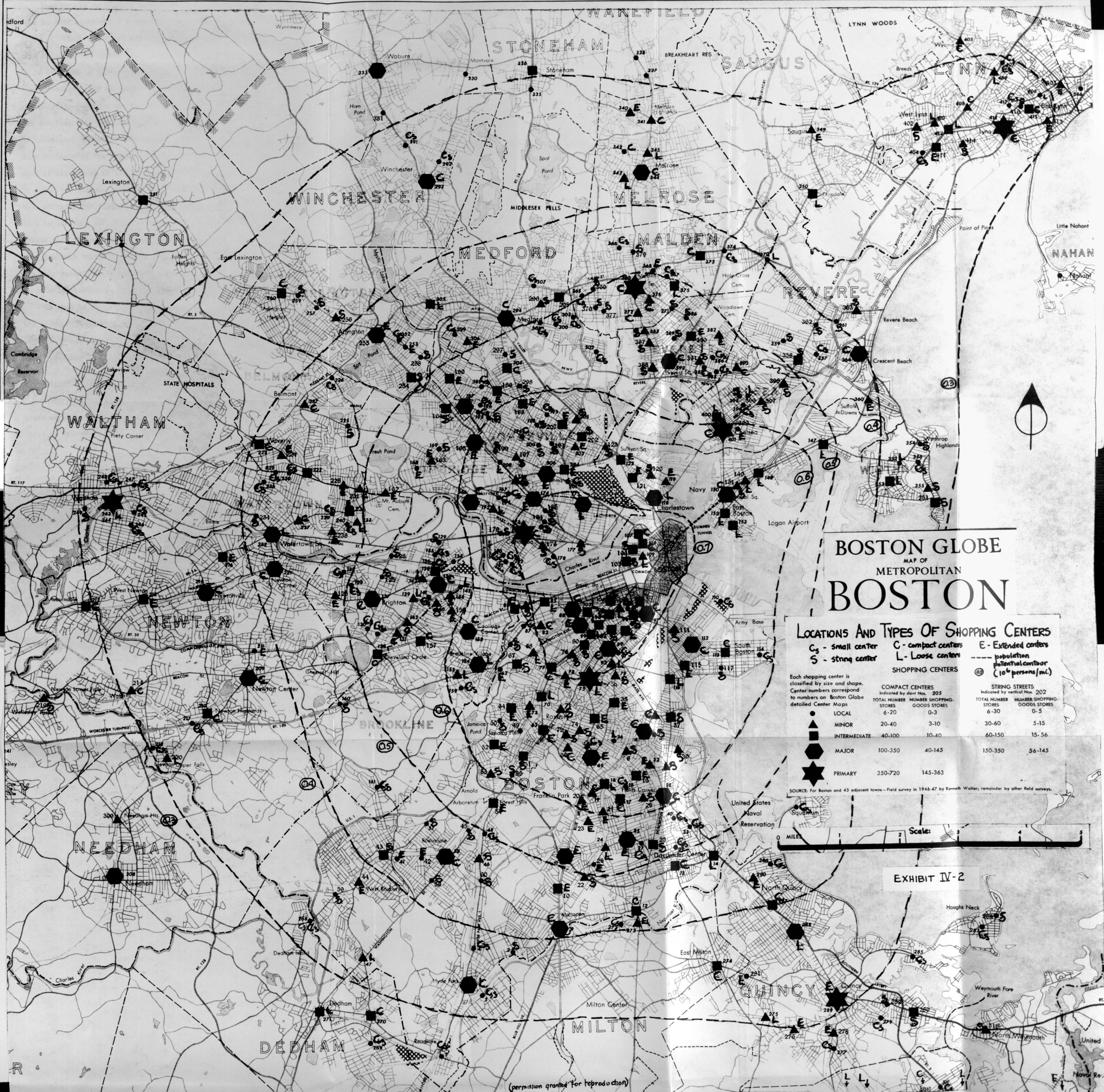
BOSTON GLOBE
MAP OF
METROPOLITAN
BOSTON

LOCATIONS AND TYPES OF SHOPPING CENTERS

Cs - Small center   C - Compact centers   E - Extended centers
S - String center   L - Loose centers   ----- population potential contour
   (03) (10⁶ persons/mi.)

SHOPPING CENTERS

Each shopping center is classified by size and shape. Center numbers correspond to numbers on Boston Globe detailed Center Maps.

	COMPACT CENTERS Indicated by slant Nos. 205		STRING STREETS Indicated by vertical Nos. 202	
	TOTAL NUMBER STORES	NUMBER SHOPPING GOODS STORES	TOTAL NUMBER STORES	NUMBER SHOPPING GOODS STORES
LOCAL	6-20	0-3	6-30	0-5
MINOR	20-40	3-10	30-60	5-15
INTERMEDIATE	40-100	10-40	60-150	15-56
MAJOR	100-350	40-145	150-350	56-145
PRIMARY	350-720	145-363		

SOURCE: For Boston and 43 adjacent towns—Field survey in 1946-47 by Kenneth Walter; remainder by other field surveys.

0 MILES   Scale: 1   2   3   4   5
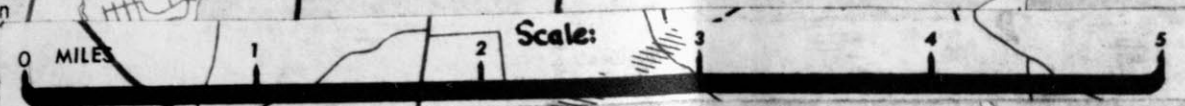
EXHIBIT IV-2

(permission granted for reproduction)

LEXINGTON · WINCHESTER · STONEHAM · WAKEFIELD · SAUGUS · LYNN · MEDFORD · MELROSE · MALDEN · REVERE · NAHANT · WALTHAM · BELMONT · CAMBRIDGE · NEWTON · BROOKLINE · BOSTON · NEEDHAM · DEDHAM · MILTON · QUINCY

However, in an attempt to obtain a qualitative answer to the percent of data coverage, a telephone book check was conducted for a few types of retail sales and service outlets for the year 1947. Twenty-nine camera sales stores were listed in the telephone book, compared to 26 reported in Walter's study for the same area, giving a 90 percent coverage. For carpenters, refrigerator service and auto repair garages, the coverage was 50, 30 and 65 percent respectively. These few samplings not only indicate the kinds of stores which are more prone to locational isolation (the retail services), but also allow a reasonable estimate of the degree of coverage: probably greater than 60 percent of all stores in the Metropolitan Area.

For the purposes of this analysis, in the determination of store type affinity for agglomerated or scattered commercial settings, the data is adequate and complete since, by definition, Walter was concerned with all retail outlets located in centers.

Although the material was gathered seven years ago, it represents the only recent, near-comprehensive collection of data on store types by actual location which is available for the Boston Metropolitan Area.

It must be recognized that findings of this study represent a static picture of a retail land use pattern. Variations in merchandizing methods, etc., in the future will alter the pattern and study conclusions presented here.

Classification of Shopping Centers by Conformation.

Shopping centers vary greatly in agglomeration characteristics. Since emphasis is placed on string retail developments, it is necessary first to isolate them from the balance of the system.

A string development (also called "stringment") has been defined as a shopping agglomeration, elongated in shape, which has a length greater than five times its width, which has fewer than 3.5 retail outlets per cluster of stores, and which has its businesses fronting on a major (usually radial) thoroughfare, the latter being intersected by streets used primarily for local access. (see Appendix, p.99).

Other "centers" defined are: small, compact, loose and extended. Small centers are those with less than 15 stores. Compact centers are the larger, reasonably well-nucleated community groupings; while loose and extended centers are variations of the compact and string centers respectively. The derivation of these shopping center classifications is presented in the appendix. (pp. 94).

It is suggested for future shopping center research projects that if the above definitions are correlated with classification systems presented in past studies by Rolph, Mayer, Proudfoot and others, a very definitive classification of outlying centers might be developed. Rolph's study of Baltimore identified shopping concentrations by the type of retailing services offered to the community; Mayer, for Chicago, refers to site values (real estate appraisals) and Proudfoot classifies centers by traffic densities.[3]

Any valuable, functional classification of shopping concentrations must be three if not four "dimensional" in scope, giving weight to the importance of financial as well as physical characteristics.

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[3]Proudfoot, Malcolm J., Major Outlying Business Centers of Chicago, Chicago: University of Chicago Libraries, 1938.

CHAPTER V

SHOPPING CENTER PATTERN FOR METROPOLITAN BOSTON

How Many Stringments? - Of the 379 shopping centers in this study,
102, or 27 percent, fit the description of a string development. In
terms of the number of stores, stringments include 3,865, or nearly
18 percent of the total of 21,655. If these stores were set side by
side in string fashion, the aggregate would extend for a distance of
approximately 40 miles if developed on one side of the street only,
or for a distance of 20 miles, if on both sides. Not included above
are the "tail" frontages prevalent in both the extended and loose cen-
ters; thus, the string retail frontage is even greater than that indi-
cated.

String Development Locations - Shopping conformations of the
string type are found throughout the metropolitan study area. Few
towns within 10 miles of downtown Boston are without stringments, and
these only in the suburban fringe area. Table V-1,(p. 32.1) relates
incidence of stringments and number of string stores to population
potential contours[1] (expressed in 10^6 persons per mile - used because
it reflects both population concentration and distance from the metro-
politan hub). The pattern shows a gradually decreasing representation
of both string developments and string stores with each successive con-
tour interval out from the center of Boston to the study area limits.

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[1] R. Roether, Population Potential, Boston, Massachusetts, unpublished
thesis, Massachusetts Institute of Technology, Cambridge, 1947.

EXHIBIT V-1

INCIDENCE OF RETAIL STRING DEVELOPMENTS AND STORES

BY SUCCESSIVE POPULATION CONTOURS FOR THE BOSTON METROPOLITAN AREA, 1947[1]

	Totals	Boston C.B.D. -0.7^2	0.7-0.6	0.6-0.5	0.5-0.4	0.4-0.3	Beyond 0.3
Stringments	103	9	32	24	17	14	6
Number of Stores	3,865	631	1,267	752	636	343	236

1. Source of basic data: K. W.Walter, Secondary Shopping Centers of Metropolitan Boston, unpublished thesis, Syracuse University, 1949.

2. Population potential contour = 10^6 persons per mile.

32.1

Comparing String and Compact Center Incidence in Metropolitan

Area - The same tendency applies for compact centers out to the 400,000

persons per mile contour, where stores in tight nucleation begin to show

an increase. (See Table V-2 and Graph V-3, pp. 33.1 and 33.2 respective-

ly). In other words, the ratio of string development stores to compact

center stores is approximately the same (55-65 percent) throughout three

successive contour intervals (not including the downtown area); but

in the fringe ring the percentage drops to 20 percent. The break be-

tween greater and lesser representation of string development stores

versus compact stores occurs about 8 miles out from downtown Boston.

Beyond that, shopping service is provided to a much greater extent by

compact centers. Past the 10 mile radius zone, in the dormitory towns

area, the data, if it had been included in the study, would likely show

that most stores are located at nucleated centers with very few in

string locations.

EXHIBIT V-2

STORES BY CONFORMATION TYPE OF CENTER WITHIN SUCCESSIVE POPULATION POTENTIAL CONTOURS

BOSTON METROPOLITAN AREA, 1947[1]

	Boston C.B.D. -0.7[2]	0.7-0.6	0.6-0.5	0.5-0.4	0.4-0.3	Beyond 0.3	Total	Percent
Small Centers	30	140	242	183	137	98	830	3.8
Compact Centers	1,712	1,875	1,473	1,144	1,757	206	8,167	37.7
Loose Centers	801	1,323	438	296	939	199	3,996	18.5
Extended Centers	122	1,885	1,092	748	789	161	4,797	22.1
Stringments	631	1,267	752	636	343	236	3,865	17.9
Totals	3,296	6,490	3,997	3,007	3,965	900	21,655	100.0
Percent	15.2	29.9	18.5	13.9	18.3	4.2	100	

1. Source of basic data: K. W. Walter, Secondary Shopping Centers of Metropolitan Boston, unpublished thesis, Syracuse University, 1949.

2. Population potential contour = 10^6 persons per mile.

EXHIBIT V-3

PERCENT OF TOTAL NUMBER OF STORES, AGGLOMERATED
AT A CHARACTERISTICALLY COMPACT OR STRING CENTER
by population potential contours
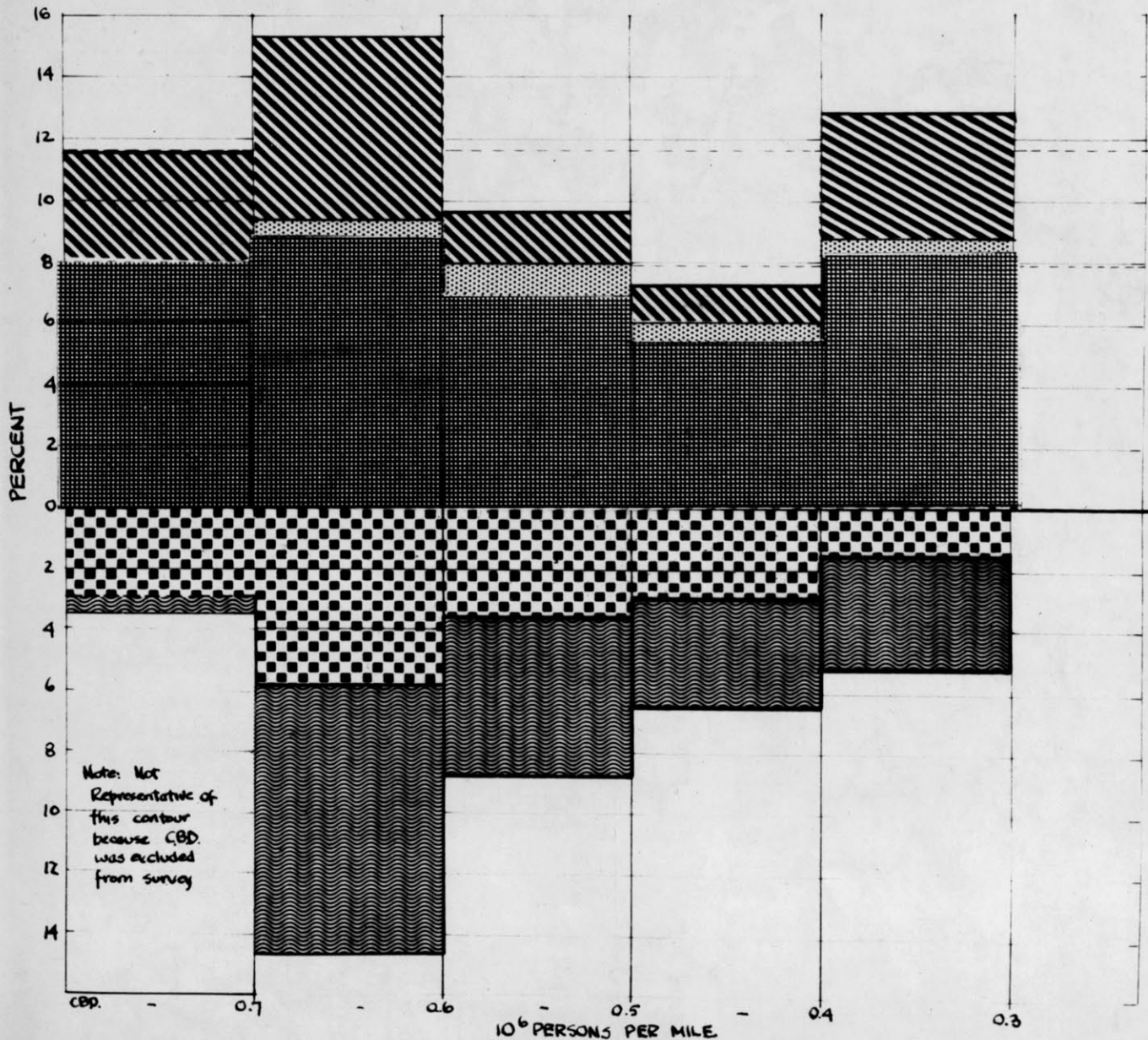
CHAPTER VI

RETAIL STORE TYPE ANALYSIS

Method of Comparative Analysis

The value of a study of stringment stores is only in comparison
with store types in other shopping group settings. The analysis will
follow this line of attack.

The number of stores of each type (171 types - see listing) has
been tabulated for each of the five conformation classifications. The
relative measure of affinity of the various store types for each class
of center was devised as follows, using grocery stores, as an example:

$$\text{Deviation index}(\%) = \cfrac{\cfrac{\text{groc. in string devel.}}{\text{total groc. in study}} - \cfrac{\text{total stores in string devel.}}{\text{total stores in study}}}{\cfrac{\text{total stores in string devel.}}{\text{total stores in study}}}$$

If each type of center in the metropolitan area had the same loca-
tional value for all stores, each conformation type would theoretically
be composed of the same percentage of stores for food, convenience,
household sales, apparel sales, etc. It would mean, for instance, that
a store locating in a stringment could expect the same customer support
as one located in a compact, well-nucleated center. In reality this is
far from the case. Cost of site, traffic intensity, ease of access and
other factors cause variations in store type representation. Therefore,
measuring percentage deviations from a theoretical metropolitan norm
(which is zero when all stores are taken as a whole) for store types by
shopping center conformation type expresses the direction and the rela-
tive quantity of the preference for a characteristically agglomerated
or deglomerated store setting. The most highly agglomerated type of

center has been designated as the "compact center" and the most highly
deglomerated center is the "string center". "Loose" and "extended"
centers are variations of the former and latter, respectively.

The percent of actual stores of one type to the total of all
types for one kind of center gives the density of the store type in
that kind of center, which is an absolute measure.

The deviation index, in percent, allows a comparison of one store
type's affinity or aversion to one kind of center as against another
kind of center in relative terms:

EXHIBIT VI-1

(DIAGRAMMATIC)
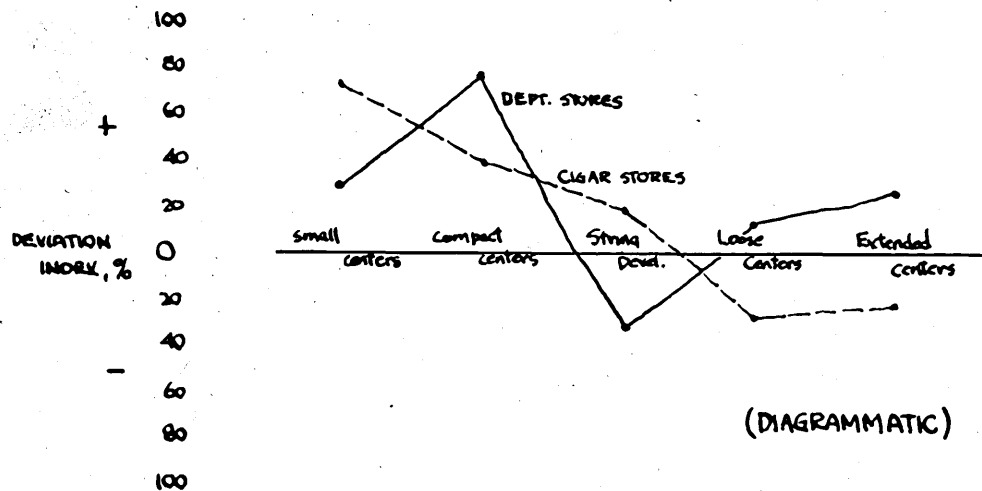
The measurements of affinity and aversion for the many study store
types are found in the Appendix, Table B-2, p. 104. In Table B-3, Appen-
dix, p. 108, the affinities are classified by related store types

(automotive uses, etc.)

Food and Convenience Stores

From the start, it is obvious that certain stores appear on the urban landscape more often than others. Such outlets as groceries, barber shops and restaurants are 4 to 5 times as numerous in shopping conformations as men's clothing stores or auto repair garages. They are represented 20 times as often as bookstores, 10 times as often as tire stores, etc. In that they sell mainly standardized items and maintain services for frequent purchase, they are aptly labeled "convenience stores."

Each major or minor shopping center contains some convenience stores. In residential districts they constitute the basic store types for all retail agglomerations. Of all the stores in the 80 local centers studied, 76.4 percent are convenience and other food stores.[1] Considering the 23 types included in this classification, the study shows a deviation index of 34(%). If we restrict our consideration to the "pure" convenience stores only (see footnote, p. 36), the deviation index is 90. This means that almost twice as many of these stores locate as nuclei of local centers than if local centers were to be assigned stores on the basis of their total store representation to the whole metropolitan area. A portion of the difference in the indices is due to the inclusion of "other necessity" food sales and

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[1]Convenience: grocery, drug, confectionary, delicatessen, package liquor; Personal Care Services: barber, beauty; Personal Effects Services; laundry, dry cleaner, tailor, shoe repair; Other Necessity Food Sales: bakery, meat, fish and poultry, supermarket, fruit and vegetable; Specialty Food Sales: candy, creamery, frozen food and health food; Dining: restaurant and tavern.

specialty food sales, which actually show a negative affinity for local
centers. The former group, which includes bakeries and chain grocery
and meat stores (supermarkets), shows a degree of affinity for extended
centers; whereas, the latter group, consisting of creameries, frozen
and health foods, are more closely associated with compact center re-
tail outlets.

Before we go on, it is well to recognize that the stated affinities
for a specific conformation(s) are _tendencies_ which exist in our shop-
ping pattern. These tendencies do not generally operate to the exclu-
sion of a certain store type in other conformations. Perusal of the
table of deviation indices will emphasize this point. However, the
tendencies are expressions of specific patternizations of retail land
uses built up over a period of many years. Whether the affinities are
bound to become more explicit in future years can only be determined
by comparing this study data with the data of another retail census.

The index of deviation for all convenience and food outlets for
stringments is + 13%. If only the convenience stores (the subgroup
including 7 store types) are considered the affinity jumps to 35%. The
subgroupings of "other necessity" and "specialty food sales" which
express a negative affinity for local centers show a like disfavor
for string locations.

String developments have a 65 percent representation of their
total retail stores in the convenience and food group. Considering
only the subgroupings showing affinities for both local and stringment
sites we find that these store types comprise 70.3 percent of all stores
in small centers, 58.2 percent of all stores in stringments, and between

42 to 49 percent of the total stores in the other centers. It is
evident that for each kind of conformation classification there is in-
cluded the composition of one or more local, small shopping centers,
string developments notwithstanding.

Since 6 out of 10 stores in stringments are local convenience sales
and service outlets we can conclude that string properties offer the
equally proportional neighborhood shopping service, in terms of store
types, as do isolated local center sites.

Shopping Goods Stores

Another outstanding affinity demonstration is that of shopping
goods stores which thrive on locations in major, tightly agglomerated
shopping centers. Wearing apparel stores (including shoe stores and
specialty apparel stores, such as furriers, etc.) definitely tend toward
compact centers and away from both string developments and small local
centers. The same is true, but to a lesser extent, for these other
major-item purchase outlets: department and variety stores; the vari-
ous specialty sales, such as bookstores, sporting goods, florists, etc;
and household sales for furniture, household furnishings and house de-
coration-maintenance items.

Apparel stores show a positive deviation index of 48 for compact
centers and a negative deviation index of 67 for string developments.
Clothing and other shopping goods stores apparently cannot hover too
closely together to make it easy for the customer on a shopping tour,
or for taking advantage of the impulse purchasing potential of a heavy
stream of shopping traffic. The fact that these stores have a tendency
to shy away from isolated or deglomerated string sites is again evidence

of their desire to locate compactly.

The interrelationship of neighboring locations for department, variety, women's clothing and shoe stores for the central business districts of some 24 cities, as discussed by R. U. Ratcliff in 1939[2], also holds true for the outlying shopping centers in the Boston Metropolitan area. The larger centers in which these high intensity sales types of stores are situated serve as community "downtowns" to part of the urban population and are copies of the metropolitan central business district center on a smaller scale.

Quick pick-up sales and services (cigar, newsstand and shoeshine outlets) indicate a significant lack of affinity for both local centers and string developments, while exhibiting a definite preference for compact centers. Each of these types depends upon heavy passing traffic for trade and are parasitic to the larger retail traffic generators in the major compact centers.

Two types of sales outlets associate strongly with string developments and extended centers: hobby and novelty sales. The locational requirements of such stores would seem to be far less expensive sites away from 100% shopping center locations.

Some sales outlets do not show any significant affinity for either characteristically string or compact center sites. Hardware stores and realty offices are of this type.

Retail Services and Other Types

Retail services have been considered in three groupings; business

[2]Richard U. Ratcliff, The Problem of Retail Site Selection, University of Michigan Bureau of Business Research, 1939, pp. 26 ff.

and professional services, automobile services and household maintenance services.

As pointed out earlier in the text, something less than full enumeration had been made of the business and professional services. These uses do not confine themselves to first floor frontage, but often locate on other floors of business buildings. The exceptions are banks and financial institutions, public utility and telegraph offices. The affinity pattern for the named types is positive in favor of compact centers and negative for both local centers and string developments. Customers usually visit these service units in conjunction with a shopping trip, since a visit to the bank, etc., often coincides with the frequency need for shopping goods.

The automotive services reported a degree of affinity for stringments and an aversion to the other types of centers with the greatest degree of aversion shown for compact centers. The advantage of string sites for the automotive sales and services lies in the direct physical relationship with moving traffic. Less expensive land and building maintenance costs account for many household maintenance services' choosing stringment properties.

Automotive land uses need direct street ingress and egress, and larger spaces for operation because of the bulk of the item of purchase or service. In this respect they are relatively incompatible with the major sales outlets in compact centers. Only auto rental and auto driver training schools show an affinity for compact centers. The others automotive uses tend toward stringment, loose or extended sites, gas stations and auto accessory sales excepted. Gas stations show an

affinity for local centers as well as stringments. Accessory sales

have a tendency to shun string sites in favor of locations near the

apex of major shopping centers, perhaps on the basis of service to those

who are temporarily without automotive transportation.

Household maintenance services - the carpenter, plumber, lawnmower

repair shops, etc., - do not require a location near the 100% retail

site in centers, since, in general, some of their business is conducted over

the telephone as well as over the counter. The affinities expressed, are

primarily for stringment or loose center locations. One subgroup, in-

cluding printers, watch repair, locksmith and typewriter service shops

shows affinity for compact centers, probably because these service

errands are easily combined with other shopping.

The convenience household maintenance services, carpenter, electri-

cian, plumber, roofer-tinner and upholsterer, show slight positive devia-

tion indices for local centers. This reporting parallels personal ob-

servation of the problems of many small centers which may have been

initially overdeveloped. The result has been that retail stores were

unsuccessfully operated for convenience sales therein and, subsequently,

have given way to convenience services.

The affinity patterns of the automotive and household maintenance

services for string, loose and extended center sites must be assessed in

light of the fact that only one half (approximately) of these existing

uses have been tallied in the survey, as mentioned earlier in the text.

The balance of these types, because they are not located in any of the

centers analyzed, fortify the significance of the affinity findings.

Theaters and bowling alleys favor compact centers against local

and stringment locations. However, billiard halls shun local centers

entirely, and compact centers partially, while showing a positive

correlation with stringments.

Vacant Stores

Over twenty-three percent of the vacant stores in the metropolitan

study area occur in string developments. This represents 10.0% of its

active retail store constituency, while the average of store vacancies

for all centers is 7.7%. Actually, loose centers have the greatest

density of vacant stores. For small centers the percentage approxi-

mates that of the stringments.

The higher vacancy ratios reported for loose centers is to be ex-

pected, but to find small centers in the same value position as string

developments is surprising. On this basis it would appear that small

agglomerations are not as desirable a type of shopping center as indi-

cated in this thesis. However, closer scrutiny of the existing small

centers will probably show that they, too, are not as well compacted

for efficient customer service as they might be. In many cases the

small local centers have stores on three or all four corners of the

minor intersection at which they are located.

Obviously, the centers with the greatest degree of compaction, the

compact and extended canters (see definitions), have below average store

vacancy representation.

Results Tabulated

The following table (VI-2, p. 42.1) has been prepared on the basis

of affinities of store types for location in A) small local centers,

B) larger centers, whose stores are knit tightly together in agglomera-

EXHIBIT VI-2

TABLE OF STORE AFFINITIES
CLASSIFIED IN THREE MAJOR GROUPS

GROUP A
Convenience Stores:
  Sales:
    Groceries
    Grocery-Meat
    Drug
    Confectionery
    Delicatessen
    Packaged Liquor
  Services:
    Barber Shop
    Beauty Shop
    Dry Cleaner
    Tailor
    Laundry
    Shoe Repair

GROUP B
Specialty Food Stores:
  Grocery-Meat, Chain
  Candy
  Creamery
  Frozen Foods
  Health Foods
Apparel Stores:
  Women's, Men's &
    Children's Clothes
  Shoes
  Dry Goods
Department & Variety Stores:
Hardware
Cigar
Newsstand
Shoeshine
Specialty Stores:
  Leather
  Stationery
  Cosmetics
  Cameras
  Music
  Toys
  Bookstores
  Jewelry
  Pets

Specialty Stores (cont'd):
  Gift
  Yarn
  Sporting Goods
  Florist
Household Furnishings:
  Wallpaper
  Fuel Sales
  Furniture
  Radio & Appliances
  Floor Covering
  Mirror & Glass
  Paint
  Mattress
  Picture Frames
Financial Institutions:
  Banks
  Building & Loan
  Personal Loan
Employment Agency
Post Office
Public Utilities Office
Travel Agency
Telegraph
Services:
  Watch Repair
  Locksmith
Recreation:
  Theater
  Bowling Alley
Other:
  Realtor
  Tux Rental
  Taxi
  Advertising
  Auto Rental
  Used Clothing
  Antique

GROUP C
Food Sales:
  Bakery
  Meat, Fish, Poultry
  Fruit & Vegetable
  Restaurants
  Tavern

Auto Service & Sales:
  Gas Stations
  Repair Garages
  Tires
  Accessories
  New & Used Auto Sales
  Auto School
Household Maintenance:
  Refrig. Repair
  Carpenter
  Plumber
  Electrician
  Elec. Appliance
    Repair
  Exterminator
  Upholsterer
  Painter
  Window Cleaning
  Roofer-Tinner
  General Repair
  Builder
Household Sales:
  Awnings
  Insulation
  Curtains
  Stoves
  Furnaces
  Shades
  Heating
Other Services:
  Printer
  Signwriter
  Blacksmith
  Undertaker
Specialty Sales:
  Hobby
  Novelty
  Photographer
  Bicycle
Others:
  Billiards

GROUP D
Monuments
Rug Cleaning
Express & Moving
Etc.

tion and displaying the greatest intensity of use of retail land, and

C) string developments, loose and extended centers, combined because only

a few retail operations other than auto and household services exhibit

a unique affinity for stringments. By grouping retail uses adcording to

significant affinity expressions we obtain a recognizable semblance of

functional classifications for stores in location. The groups form the

basis for proposed zoning classifications presented in Chapter IX.

Summary

- Small shopping centers are primarily a function of local con-
  venience shopping service. Forming a retail group with the
  grocery, drug and confectionary stores as a nucleus, the several
  types constitute 70 percent of all the stores so agglomerated.

- Stringments also have a high convenience sales and service
  store content (6 of every 10 stores) to demonstrate a relatively
  similar "local center" service.

- The shopping goods stores affiliate primarily in compact centers;
  they show a degree of aversion to stringment locations.

- There exists a definite affinity in the auto and household
  maintenance groups for string developments, while these groups
  also show affinities for loose and extended center sites. This
  latter phrase suggests that these uses tend toward location in
  a shopping center complex, but away from its focal point of peak
  sales and traffic.

CHAPTER VII

CONVENIENCE STORE PATTERN AND SERVICE

Everyone is familiar with the neighborhood store setting. In its simplest form there is only a grocery, or delicatessen, or a confectionery store. In its mature form, several entrepreneurs, recognizing the advantages of a close grouping of individual stores, often locate with the retail food outlet as the hub and prime generator of local shopping. The end product comprises, besides the grocery store, a dry cleaning establishment, drug store, hardware store, barber and beauty shop, and a few other establishments.

Not only do these types of stores form separate small shopping concentrations, but also full complements of such small centers are found in the larger, variously shaped agglomerations. In previous chapters we have seen that convenience sales and services constitute a major portion of all stores in stringments -- nearly 60 percent. Included are some small groupings containing 10 or more stores, usually not well agglomerated, while some of the stores are completely isolated.

What are the advantages or disadvantages of store concentration in relation to stores in isolation?

Concentration versus Separation

Retail outlets located haphazardly along a major street for a distance greater than 600 feet, or roughly three blocks (see definition of stringment, p. 99), subject pedestrian customers visiting several stores per shopping trip to excessive walking between stores.

If but one sale inspires the walking shopper's trip, individual store

location is of less importance, as long as it is within walking range

of the trip origin.

This problem can be approached theoretically for the local pedes-

trian shopper. In the cases illustrated in Figures a and b, the shop-

per walks the same distance if individual shops are visited on separate
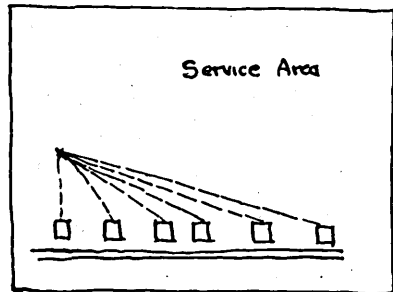
EXHIBIT VII.-la   EXHIBIT VII.-1b
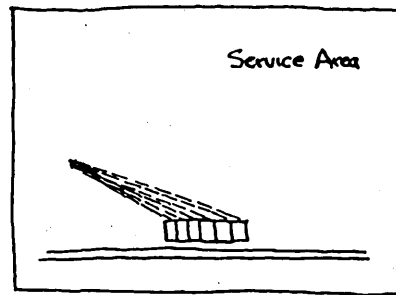
trips. The distance becomes perceptibly different (longer in the

first case) when several stores are frequented on the same trip. In

the first example, individual store locations may cause separate cus-

tomer trips. Such is not true in the second, since several or all

stores may be visited at once, involving direct store to home walking

without negotiating non-retail frontages between stores. The second

pattern is, therefore, more desirable for convenience stores in

string developments contiguous to a residential area, because it is

more conducive to multiple shop visits. The question is raised, then,

whether local consumers, in their desire to minimize shopping time,

purposely hold off purchases at one store in preference to making

those purchases when they can be combined with purchases in other stores on the same trip.

Not all persons shop by walking, however. Many use automobiles even for local shopping. It is necessary, therefore, that the motorist shopper have available a convenient parking space at his destination. For the smaller stores usually the only opportunity for parking is at the curb. Off-street parking space is sometimes provided by larger stores.

For curb-parking shoppers, desiring to make quick, single purchases, bead-spacing of stores is desirable because it spreads the load for potential curb space demand over a greater distance. However, the space-store-space pattern is not convenient to the motorist shopper at string stores if he wishes to buy at two or more stores, parking only once. The same walking distance theory applies in this case as outlined above for the home to store pedestrian shopper.

We see, therefore, that in combining the interests of the pedestrian shopper and the motorist shopper, conflicting convenience store location demands depend upon whether one or more stores is to be visited on an individual shopping trip. For this and other purposes, a shopping "origin-destination" study at the local service level has been conducted for possible resolution of the question.

Other factors, such as traffic, parking and intensity of land use, also affect the problem of store scatter versus store cluster for convenience shopping.

CHAPTER VIII

SURVEY OF LOCAL SHOPPING

AN ANALYSIS OF STRINGMENT SERVICE TO NEIGHBORHOOD RESIDENTS

The investigation of the apparent problems in the Massachusetts

Avenue stringment in Cambridge and the discussions of functional

shopping demands lead us to a critique of the performance of store

types in an established stringment, both in relation to the interde-

pendent locational requirements of stores and in relation to the need

for stores to locate as they do near a resident population. We are

also interested in shopping travel habits which affect store location.

Therefore, a typical stringment was chosen for analysis. The

study case is typical according to its conformation and generalized

composition of land uses; the service area subtended by its com-

mercial development is typical only in that other residential areas

may have the approximately same demographic, social, economic and

physical characteristics. It is not implied that the findings of

this analysis do not, at least in part, parallel other urban string-

ment problems.

PART 1. Description of Study Area

Location of Baltimore Study Stringment

The sample string development chosen for study was found some

four miles northeast of downtown Baltimore (see Map VIII-1, p.47.1).

It represented an excellent case for analysis since the nearby resi-

dential "service area"[1] had readily definable boundaries (cemeteries

---

[1]Actually not the total service area; no effort was made to deter-
mine the full market influence of the stores studied.

47.1

EXHIBIT VIII-1

STUDY AREA FOR LOCAL
SHOPPING SURVEY - HARFORD
ROAD STRINGMENT
BALTIMORE, MARYLAND, 1954

ONE INCH EQUALS
APPROXIMATELY 1.5 MI.
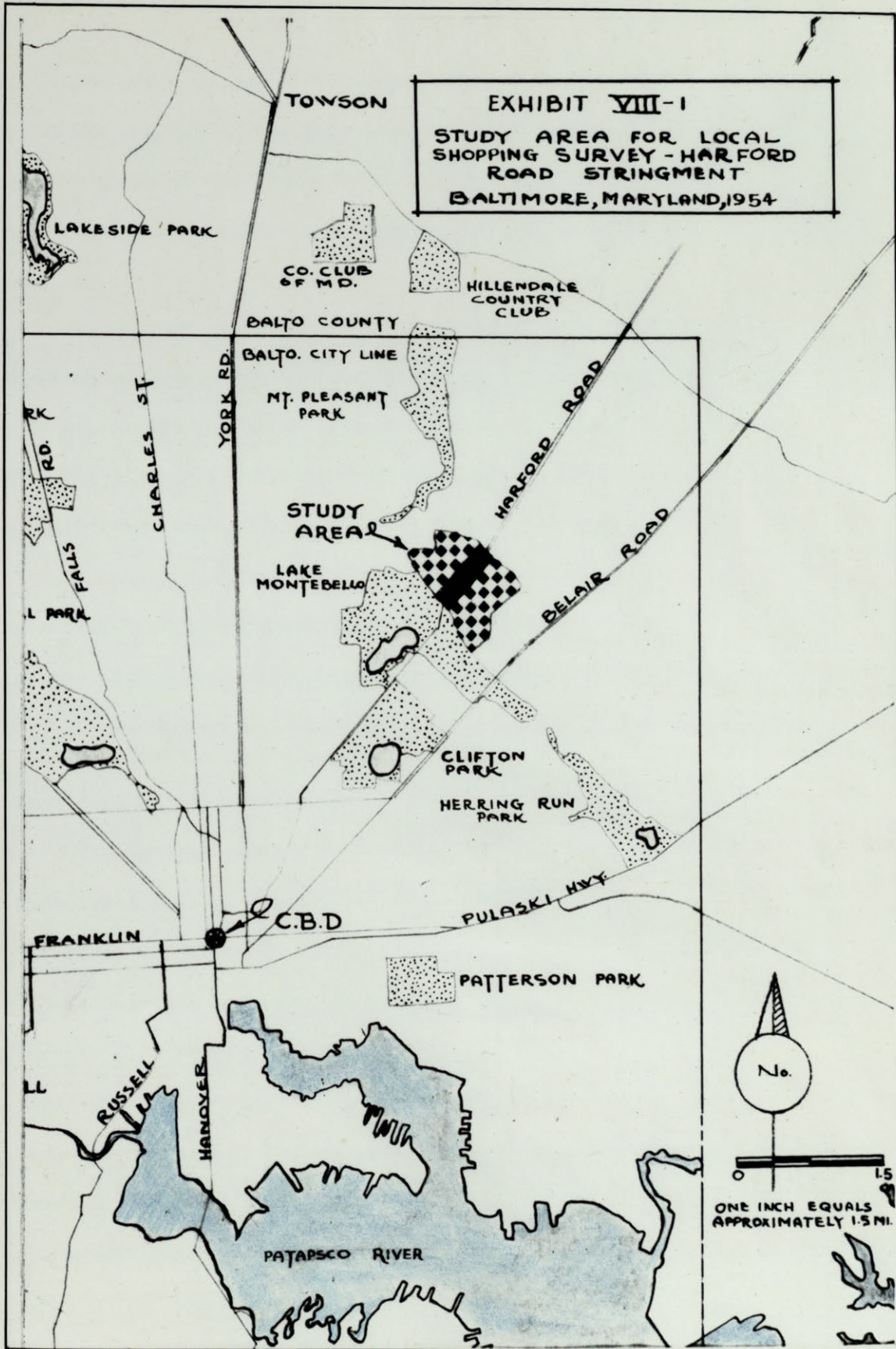
and park land) on two of its three sides (see Map VIII-2, p. 48.1).

In being separable from neighboring shopping center service areas,

the question of interpenetration of market areas for at least the

convenience type stores was largely avoided, thereby simplifying the

analysis.

Size of Service Area - The residential area bounding the string-

ment and within which many purchases at the Harford Road string stores

are generated, had to be large enough to include both walking and

driving customers. The eastern boundary of the service area was ap-

proximately one-half mile distant from the stringment, while the wes-

tern boundary measured slightly less than one-half mile. The total

area included 366.2 gross acres (counting streets) or 0.57 square

miles, with 5.3 acres in cemetery use and 18.7 gross acres in commer-

cial, warehousing or industrial use within the study boundaries.

Requirements of Definition Fulfilled

The length versus width ratio of the stringment was approximately

10/1, or almost 10 times as long as its commercial width. The number

of stores per cluster of stores was 2.6 (83 stores in 32 clusters).

This commercial grouping (3 5 of a mile long) has frontage on Har-

ford Road, a major radial emanating from downtown and extending into

Baltimore County. Its roadway width is 58'-60' (r-o-w: 80'), accom-

modating two parking lanes, two moving lanes and two streetcar tracks.

Harford Road, for the length of the string development, is intersected

by purely local access streets, except for the crossing of Moravia-

Cold Spring Lane, which is termed an intra-community street. While

Commercial Land Use
Wareho. Industry, other
Property boundary of non residential land

● INTERVIEWS COMPLETED
○ INTERVIEWS REFUSED

HARFORD ROAD STRINGMENT AND SERVICE AREA WITH LOCATIONS OF DWELLING UNITS WHERE INTERVIEWS WERE CONDUCTED

Baltimore, Md.   1954

NORTH

SCALE
0   500

---- ¼ & ½ MILE FROM HARFORD. RD.
---- CENSUS TRACT BOUNDARY
⌐-¦ CENSUS TRACT

GERMAN LUTHERAN CEM.

BNAI ISRAEL CEMETERY

MOST HOLY REDEEMER CEMETERY

EXHIBIT VIII-2

this cross street performs a service beyond mere local access to the

main thoroughfare, suggesting that this case of a typical string

development does not meet the letter of the definition as herein set

up, it appears that the spirit of the definition has been met in that

no retail operations front on Moravia just off Harford Road. In

other words, the existence of this more important cross street has

not yet sponsored a concentration of shopping on its frontage near

Harford Road.

Land Use - The diversity of land uses of Harford Road's string

frontage ranges from residential to light industrial, although it is

primarily a commercial setting. There are 18 dwellings, some con-

verted to apartment use, one fire station, 1 street car barn, 4 doctor's

offices in converted residences, 3 dentists in retail buildings, 83

retail sales and service outlets (see Table VIII-3, p. 49.1 and Map

XI-2, p.82.3, 5 vacant stores, 2 storage buildings, and 3 industries.

These uses are perceptibly intermixed, although there are three dis-

tinguishable building groupings (sub-centers) within the stringment.

Two of these appear to be maintaining their retail sales function,

while the third is losing out to the retail services and other non-

sales units. The latter includes three of the four presently vacant

stores of the string development.

A percentage comparison of store types in this stringment with

the average in Boston's metropolitan area follows. It can be seen

that the study case has, percentagewise, fewer convenience stores

and more household service and sales outlets than the Boston Metropo-

EXHIBIT VIII-3

NUMBER AND PERCENT OF RETAIL OUTLETS

HARFORD ROAD STRINGMENT

Baltimore - 1954

	#	%		#	%
TOTAL NUMBER OF OUTLETS	83	100.0			

	#	%		#	%
I. Food & Convenience	38	45.7	VI. Household & Furnishing Sales	12	14.5
Food Store Sales	2		Htg.-Plmb. Equip.	1	
Supermarket Sales	1		Furn. & Appliances	1	
Drugs	5		Fences	1	
Delicatessen	4		Floors,Venetian Bl.	1	
Rest.-Luncheonette	2		Lumber	1	
Rest. with Liquor	4		Hardware	3	
Tavern	2		Realtor	4	
Liquor Sales	1		VII. Financial, Communications & Professional Serv.	5	13.3
Barber	4				
Beauty Salon	3		Architect, Engnr.	1	
Laundry & Clners	5		Plumb. Sply Office	1	
Tailor	1		Htg Admin. Office	1	
Shoe Repair	3		Life Ins. Office	1	
Bakery	1		Bldg. & Loan Off.	1	
II. Auto Sales & Serv.	12	14.5	VIII. Miscellaneous	3	3.6
Gas Station	8		Theater	1	
Garage	2		Dance Hall	1	
Used Auto Sales	1		Express & Moving	1	
Seat Cover	1		Others not included in total		
III. Household Maint & Services	10½*	12.7	Storage	2	
Electricians	2		Wholesale	1	
Plumbing, Heating	1		Industry	3	
Paperhanger	1		Vacant Stores	5	
Contractor	3		Doctors	4	
Upholstering	1		Dentists	3	
TV-Radio Service	1				
Printing	½*				
IV. Apparel Sales	1	1.2			
Dry Goods	1				
V. General and Specialty Sales	1½*	1.8			
Card Shop	½*				
Toys	1				

*Printing shop also sells cards, operations equally important.

EXHIBIT VIII-4

Store Types By General Classification[1]	Boston Metro. %	Balto. Study Case %
I. Food & other Conven.	65.0	45.7
II. Auto Sales & Service	10.3	14.5
III. Household Maint. & Serv.	6.8	12.7
IV. Apparel Sales	2.0	1.2
V. Gen'l & Spec. Sales	3.6	1.8
VI. Household & Furn. Sales	6.3	14.5
VII. Finan.,Communic. & Prof.Serv.	1.1	6.0
VIII. Miscellaneous	4.9	3.6
Total	100.0	100.0

litan area. Other than these variations, the study stringment's composition of store types compares favorably with the average Boston stringment store representation.

Characteristics of Residential Service Area

The total number of dwelling units in the study area in 1950 was 2,141, and 2,169 in April of 1954[2] (increase of 1%). While the present population is not known exactly, it very likely approximates 6,500 persons (family size = 3.0). The occupancy of dwelling units from tabulated results of the sample survey[3], differentiating between (1) the area up to 1/4 mile from Harford Road, and (2) the area beyond 1/4 mile, are shown in Table XIII-5.

The area closer to Harford Road has a higher percentage of multiple-family residency in comparison to single family occupancy, while

[1]See Appendix B, p. 108 for listing of stores in each classification
[2]Field checked by writer; see appendix C, p. 118 .
[3]See appendix C, p.124 Sample Survey Methodology.

EXHIBIT VIII-5

TYPE OF RESIDENCY

	Single Family	Duplex	3-4 Family	Apart- ment	Group	Total
Up to 1/4 Mile	54%	20%	5%	18%	3%	100.0%
Beyond 1/4 Mile	79%	11%	0	10%	0	100.0%
Average	64%	16%	3%	15%	2%	100.0%

the reverse is true for the area between 1/4 and 1/2 mile from the

string development. This is also reflected in the density calcula-

tions, which reveal a somewhat higher density closer to Harford Road

than farther from it:

EXHIBIT VIII-6

RESIDENTIAL DENSITIES

Part of Study Area	DU/Gross Residential Acre	
0 - 1/4 mi.	5.3	$\left(\frac{863}{162.7}\right)$
1 4 - 1/2 mi.	7.3	$\left(\frac{1306}{179.5}\right)$
Whole Area	6.3	$\left(\frac{2169}{342.2}\right)$

The average net residential density of the study area is estimated

at 9.0 families per net acre. This classifies the area as a low den-

sity district if, for example, the density classification as set up in

the Preliminary Master Plan for Boston[4] is used. The factors respon-

sible for the comparatively low density designation are: (1) the

area's relatively high representation of single family units, and (2)

the fact that in the "multiple residency" portions of the study area,

the large, older homes now being broken up into apartments, are

situated on relatively large lots.

The size of family (from sample survey) at the present time is

3.07 persons/dwelling unit (3.41 average for Baltimore city in 1950).

In the higher density portion of the study area the family size is

smaller (2.93) than in the lower density part, (3.26).

During the interviewing period, it became evident that there were

many older people in the district. If the 1950 census information for

Tract 27-2 approximates present conditions, and also if it is fairly

representative of the whole study area (27-2 covers 60% of study area,

see Map VIII-2, p. 48.1), the percentage of people over 50 to the

total population is roughly 5% greater than the city average (32.0

and 27.2 percent, respectively). The greater number of older people

is actually reflected in the figures, showing a lower-than-city aver-

age family size.

Also pertinent is the average length of residency in the area --

11.7 years. Implied is the fact that the study families show a longer

stay-put record than the average U. S. citizen, who is variously re-

ported to move at least once in every five to seven years at the pre-

---

[4]City Planning Board, General Plan for Boston, Preliminary Report,
1950, Boston, Mass; (Low density, 0.11 f/net acre; Low medium, 11-21;
High Medium, 21-40; and High, 41 and over.)

sent time.

Rental values of single family units for Tract 27-2 in 1950 place the study area in a slightly better than average economic light in comparison to the city as a whole, if the 1950 results are applicable today. Median rental value for the study area tract was $49.32 per month; for the city, $40.60. Income-wise, one half of the people in the study area tract earned more than $3,719 in 1949, while the rest earned less than this amount; for the city, median income was $2,817.

Characteristically, then, the study area is a relatively low density residential area; with 35% (approximately) of the residents occupying multi-family units; with a less than city average family size; a greater than average representation of older people; and with a relatively stable population, earning more income and paying higher rents than the average city dweller.

Automobile Ownership in Study Area - A description of the residential service area would not be complete without noting the availability of automobiles for conducting family activities, including shopping. Based on information gathered in the sample survey, 72 of the 103 families had cars, 7 had more than 1 car, and 24 had no transportation. The ratio of autos/per families was 0.85 (88/103 - two families interviewed had 3 cars each).

As would be suspected, the ratio of autos per family is much less in the area immediately away from the shopping frontage on Harford Road, up to 1/4 mile away, in comparison with the 1/4 - 1/2 mile area.

EXHIBIT VIII-7

AUTO OWNERSHIP

No. of Autos/Fam.:	Up to 1/4 Mile					Beyond 1/4 Mi.					
	3	2	1	0	Sub-total	3	2	1	0	Sub-total	Total
No. Families	-	2	37	22	61	2	3	35	2	42	103
%	-	3.3	60.5	36.2	100.0	4.8	7.2	83.2	4.8	100.0	
Autos/Family			0.67					1.12			

Of all the families which reside closer to Harford Road, with its mass transportation service, more than one-third of those interviewed did not own automobiles. On the other hand, less than 5% of enumerated families living beyond 1/4 mile from Harford Road were without automobiles.

CHAPTER VIII

Part 2. SURVEY FINDINGS

Total Shopping Activity by Local Residents

Almost all families in the area did some daily shopping[1] during

the three day interview period. Nearly 60% shopped on two of the

three days, and about one-quarter shopped one day out of three:

EXHIBIT VIII-8

Some Shopping Conducted	Shopping by Days Percent
Each of 3 days	22.3%
Only on 2 days	46.6
Only on 1 day	27.2
No shopping	3.9
	100.0

Not all shopping involves a personal trip from point of origin to

the market place. Some purchases are made, for instance, by phone or

mail (with subsequent delivery from the store), by buying from a

huckster selling from door to door, etc. In order to quantitatively

relate this non-motion type of buying to total actual trips, we must

first define a shopping trip. A shopping trip is one originating at

home, employment, church, etc., with a destination at a commercial

setting. The survey reports 239 shopping "center"[2] trips, of which

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[1]"Shopping" involves any purchase of items or services for the family's
   benefit, or visits made to banks, commercial recreation, funeral
   parlors, etc.

[2]A "center" may be an isolated store without association with other
   store groupings.

27 trips were made from one shopping "center" to one or more other "centers." Therefore:

EXHIBIT VIII-9

	Number	Percent
Total Shopping Trips	212	76.5
Center to Center Trips	27	9.8
Total Shopping Center Trips	239	– –
Mail,phone,delivery "trips"	38	13.7
Total shopping ventures	277	100.0

In the study area, then, we see that one out of approximately every seven purchases was made without the customer's leaving his place of residence.

The average number of daily shopping ventures per interviewed family was 0.9% (277/103 3).

Since all family shopping activity was recorded, it is possible to gain an understanding of the relative amount of shopping conducted at the stringment study stores versus downtown and other shopping concentrations. Passive shopping acts are also tabulated, in Exhibit VIII-10.

In terms of shopping ventures, the stores of the study stringment generate more than half of all consumer trips, phone calls and de-   / liveries. The central business district accommodates 13% of all shopping ventures, about the same as for community centers. Most of the total phone orders are shared equally by the downtown entrepreneurs and the local stores.

EXHIBIT VIII-10

PERCENT OF PHONE, ETC. AND SHOPPING TRIPS, BY SHOPPING CENTER TYPES

	Study String	Iso- lated Store	Other String Devel.	Neighborhd. Center Outside String	Commun. Center	Down- town	Totals
Phone calls	4.1	1.4	0.6	--	0.3	4.1	10.5
Mail & Deliv.	0.3	1.1	--	--	0.7	1.1	3.2
Shopping Ctr. Trips	49.8	7.6	5.9	1.1	14.1	7.8	86.3
Total Shopping Ventures	54.2	10.1	6.5	1.1	15.1	13.0	100.0

It is clear from the above that local stores in the study area are supported to a conspicuous extent by the nearby residential district.

Study origin-destination shopping figures compare favorably with those given for the metropolitan area of Baltimore, 1946 (see below).

EXHIBIT VIII-11

To Shopping from:	Baltimore O-D 1946	Study O - D
Home	81.2	75.6
Work	3.6	5.9
Other Shopping	6.3	11.4
Other	8.9	7.1
Total	100.0	100.0

As pointed out prevously, and here affirmed, most shopping trips originate at homes and percentagewise, very few purchase stops are made on the return trip home from work. The latter are not to be

totally discounted, however, in planning the location of shopping centers or certain types of stores.

Some of the trips made to the various shopping settings by this survey population involved visits to more than one of the stores of the retail group. The maximum number of different stores in one center at which purchases were made was 6. However, generally, a shopping trip resulted in a single store visit (in 76.5% of all shopping center trips). This was specifically true in trips to isolated stores and other neighborhood centers. The average number of stores at which some item or service was actually bought per shopping center trip for the various other types of centers follows:

EXHIBIT VIII-12

	Average Number of Store Visits/Trip
Downtown	1.68
Community Centers	1.77
Other String Devel.	1.05
STUDY	1.22
Arithmetic Mean	1.32

The community centers frequented by the study shoppers accommodated more multiple store-visit trips, relatively speaking, than even downtown. For the study stores, shoppers stopped at 22 other stores for every 100 stores originally visited on the same trip before proceeding on to their ultimate destinations.

Some evening shopping is done by the local shoppers. Of all

shopping center trips, 15.5% were conducted at night, as compared to 47.7 and 36.8 percent, respectively, during mornings and afternoons. Obviously, evening shopping habits correspond with evening open-for-business hours of Baltimore tradesmen. Therefore, it is not surprising to find that the percentage of evening to the all-day total of trips made to any one type of center coincided with general experience showing highest for the community centers (35.0%) and below average (11.7%) for the neighborhood string stores, which for the latter involved primarily purchases for food (supermarket attendance) and gasoline.

Resume of General Shopping Habits - Residents in the study area were reported, on the average, to make approximately one shopping visit to a commercial operation, or a phone, mail or delivery purchase, each day for each dwelling unit.

Approximately 75% of all shopping trips originated in the home, the average number of stores visited on a trip to any one center was 1.32, and a little over 15% of the shopping trips were conducted in the evening.

Measured in terms of shopping ventures (both trips and passive shopping acts -- phone, etc.) the several stores of the Harford Road stringment accommodated 75% of all shopping ventures. These, then, are neighborhood stores, since they perform a major shopping service to the consuming population located within 1/2 mile of Harford Road.

Shopping Use of Local Retail Outlets[2]

Total purchase ventures at 83 retail operations in the Harford

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[2]Interpreted broadly, including visits to the doctor, movie, lumber yard, etc., besides the purer types of retail outlets.

Road stringment were 150. The average daily phone, etc., orders and
actual attendance at the study stores by shoppers living in the study
area amounted to 0.49 purchase ventures per family. Put another way,
each family reported an average of about 1 contact with a study store
every other day.

EXHIBIT VIII-13

SHOPPING AT STUDY STORES DURING INTERVIEW PERIOD

	Number	Percent
Some shopping trips	138	87.5
Mail,phone,delivery	12	12.5
Total shopping ventures	150	100.0

Those residents living closer to Harford Road (within 1/4 mile)
had more frequent contact with the study stores than those living
farther away.

EXHIBIT VIII-14

PERCENT OF FAMILIES DOING SOME SHOPPING AT STUDY STORES, BY DAYS,
BY DISTANCE OF RESIDENCE FROM STRING DEVELOPMENT

	Average	Less than 1/4 Mile	More than 1/4 Mile
Each of 3 days	6.8	9.9	2.3
Only on 2 days	28.2	26.2	31.0
Only on 1 day	42.7	50.8	31.0
No shopping	22.3	13.1	35.7
Total	100.0	100.0	100.0

The table also shows that, percentagewise, almost three times
as many families living beyond 1/4 mile of Harford Road did not visit
the subject stores in the interview period in comparison to families

close to the main thoroughfare.

The actual retail store visits totaled 166 (plus 3 doctor visits), not including phone orders and deliveries. They are here tabulated by type of store and also according to the retail operation classification as set forth in Table VIII-15, p. 61.1, which gives numbers of enterprises by store type. It is very interesting that the food and convenience stores were subject of 84.4% of all visits. If gas stations and hardware store visits (7.2% and 5.4%, respectively) are added to the above, these outlets accommodated 97.0% of all visits. We can see, then that of all shopping trips conducted by local residents, some 15 different types of stores (36 outlets -- out of 83 retail enterprises in the string) participated in almost every stringment purchasing trip. Besides the above visits, single visits were made to a lumber yard, card shop, 2 visits to the local theater, and 3 visits to 2 doctors and 1 dentist. No visits were made to the used car or seat cover sales units; to any of the household maintenance and service outlets (carpenters, electricians, contractors, etc.); to any of the household and furnishings sales outlets (besides hardware stores) (fences, furniture, and appliances, etc.); or to any of the financial, communication or professional services, besides doctors and dentists (building and loan, life insurance office, architect, etc.) While it might appear that the interviewed public would not consider some of these latter types as retail shopping units, and therefore not report them, they were specifically prompted by the interviewer to include all such trips.

Some phone call purchases were made at study stores, 83 percent of

EXHIBIT VIII-15

PHONE CALLS AND SHOPPING VISITS TO STUDY STORES
ACCORDING TO STORE TYPE BY NUMBER AND PERCENT

	Visits		Phone Calls & Delivery	
	#	%	#	%
I. Food and Convenience	140	84.4	10	83.3
Food Sales Stores	26	15.6	4	33.3
Supermarket	45	27.1		
Drugs	23	13.7	5	41.7
Delicatessen	13	7.8		
Restaurant-Luncheonette	4	2.4		
Restaurant with Liquor	3	1.8		
Tavern	1	0.6		
Liquor Sales	2	1.2		
Barber	5	3.0		
Beauty Salon	3	1.8		
Laundry & Cleaners	2	1.2	1	8.3
Shoe Repair	3	1.8		
Bakery	9	5.4		
II. Auto Sales & Service	13	7.8	--	- -
Gas Station	12	7.2		
Repair Garage	1	0.6		
III. Household Maint. & Service	--	- -	2	16.7
Construction Contractor			1	8.4
Plumbing, Heating			1	8.3
IV. Apparel Sales	--	- -	--	- -
V. General & Specialty Shops	1	0.6	--	- -
Card Shop	1	0.6		
VI. Household & Furn. Sales	10	6.0	--	- -
Hardware	9	5.4		
Lumber Yard	1	0.6		
VII. Financial, Communications & Professional (other than Drs.)	--	- -	--	- -
VIII. Miscellaneous	2	1.2	--	- -
Theater	2	1.2		
Subtotal	166	100.0	12	100.0
Other	3		--	
Doctor	2			
Dentist	1			
Total	169		12	

such calls going to convenience outlets, the balance to a construction contractor and a plumbing and heating service unit.

Reference has been made in Chapter VII to the desirability of combining store visits on single trips to minimize time spent in shopping. We find that out of 138 separate trips to the various study stores, the average number of visits per trip was 1.22 (See table VIII-12, p.58). In terms of actual trips, 109 (79% of total) were single visit trips, and 28 (21%) were multiple visit trips. People who resided further from the stringment made a slightly greater percent of combined visit trips versus people close to Harford Road (beyond or within 1/4 mile, 24 and 20%, respectively). Results of the analysis of consumer preferences in regard to shopping activity in frequenting several stores on one trip, more than half of the respondents claimed that they "usually" make a list of needs in order to make multiple purchases at different stores at one time. The question, as set up, (see Appendix C, p 120) was intended primarily to obtain an opinion response or a qualitative answer.

EXHIBIT VIII-16

LISTING OF NEEDS FOR MULTIPLE STORE VISITS PERCENT OF RESPONDENTS

	Less than 1/4 mile[3]	Greater than 1/4 mile[3]	Total
Usually	50.8%	85.8%	65.0%
Sometimes	34.5	9.5	24.2
Once in a While	14.7	4.7	10.8
	100.0%	100.0%	100.0%

People living a greater distance from the study stores appeared to give more thought to saving time in shopping by combining purchasing

[3]Distance of residence from Harford Road

at several stores on one trip. Those closer to the stores placed less

importance on this issue, probably because of easier accessibility to

the many convenience stores.

At any rate, the actual survey experience relates that, in all

shopping trips (239) 23.5% of the shoppers visited two or more stores

on their trip. The fact that a higher percentage was not recorded, as

might have been expected based on the results of the questionnaire, may

be due in some part to an excessive scatter pattern of stores as situated

on Harford Road, which does not encourage a greater percentage of multi-

store shopping.

The shopping origin-destination analysis for trips from the study

service area to Harford Road's string development shows about the same

percentage pattern of trip origins for both Baltimore as a whole and

for trips to all centers enumerated in the survey (see p.23.1).

EXHIBIT VIII-17

PERCENT, ORIGINS OF LOCAL STORE TRIPS

Origin	Percent
Home	81.3
Work	5.1
Other Shopping	9.4
Other	4.2
Total	100.0

There were no significant variations in shopping trip origins be-

tween those living closer and farther from Harford Road.

The various modes of transportation used to get from the point of

trip origin to the shopping destination on Harford Road was as follows:

EXHIBIT VIII-18

PERCENT WALKING VERSUS VEHICULAR TRAVEL FOR LOCAL SHOPPING TRIPS

Transportation		From Home	From other	Total
Walked		57.0	7.8	47.8
Drove		43.0	80.5	50.0
Bus		--	7.8	1.5
Taxi		--	3.9	0.7
	Total	100.0	100.0	100.0

In exactly one-half of all trips, the shopper arrived by auto.
Most of the balance walked, while a very few arrived by public trans-
portation or by taxi. Of the shoppers who started their trip from
home, almost 6 out of every 10 walked. Of the shoppers who shopped at
the stores of the study on a trip originating at work, church, social,
recreation or other activity, slightly more than 80% came by auto. Map
VIII-19, p. 64.1, presents the O-D desire lines of shopping travel by
mode of transportation for the interviewed families.

The average distance walked from home to all study stores was 0.13
mile, or about one-eighth of a mile. Obviously, then, the greater per-
centage of those who chose to walk to the stores were residents living
closer to the main thoroughfare.

EXHIBIT VIII-20

PERCENT WALKING VERSUS AUTO TRANSPORTATION
BY DISTANCE OF HOME FROM HARFORD ROAD

	Less than 1/4 mile	More than 1/4 mile	Whole Area
Walked	96.7	3.3	100.0
Rode	41.6	58.4	100.0

● FAMILIES INTERVIEWED

——————— AUTO
- - - - - - - WALK

DESIRE LINE DIAGRAM of:
TRIPS, FROM HOME TO HARFORD RD
STRINGMENT STORES, BY MODE OF
TRAVEL

NORTH

SCALE
0   500

GERMAN
LUTHERAN
CEM.

BNAI ISRAEL
CEMETERY

MOST HOLY
REDEEMER CEMETERY

HERRING

RUN

PARK
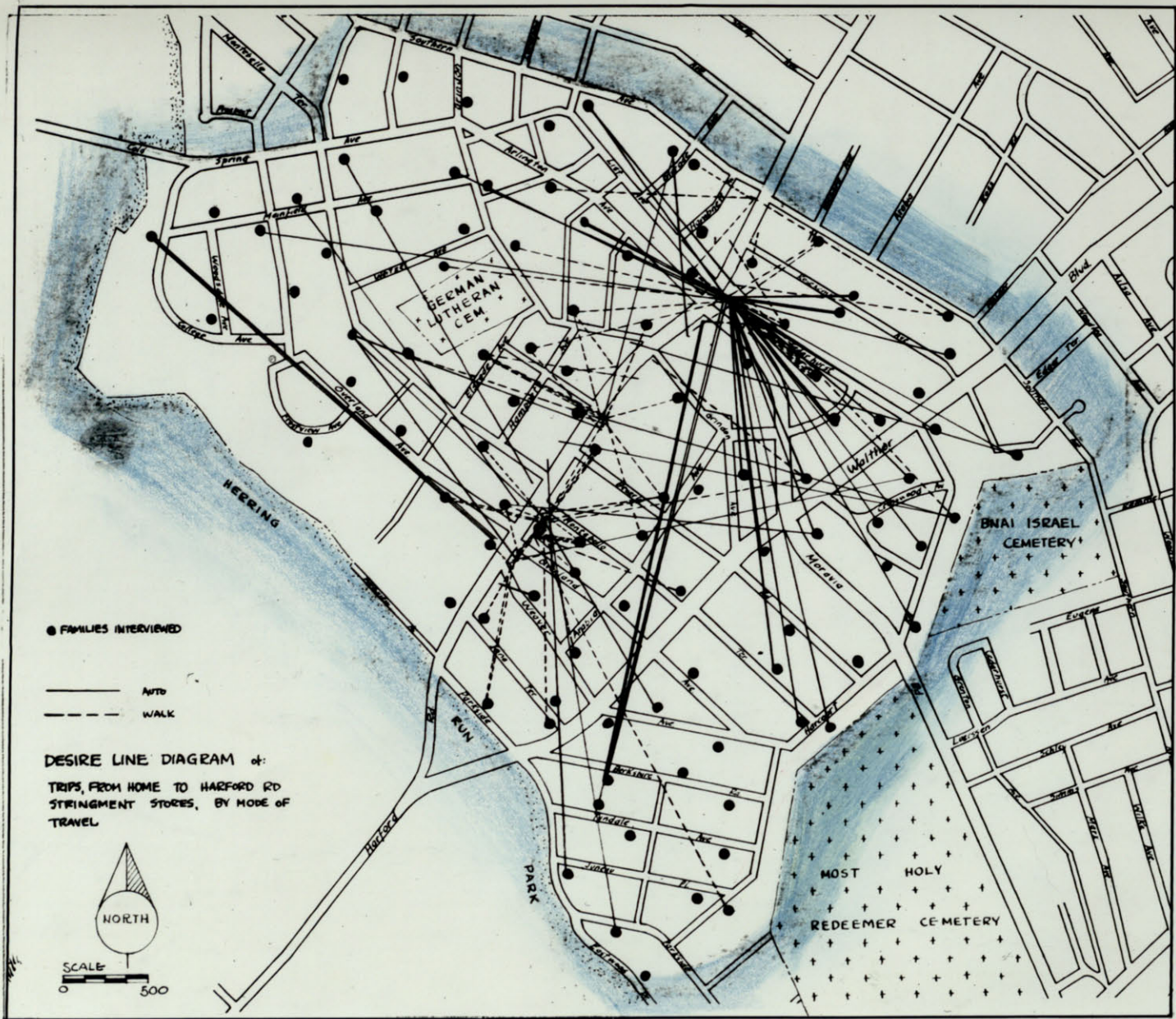
EXHIBIT VIII-19

Only a small percentage of walking customers came from more than 1/4 mile away from Harford Road. A majority of those driving from home to the stores resided beyond 1/4 mile from Harford Road. The average traveled distance of trips by auto was 0.33 mile, or about 1/3 of a mile. Actually, this figure holds true for the residential service area chosen for analysis. Since the selected area was cut off, so to speak, on its eastern edge a little short of 1/2 mile from Harford Road, there probably are some residents living beyond who drive to the study stringment. Very few, if any, of these potential shoppers would walk to Harford Road, so that we can safely assume the average home to store walking distance is fairly correct for this district.

Since so few of Harford Road shoppers were destined for other than what has been considered as convenience type stores[4], the breakdown of average distances walked or driven to "non-local" stores are not included. Mere mention is made of the fact that attendance at the movies, lumber store and doctor's office involved a much longer average trip from home, whether walking or driving from home.

Map VIII-21, p. 65.1 shows diagrammatically intra-study store trips for both walking and driving. The analysis of average distances walked between study stores for the second (and third) visit as part of single shopping trips showed no variation between those arriving at the stringment by walking or driving. This average distance for 31 store to store visits was 275' or about 1/3 again as great at the average length of the Harford Road block frontage (206'). It is clear that

[4]Delicatessen, food store, supermarket, barber, beautician, drugs, hardware, cleaner, liquor and bakery stores.
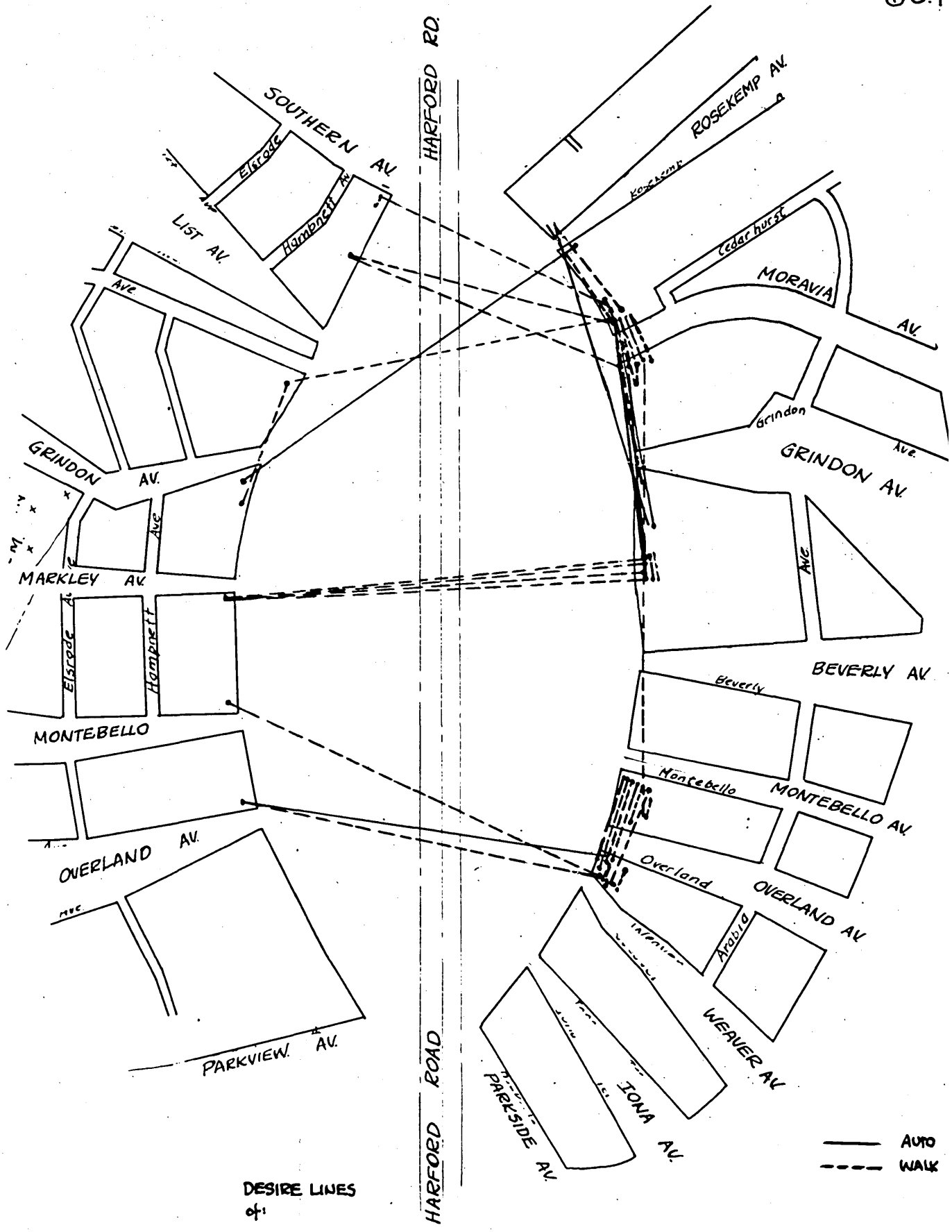
DESIRE LINES
of:

INTER STORE TRIPS FOR HARFORD ROAD
STRINGMENT, BY MODE OF TRAVEL
(Base Map distorted)

EXHIBIT
VIII-21

———— AUTO
- - - - WALK

once a vehicular shopper becomes a pedestrian, he is willing to walk only as far as the walking shopper who does not arrive by auto. Of these combination shop visits, purchasing at a food store was involved in 58% of the cases. Drug store visits showed the next highest representation in these combination trips, with 45%.

While it is not too pertinent a point, it is interesting that those shoppers who drove between study stores negotiated an average distance of 900'. Eighty-three percent of these trips involved a stop at a gas station.

Primarily because the single supermarket in the study group has provided off-street parking space on its premises (this market generated almost twice as many shopping trips as the other two food markets combined--of course, it also offers a greater variety of items than either of the other food stores) nearly 70% of shopping customers arriving by auto parked off street. Thirty percent parked at the curb.

In those families having an automobile, the respondents were queried as to whether they felt traveling further was worthwhile if parking was easy and available. By study area sections, these were the results:

EXHIBIT VIII-22

PERCENT CONSIDERING TRAVELING FURTHER IF PARKING IS AVAILABLE

	Less than 1/4 mile	More than 1/4 mile
Yes	61.4	95.0
No	12.9	2.5
Depends	25.7	2.5
Total	100.0	100.0

The yes answer was practically unanimous for those living beyond 1/4 mile of Harford Road. Those who live closer to the stores have the choice of walking or driving, with little time elapse difference and percentagewise more of them qualified their answers.

Resume of Local Shopping Habits - Each family of the study area shopped (by phone, mail delivery or visit) at one of the 83 Harford Road outlets about once every other day on the average. Those residing closer to Harford Road made more frequent trips than those living farther away from the commercial frontages.

One of the most important findings of this study shows that only 15 retail store types (36 out of the 83 commercial operations) accommodated 97% of all shopping trips to the string development by local residents.

These shoppers averaged 1.22 store visits per trip; over 80% of their trips originated at home, 50% of all trips with a destination at the Harford Road string study used private vehicles to get there, and 70% of these arriving by auto used off-street parking facilities.

The average distance walked from home to a local store was about 1/8 of a mile; the average driving distance was approximately 1/3 of a mile. Intra-study shopping visits showed an average of 275' walked, or 900' if the customer drove between study stores.

Limitations of Study

The results of this sample survey are applicable only to other string development situations with the same type of service area; characteristically one of lower density, relatively high automobile owner-

ship, slightly better than average economic standing, etc.

Survey Conclusions

Information on the types of stores sponsoring purchases by the
local population and the desire line shopping travel pattern show that
what has been designated as a strip commercial development actually com-
poses, in this case, the equivalent of several small neighborhood shop-
ping centers. Besides that, it includes many "retail" operations which
have no functional relationship with the nearby residential district.
It must, therefore, be concluded that those commercial outlets not serv-
ing the local population are supported by passing traffic customers, if,
in fact, they are retailing successfully.

Further discussion of the pertinent findings of this Chapter are
given in Chapter XI, in the re-design of the Harford Road Stringment.

CHAPTER IX

RETAIL ZONING

Zoning controls, aiding in the development of better urban living
and working conditions, are subject to change as our cities change. But
just as urban populations are slow to assimilate chronological ad-
vances, they move even slower in adopting up-to-date zoning by-laws.

From the earliest beginnings, the laws of the United States have
recognized the need to protect property owners' rights in the use of
their land. Court validation of measures designed to control land uses
have come long after specific needs for control have arisen, and only
following long periods of litigation. Zoning originally was intended to
regulate nuisance uses. It is now recognized that zoning, in the in-
terest of community health, general welfare and convenience, implies
regulatory powers embracing the theory of compatibility of all types of
land uses instead of emphasizing nuisance values.

Urban commercial zoning technique, having passed through the stage
of nuisance regulations, entered into the era of excessively zoning
all major road frontage for business use, regardless of its potential
development for other types of uses. Many cities suffer even today
from that over-zealous application of business zoning of many years
ago. Mr. Segoe, in his book on Local Planning Administration, states:

> "All the lots along major streets amount to about
> 25 percent of the total developed urban area, whereas
> business only requires from 2 to 5 percent of such area.
> All too many cities made the mistake of zoning from 3 to
> 10 times as much frontage for business as they will ever
> need."[1]

_____

[1]Ladislas Segoe, Local Planning Administration, International City
Manager's Association, Chicago, Illinois, 1941, p. 388.

Mr. Jack Mosier, before a 1949 A.S.P.O. Convention audience, reported that, based on a recent survey of cities concerned with the related problems of strip zoning and over-zoning:

> "Too much property is commercially zoned, its
> distribution is improper in comparison with the
> need . . ."2

If our cities are to prevent creeping stagnation, properly revised business zoning classifications need to be adopted. These classifications must be based on an analysis of local retail conditions. They should also allow for flexibility of action consistent with current retailing trends or advances in methods of transportation affecting shopping travel habits.

Existing Zoning

Many municipalities in the Boston and Baltimore metropolitan areas are operating under ordinances created and passed in the post World War I period. Lynn, Belmont, Everett, (Boston area) and Baltimore City are examples of municipalities handicapped by outmoded commercial zoning regulations. Frequent piecemeal amendments adopted throughout the years tend only to add to the administrative difficulties of applying necessary controls. Each of these subdivisions has but a single business classification in its zoning laws to regulate the location of hundreds of retail enterprise types found in large and small, isolated and agglomerated, and other forms of urban settings. This single zoning classification, also, usually permits the semi-retail, manufacturing and some light industrial types of uses to intermix with the

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[2]Jack M. Mosier, "Reduction of Excessive Areas in Commercial Zones," _Planning, 1949_, A.S.P.O., Chicago, Illinois, 1949.

purer store types catering to the service of the customer.

Some towns have taken steps to revise their by-laws, in more recent years. Chelsea's by-laws, for example, were revised in 1945, yet retaining the single business classification. Baltimore County took similar action, also in 1945.

Other cities (e.g., Seattle) have revised their codes incorporating a meaningful breakdown of retail uses. New York City currently is presenting its population with a multi-business-zone classification system.

Proposed Zoning Retail Use Districts - by Store Types

The following recommendations are made, having assumed in an early stage of this study, that in-town store location patterns express some degree of maturity. The data presented on tendencies for certain store types to locate in similar commercial settings represents a static picture. However, there appears to be some evidence of a degree of maturity in the development of retail patterns for the Boston metropolitan area. Such has probably resulted from a conditioning of urban populations to private vehicular transportation occurring over a period of many years-- at least since the early thirties.

Three retail districts are suggested, based on the study of affinities of various store types for small, characteristically agglomerated, or disagglomerated centers:

A. Local shopping - for convenience purchasing within
    close reach of nearby residents,

B. Community shopping - for stores grouping themselves
    compactly around the major shopping goods generators

for less frequent comparison/impulse purchasing, and

C. General shopping - for all types of retail uses, in-

cluding the services which do not command a high per-

centage of customer support from concentrated pedes-

trian traffic or local residential service areas, or,

which for other reasons do not require a site near the

100 percent location in a shopping center.

Reference is invited to the listing of uses for each zoning classi-

fication which follows on the next page.

In any event, the listing is not to be translated literally for

some types of uses. The basis of judgment in assigning some of the

uses to one type of district as against another was paper thin. On

the other hand, there can be no doubt as to the assignment of some of

the store types as listed. The attempt was made to allow for the in-

clusion of some uses in a "higher" or "lower" classification in order

to obtain the degree of flexibility necessary in all zoning provisions.

The problem of the amount and distribution of commercial districting,

is subject to full market studies of the various localities to deter-

mine their shopping needs. With regard to the commercial zoning of

major road frontage, one fact seems sure, according to Mr. Segoe:

> "Severe depreciation of properties zoned for business
> in excess of actual need (results) in the ruination of
> such property for residential use ...the only practicable
> use of most of the frontage along major streets."[3]

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[3]Segoe, loc. cit.

EXHIBIT IX-1

STORE TYPES APPROPRIATE FOR

THREE RETAIL ZONING CLASSIFICATIONS

CLASS A - <u>LOCAL SHOPPING</u>

Convenience Sales and Services:
  Grocery
  Grocery-Meat
  Supermarkets
  Frozen Food
  Drug
  Delicatessen
  Packaged Liquor
  Restaurants
  Taverns
  Barber, Beauty Shop
  Dry Cleaner
  Tailor
  Laundry
  Shoe Repair

Also other Food:
  Bakery
  Meat, Fish, Poultry
  Fruit and Vegetable

Also General Sales:
  Variety
  Hardware
  Gift
  Stationery
  Florist
  Hobby
  Novelty

Other Than First Floor
Occupancy (also in Group B):
  Carpenter
  Plumber
  Electrician
  Electric Appliance and
    Radio Repair
  Roofer-Tinner

CLASS B - <u>COMMUNITY SHOPPING</u>

Quick Pick-up Sales:
  Candy
  Cigar
  News Store

Class B - <u>Community Shopping</u> (cont'd)

Food:
  Creamery
  Health Food

Apparel Sales:
  Men's, Women's and
    Children's Apparel
  Shoe Stores
  Dry Goods

General and Specialty Sales:
  Department Stores
  Leather
  Cosmetics
  Cameras
  Bookstore
  Toys
  Music
  Jewelry
  Pet Store
  Yarn
  Sporting Goods

Household Sales:
  Wallpaper, Paint
  Furniture
  Radio and Appliance
  Floor Covering
  Mirror, Glass Sales
  Picture Frames
  Mattress
  Curtains, Shades

Financial Institutions:
  Banks
  Building and Loan
  Personal Loan

Services:
  Watch Repair
  Locksmith
  Photo Studio

Class B - <u>Community Shopping</u> (cont'd)

Recreation:
   Theater
   Bowling Alley

Realtor
Employment Office
Post Office
Public Utilities Office
Travel Agency
Telegraph
Professional Offices

Other:
   Tux Rental
   Taxi
   Auto Rental Office
   Auto Accessories
   Used Clothing
   Antiques

Other than first floor frontage:
   Printer
   Signwriter
   Advertising
   Auto Rental Car Storage

CLASS C - <u>GENERAL SHOPPING & SERVICES</u>

Automotive Sales and Service:
   Gas Stations
   Auto Repair Garages
   Tires
   Auto Parts
   New and Used Auto Sales
   Auto School

Household Maintenance:
   Refrigerator Repair
   Exterminator
   Upholsterer
   Painter
   Window Cleaning
   General Repair
   Blacksmith

Household Sales:
   Awnings
   Insulation
   Furnaces
   Heating

Other Services:
   Undertaker
   Bicycle
   Used Furniture
   Second Hand

Recreation:
   Billiards

CLASS D - <u>TO BE COMBINED WITH LIGHT MANUFACTURING</u>

Monuments
Rug Cleaning
Express and Moving
Builders (yards)

NOTE: Other uses not included in the study can be assigned according to their appropriate qualifications for one of the three classifications.

CHAPTER X

TRAFFIC, PARKING AND OTHER CONSIDERATIONS

Traffic

Vehicular - Ramifications of the urban traffic problem preclude

an easy solution. An article in a recent issue of the Eno Traffic

Foundation magazine stated that:

> "...efforts of traffic officials, when based on sound
> engineering principles, provide some degree of tempor-
> ary relief (from congestion). However...corrective
> measures which are more comprehensive in scope will
> have to be initiated to prevent traffic problems from
> becoming so complex as to defy any satisfactory solu-
> tion."[1]

A study of time-distance flow maps for urban places usually shows

that traffic on their major radial streets is slow moving. Vehicular

tie-ups appear at all outlying shopping centers and at repeated sig-

naled intersections along the arteries where shopping and other traf-

fic generating land uses string out along their "banks." There can

be no doubt that string retail operations are, in part, directly res-

ponsible for re-current conflicting traffic movements. The confusion

is the result of contradictory desires of local stop-and-shop traffic

using the same street space with through traffic interested in saving

a moment of travel time.

New radial and circumferential expressways will eliminate some of

the through traffic now on congested major and local streets, allowing

the once major radial to revert to serving more local traffic. It is

interesting to note the pattern of planned expressways in Baltimore.

For instance, an entire new system of arterials is proposed to replace

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[1]E. G. Mogren and W. S. Smith, "Zoning and Traffic", Traffic Quarterly,
   The Eno Foundation for Highway Traffic Control, Sangatuck,Conn.,1952.

the old, practically radial for radial. The expressways will run in
between two existing radials where the land development pace has pre-
viously been slower than that which has occurred along present main
thoroughfares.

If the new expressways are not protected from encroachment of
interfering bank commercial development, they will become as congested
as the present radial thoroughfares. Subsequent to that, the opportunity
to plan new radials will be possible only through costly redevelopment
of existing street frontages.

To build these expressways designed to handle the greater portion
of metropolitan through traffic does not solve the whole problem of pre-
sently congested radials. It will also be important to systematize
intercommunity and neighborhood traffic. Traffic intensity and street
capacity must be correlated with trip purpose desires, whether local,
intra-city, or metropolitan in nature.

A basic (and somewhat oversimplified) traffic system suggested for
in-town communities should compare with the system of tributary water
flow. Thus adapted, the street pattern, in diagrammatic form, would
be as shown in Table X-1.

Pedestrian Traffic - Accidents are more likely to occur on the
major arterials, where pedestrian traffic controls are non-existent,
than otherwise. Because of stores' being scattered along major
streets, pedestrian shoppers must criss-cross back and forth between
stores in opposition to traffic speeding through. Boston's accident
record, according to the city's traffic control expert of twenty years'
standing offers an insight into the problem:

"The Traffic Commission of Boston, in keeping records
of all traffic accidents, is interested in a common
sense application of controls to diminish the hazards
causing accidents, especially those tending to result
in fatalities and personal injury.

"In Boston 80% of all fatalities are pedestrians. Such
accidents divide evenly between those occurring at street
intersections and those between two intersections. Sig-
nalizing dangerous intersections will eliminate the haz-
ardous conditions of these heavily traveled crossings.
However, it is more of a problem to control in-between
street crossings.

"With a substantial proportion of the city's major streets
lined with businesses, causing pedestrians to cross be-
tween stores on both sides of the streets, the question
of signalizing all potential accident scenes is unrealis-
tic. The delay of vehicular traffic would render the
thoroughfares practically useless.

"Since more accidents occur on the major streets where
travel is faster, than at the concentrated shopping
center where congestion aids in speed control, other
measures should be brought to bear to concentrate and
control auto and pedestrian streams of traffic for the
express purpose of minimizing accidents. Zoning and
Planning could be more fruitfully applied than at pre-
sent to such cases as string developments."[2]

EXHIBIT X-1

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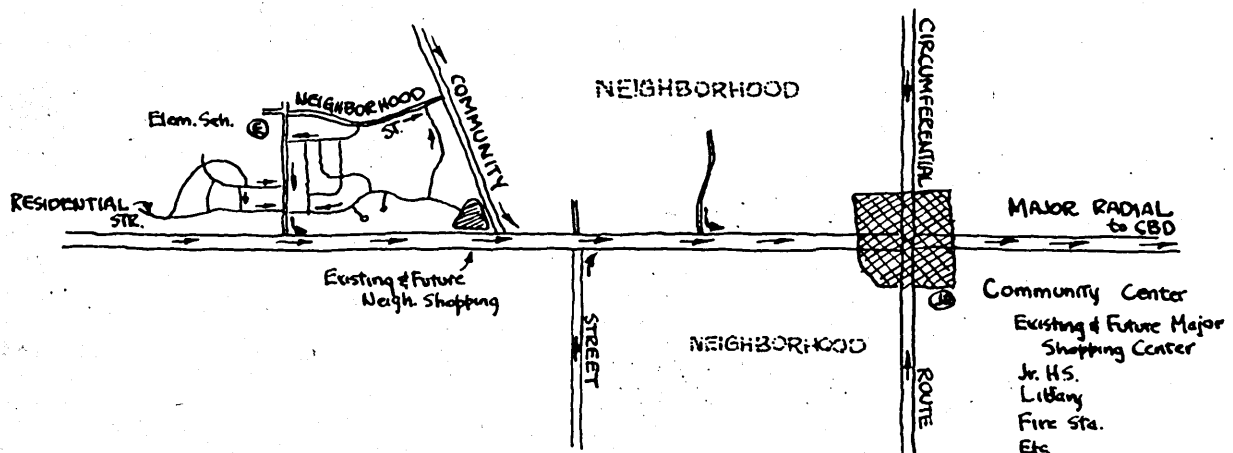
[2]Statement prepared by Mr. Theodore Hoppe, Safety Director of the
Boston Traffic Commission, September 1952.

It appears from this statement that if stores were clustered at specified intervals the consequence would be fewer accidents with an overall less costly traffic control program necessary.

From the same point of view, a pattern of local stores clustered at a point is more desirable if developed along only one side of the street than if split on both sides. For pedestrian shoppers originating their shopping trips from the opposite side of the street, a crossing and return would be necessary, but under controlled conditions. However, once on the shopping side, safe conduct between stores would be assured.

Retail Land Use Density versus Traffic Density

The intensity of retail frontage use in stringments does not generally vary directly with the intensity of passing traffic. When approaching major shopping agglomerations, however, tail frontage use builds up in intensity, as does the traffic density, until the peak condition for both is reached at the focal point of the shopping center. The problem near and at these centers is one of matching street capacity with traffic density, which in turn is generated in part by the commercial use of the street frontage. The following diagrams present the problem. The first diagram shows the traffic intensity growing as the shopping center is reached:

EXHIBIT X-2a

Center
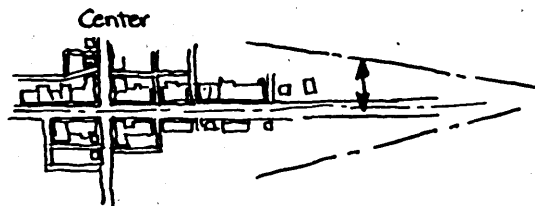
The second diagram shows that actual street capacity remains un-
changed.

EXHIBIT X-2b
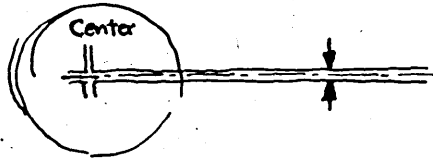
Therefore, the effective street capacity in actual traffic accommo-
dation is more like diagram three:

EXHIBIT X-2c
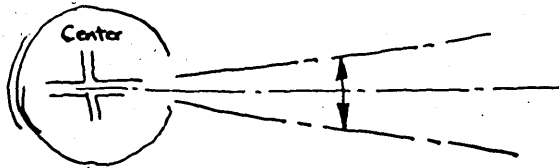
If, in the future, the major streets leading to centers are to
provide easier access to the major conglomerations of stores, some
means must be adopted to alter the existing pattern of land use or
trafficways, or both. Streets are unlikely to be built to flare out
in width closer to shopping centers, since flow control problems in-
crease disproportionately with excessive widths. However, by-passes
to the shopping centers can be built to handle the through traffic if

larger centers are involved, or to handle the shopping traffic if
smaller centers are involved.

Also, unless street frontage usage along the by-passes and along
the tail-street portions of centers is controlled, the street revisions
suggested above will be rendered ineffective.

Parking

In evaluating traffic delays in terms of financial losses, C. S.
LeCraw, Jr., and W. S. Smith conclude that,

> "special emphasis (should be) given to those delays
> resulting from all forms of curb parking."[3]

We might add, "especially the rapid turnover parking at the curb
which is generated by retail traffic."

Curb parking was recognized as a problem as long ago as 1925. An
interesting study based on 1925 shopping conditions points out that it
is highly questionable whether the community at large should undertake
to set aside sufficient street space to care for the parking need for
local businesses;[4] and parking conditions certainly have become worse
since then.

Three possible ways of handling the parking problem are: (1) to
provide wide enough streets to allow perpendicular or angular parking
at the curb, (2) to space active retail stores some distance from
each other to obtain sufficient parallel parking curb space, and (3)
to provide off-street parking. Little discussion will be given to the

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[3]Charles S. LeCraw, Jr., and Wilbur S. Smith, The Prohibition of Curb
Parking, Eno Foundation for Highway Traffic Control, 1948, p. 17.
[4]Ernest P. Goodrich, The Influence of Zoning on High Buildings and
Street Traffic, 1925, p. 25 (privately published).

first two possible solutions, since planners and traffic engineers (merchants do not fall into this group) are agreed that streets should accommodate only moving traffic.

Off-street parking merits attention. Some retail outlets reject congested major center locations to find refuge in string developments where more adequate parking facilities may be had in terms of cost-space availability. Supermarkets (providing parking in the ratio of 3-7:1) drive-in dry cleaners, and similar uses are designed to offer efficient retail service in this age of motoring. In locating away from the established groupings of stores, these locally decentralized uses do not appear to lose their competitive advantage to the shopping center stores. They gain accessibility and ease of parking which counteract their lack of a close association with the greater generating capabilities of a larger setting of retail outlets.

It is discouraging to find that some of the larger units, striking out on their own, are buying sites fronting on the newer major direct downtown-to-suburb routes, rendering the latter less efficient to handle fast through traffic for which they are designed. Obviously, such stores, from a progressive business standpoint, would be remiss in not taking advantage of a location on the newer highways.

However, from the community's point of view, two disadvantages result. First, new urban highway frontages are at once opened up to the exploitation of many unplanned commercial operations. These parasitic uses then do not fit in with the planned ingress-egress and off-street parking facilities which may have been built in the initial site development. This leads to additional curb openings which cause traffic

tie-ups due to left-hand turning movement into the properties. Subsequently, traffic lights are required and so on. Soon the expressway is as congested as the route it was intended to replace.

Secondly, if an established center is avoided by a major shopping generator because of congested conditions, etc., the handwriting is on the wall. The consequences are a loss of additional retail units, a decrease in property values and in business, which may subsequently affect the whole neighboring area.

It is not implied that all centers, large or small, are worth considering for-revitalization. It does seem however, that it would be to the community's advantage to spend considerable effort to bring many of the existing centers up to shopping service par by instituting a coordinated program of properly planned access street facilities and ample off-street parking. This applies, in principle, to the minor as well as the major shopping concentrations. Since this report emphasizes string developments which are predominantly composed of the type of stores serving residential populations, the re-design of a sample study stringment (Chapter XI) exemplifies the application of the foregoing discussion.

CHAPTER XI

REDESIGN OF THE STUDY STRINGMENT

Based upon the Retail Store Type Analysis and Neighborhood
Shopping Survey

The replanning of Harford Road's string development involves use
of these planning tools: development of a Master Plan for Transporta-
tion and Land Use (including community design), zoning, site planning,
Off-Street Parking Commission cooperation, condemnation of property for
street extensions, local ordinances permitting the closing of streets,
and, above all, Planning Commission's ability to sell the plan to muni-
cipal authorities as well as to neighborhood merchants. Unless a
coordinated plan of design and purpose is spelled out, success will be
unlikely.

Master Plan Implications and Proposals

A Master Plan of Land Uses for Baltimore, similar to the one de-
veloped recently for the Boston area, outlining generalized residential
districts (by densities) and commercial and industrial uses of land,
would necessarily be the first step. The residential density to be
applied in the Harford Road service area would, no doubt, take into
account the number of conversion units now being built into many of the
larger houses located therein. This density decision will play a major
role in defining the type of location and the size of the many community
facilities to be newly proposed, conserved (but possibly altered), or
redeveloped in the neighborhood. On the neighborhood level, the place-
ment or location of the public elementary school and neighborhood
shopping facilities are considered important, since the living pattern

on the local level revolves around these key items.

The Master Thoroughfare Plan, based on what has been previously termed a system of tributary flow streets, would designate existing streets for major and minor accommodation of traffic demands. The writer chooses to call the collector routes of residential traffic "neighborhood streets" with the latter feeding traffic to "community streets", which in turn feed their loads to the "major radial and circumferential thoroughfares" of the metropolitan area.

In the study area (see Map XI-1, p. 82.1) Harford Road-Walther Boulevard would certainly be selected for continuing as a major radial because of its length and because of its present vehicular capacity. Harford Road, above its junction with Walther Boulevard, would revert to a more local vehicular mass-transportation and shopping service street. In any event, no commercialization of the Walther Boulevard frontage would be allowed. While it is not an expressway, it is a dual lane roadway with a median strip. Cold Spring Lane-Moravia Road would handle intra-community traffic, because it extends for a distance to the east and west of Harford Road. Montebello Terrace, as portrayed on Map XI, would serve as a neighborhood feeder street.

The selection of the local shopping center sites, after analyzing the stringment along Harford Road, would be those at the intersections of Overland and Rosekemp Avenues with Harford Road (referred to hereinafter as Centers A and B, respectively - see Map XI-2, p. 82.2). It was stated earlier that 3 store building groups were contained in the string development. The study of store types and local shopping travel patterns (Map VIII-19, p. 64.1) gives convincing evidence that

EXHIBIT XI·1

TRAFFIC FLOW,—
PROPOSED LOCAL
THOROFARE SYSTEM

PROPOSED COMMERCIAL ZONING
for
Harford Road Area

B-1 Local business
B-3 General business

NORTH

SCALE
0   500
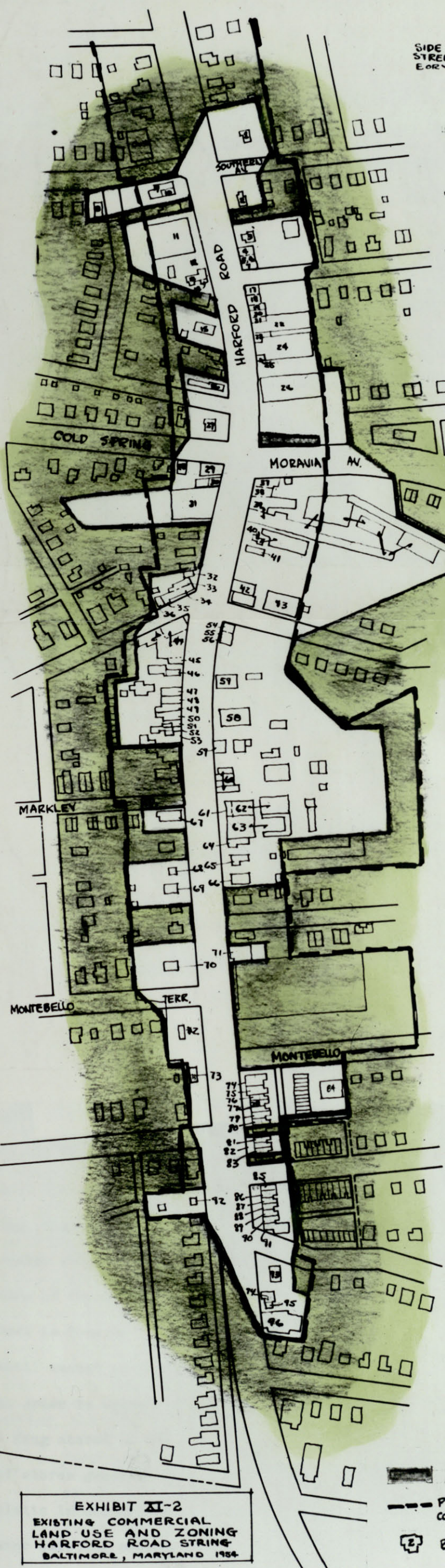
SIDE OF
STREET   HO- HOME OCCUPATION
E OR W

1 HERB & DELS USED AUTO SALES
2 BETHOLINE SINCLAIR GAS CO.
3 BRYAN BLDG CONTR & TIRE CO.
E   4 LIFE INSURANCE CO.
5 DRY CLEANER
6 DENTIST
7 DELICATESSEN

W   8. REALTOR - HO

9. PHARMACY
10. DELICATESSEN
W   11. TRUCK GARAGE
12. OUTDOOR SALES
13. CONTRACTING
14. BARBER SHOP
15. DR. HARBOLD - HO
16. CONVALESCENT HOME

17. VACANT STORE
18. BEAUTY SALON
19. SHOE REPAIR
20 TAYLORING
E   21 PACKAGE GOODS
22. DANCE HALL
23. FOUNTAIN SERVICE
24. THEATER
25. RADIO SERVICE
26. SUPER MARKET

27. GAS STATION

28 LOAN ASSOCIATION
29 HARDWARE
30 VACANT STORE
W   31 STORAGE
32 CLEANERS
33 VACANT STORE
34 PHARMACY
35 VACANT STORE
36 VACANT STORE

37 PHARMACY
38 HARDWARE
E   39 LUMBER YARD
40 GARAGE
41 DRY GOODS
42 FLOOR SHOP
43 SHEET METAL WORKS

44 RESTURANT
45 BUILDING & LOAN
46 BARBER SHOP
47 ELECTRIC SUPPLY
W   48 AUTOMATIC HTG.
49 LAUNDRY
50 TAVERN
51 ELEC. CO.
52 SHOE REPAIR
53 OFFICE

54 VALET SERVICE
55 BEAUTY SHOP
56 SHOE REPAIR
57 RESTAURANT
E   58 GAS STATION
59 DRAPERIES
60 ROOFING CO
61 FOOD STORE
62 CONTRACTOR
63 STORAGE
64 BAKERY
65 ENGINEERING & ARCHS. HO
66 BAR

67 PHARMACY
W   68 DR. MILLER HO
69 DR PEAKE HO
70 GAS STATION

E   71 BAR

W   72 GAS STATION
73 GAS STATION

74 MARKET
75 CLEANERS
76 PRINTING
77 AUTO SEAT COVERS
E   78 BARBER SHOP
79 DR. KAREKIN HO
80 PAPERHANGER HO
81 BEAUTY SALON
82 DELICATESSEN
83 REALTY CO
84 CONTRACTOR

85 HARDWARE
86 DELICATESSEN
87 DENTISTS
E   88 TOYS
89 BARBER SHOP
90 PHARMACY
91 BAR

W   92 REST.

93 GAS STATION
94 FURNITURE
E   95 REALTOR
96 PLUMBING

NORTH

SCALE
0   200'

OTHER THAN
COMMERCIAL LAND USE

PRESENT ZONING - 1st
COMMERCIAL (within dotted line)

2   BUSINESSES

EXHIBIT XI-2
EXISTING COMMERCIAL
LAND USE AND ZONING
HARFORD ROAD STRING
BALTIMORE, MARYLAND 1954

the store group located at Grindon Avenue and Harford Road offers little shopping service to the neighborhood. Another store group, a fourth, composed of a bakery and grocery store, with a drug store directly across the street, generates its share of the local trade. For several reasons, however, it was not selected as a third shopping center, or as an alternate to Centers A and B. Its physical setting is not conducive to expansion into a center, either on the east or west sides of Harford Road (it is desirable to have all stores of a center on but one frontage of the major road to accommodate multiple shop visits, avoid pedestrian hazards of street crossing between store visits, and to control better traffic movements at the center itself). On the east side there is a dead or blind space between the grocery and bakery in the form of a storage and warehouse building, which is unlikely to quit the premises. Moreover, the grocery operates in an older building, shared with a general contractor, and the structure itself is becoming dilapidated. The drug store appears to suffer from the competition of the other drug stores in the area, since about 40% of its business is done by phone order and delivery. It is suspected that the small amount of contact trade necessitated this phone-order service in order to bolster the entrepreneur's business. Incidentally, of the 4 drug stores in the string development, the 2 isolated from a grouping of stores generate only slightly more than half the number of store visits in comparison with their competitors, which are located in or near existing centers.

One further point should be made on the rejection of this 3-store nucleus as a future retail center. Its "effective service area" appears

to be a small 6 - 7 block area, with most of the reported customers

walking to the stores. Very few trips to these stores originated from

beyond the 1/4 mile distance from Harford Road. Compare this with

trips to Centers A and B (see Map VIII-19, p. 64.1).

This is not to say that these stores are wholly supported by nearby

residential trade. Enough additional business may be culled from pass-

ing traffic to operate the enterprises successfully. The traffic trade

business, however, has little bearing on the selection of centers which

are to accommodate local residential purchasing.

In the rezoning of the frontage of Harford Road a real opportunity

presents itself to give definition to the functional locational aspects

of retail land uses.

Zoning

Baltimore's present zoning ordinance was initially adopted in 1931

at which time the whole length of Harford Road frontage was placed in

the "first commercial district" (See Map XI-3, p. 84.1). The text of

the ordinance is negatively worded, so that the uses prohibited in one

zoning classification are permitted in the preceding lower classifica-

tion. In a "first commercial district," not only retail uses are per-

mitted, but also

> "amusement parks other than public parks and playgrounds,
> dog pound, dyeing and cleaning establishments, factory,
> ice depots for wholesale or retail trade, manufacturing,
> storage yards for building materials, undertaking business,
> store for the killing or dressing of poultry, tourist cabin,etc"[1]

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[1] Baltimore City Planning Commission, *Zoning Law and State Enabling Act
for Baltimore City*, pp. 13-15, 1931, revised 1953.

SOUTHERN AVE.

one light

ROSEKEMP AV.

Close Street

CENTER B

Road

Service

Close Street

COLD SPRING

MORAVIA RD.

GRINDON

Road

AVE.

B-3

Service

MARKLEY

Close Street

MONTEBELLO

TERR.

CENTER A

OVERLAND

WEAVER

PARKSIDE
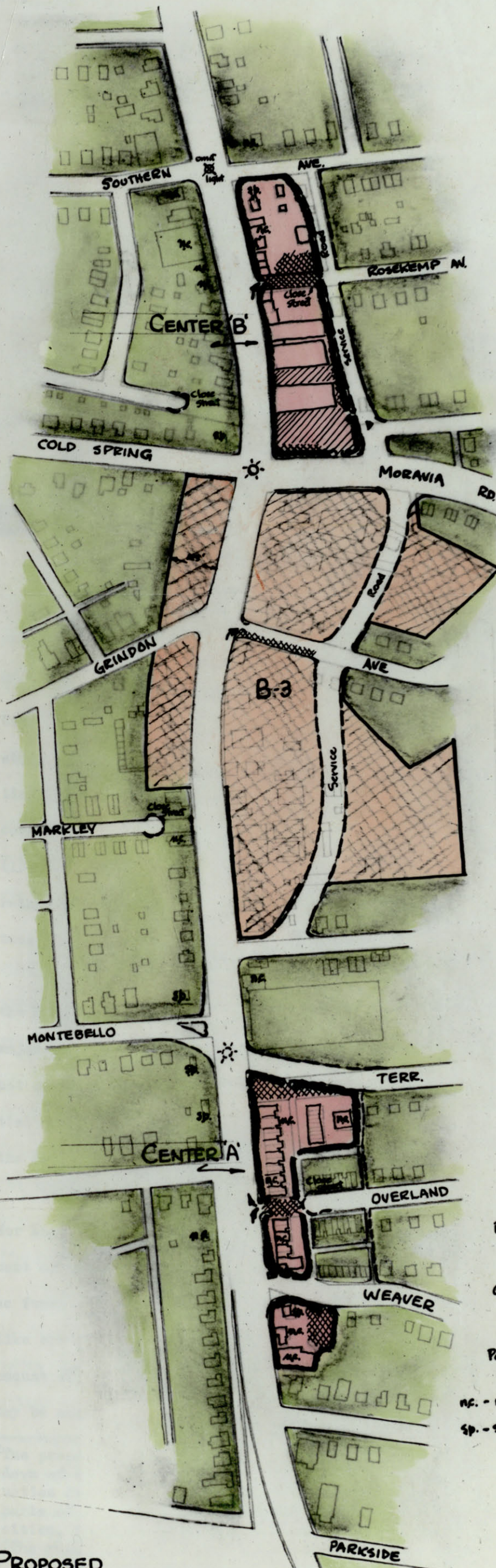
EXHIBIT XI-3

Residential

Local Shopping

General Shopping

Exist. Parking

Potential P'King

n.c. - non conforming use

s.p. - special permit

NORTH

SCALE
0   200'
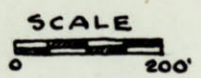
PROPOSED

REDESIGN OF THE HARFORD   ROAD STRINGMENT

Baltimore, Maryland   1959

That the by-laws are outmoded is attested to by the fact that the
City Planning Commission is now in the process of revising them. This
study of store types suggests that at least three distinct classifica-
tions of retail zones be considered for other C.B.D. areas: (1) for
convenience stores and services serving primarily local trade; (2) for
(1), plus shopping and specialty sales stores; and (3) for (2) plus semi-
retail sales services, wholesale, and restricted light manufacturing
uses[2] (see p. 72.1for uses).

We are primarily interested in numbers 1 and 3 in application to
the Harford Road stringment. The study string does not now include a
major shopping center (with department or apparel shops etc) and does
not at this time show promise of supporting one. Actually, the residen-
tial service area studied is less than one mile from a major center of
the type referred to.

It is important to rezone the selected small neighborhood centers
for Local Business (called B-1) in order to protect them from encroach-
ment of other non-related types of outlets as well as to reorganize them
as functional shopping service units peculiar to residential districts
like the one studied. The districting of these centers allows for some
amount of expansion to house additional convenience retail outlets as
may be necessary. No study of commercial acreage to population was

[2]The proposed Plan for Rezoning the City of New York offers a break-
down of at least 5 commercial classifications. While New York's sit-
uation cannot be directly compared to that of Boston and Baltimore,
parts of the big metropolis can be considered similar to the two study
cities, no doubt presenting the same type of commercial zoning problems.
(The report was prepared by Harrison, Ballard, and Allen, N.Y. 1951).

made in this case. It would be well to include such an analysis plus

a study of expendable family income for the service area in order to

know how much additional space for retailing should be allowed.

The commercial road frontage south of Cold Spring Lane-Moravia Road

had 50% of its uses in convenience store types (including gas stations

and restaurants) within its "area." The outlets, however, were somewhat

scattered, with no more than 3 juxtaposing stores in active convenience

retailing. Further the frontage uses included, besides the pure retail

operations, a lumber yard, floor shop, sheet metal works, storage and

warehousing operation, contractor's storage yard, wholesale office,

several auto garages, a roofing contractor, and other non or semi-retail

units. The outlets listed above extend to a greater depth of use away

from Harford Road than the retail stores, and therefore they account

for more of the commercial area used in this portion of the study string.

The question then is whether the whole area should be designated for

B-3 zoning, or whether parts of it should be given over to a B-1 classi-

fication.

For several reasons the former choice was made. In the first place,

it was felt that a significant intrusion of non-convenience stores had

taken place (recent store remodeling was noticeable) to warrant recog-

nition of the trend. Secondly, the types of outlets, as listed, while

bearing no functional relationship with the residents of this locality,

were not necessarily incompatible with the nearby residential land uses.

In fact, an association of these uses probably exists with the use of

Harford Road as a major city radial. And thirdly, since the proposed

B-3 rezoning was situated directly to the south of the intersection, a

minor circumferential route with a major radial, better access was
available from a much larger service area than for that of neighborhood
shopping Center A.

Therefore, not only was this frontage placed in a B-3 zone, but
also the commercially zoned area was increased on the east side of Har-
ford Road. It was felt that the retail services (such as electricians,
tinsmiths, etc) and printing shops, bottling plants and similar uses
should be allotted zoned areas more specifically set aside for their use.
While B-1 and B-2 operations may locate in the B-3 areas, it is suspected
that they will tend to shy away from these B-3 zones, since they essen-
tially have no functional relation to the former. More study needs to be
given to the non-convenience retail services and semi-retail uses border-
ing on the light manufacturing types in order to refine their locational
requirements which ascribe to the best use of the land.

The B-3 zone on the west side of Harford Road is presently pre-
dominantly occupied by store buildings. It was felt that these units
would find their best use in retail office use, small maintenance service
outlets, and as headquarters for small wholesale concerns (decentralized).
All of these are low traffic generating uses. Therefore, the depth of
the zoning district was purposely kept to a minimum--175' back from
Harford Road.

The shopping survey gave some indication of the degree of dissocia-
tion of the typical B-3 types of uses with the local residential area.
Not only were store visits few, but also the only contacts reported
(other than 1 visit to the lumber yard) were by phone. It is suggested
then that it makes little difference whether the B-3 zoning were placed

some distance away from the study area as far as local consumers were concerned. Of course, the existing pattern of commercial development dictated the location of the proposed B-3 zone.

Since gas stations were visited relatively often by the study population, special zoning treatment is suggested for their regulation. They do not belong between stores of the local shopping centers, because they create a blind spot and break up the desired goal of a continuous frontage. Neither do they belong in residential zones. Their primary association is with a heavily traveled street. Therefore, it is recommended that their locations be controlled through the granting of Special Permits in the B-1 zone, with no permit required in the lower zoning classifications. It is also suggested that they might be allowed in a residential zone with a special permit, but stipulating that they may locate only fronting on a major road (so designated in the approved Master Plan for Thoroughfares). They would also be required to provide the usual residential setbacks from the street, and screening from residential areas and allow an adequate buffer strip between their use and juxtaposing residential properties. More study and analysis (involving the legal implications) must be given this suggestion.

Home occupations are to be allowed on major road frontages as normally provided for in the by-laws for residential districts. The recommendation is made that no substantial exterior alteration be made of dwelling units so used.

Reference to the plan (Map XI-2, p. 82.2) shows the balance of the frontage not proposed for commercial or special permit use, be zoned residentially, possibly with a higher allowable density than permitted

behind the major road frontage.

As far as the study area is concerned, such action would put existing property uses in a non-conforming status. The proposed commercial rezoning presents 8 more non-conforming uses giving a total of 15 for the 2/3 of a mile Harford Road frontage. While this may seem excessive, it represents less than 12% (15/129) of the total number of individual uses on Harford Road between Parkside Avenue on the south and Southern Avenue on the north. Since the desirable goal in rezoning strip developments is not only to define the application of commercial zones to functional groupings of existing businesses, but also to diminish the presently excessive amount of unnecessary commercially zoned frontage, the resultant number of uses made non-conforming does not appear to be inordinate. In making these uses non-conforming, the fact should be reflected in a lower land assessment value to decrease the property's tax load.

Streets and Local Traffic - The percentage of strip frontage given over to access streets in relation to total length of frontage for this study case was 12.2%. In the interest of gaining off-street parking space, of controlling the interference of local access street traffic with traffic on the major arterial, and of feeding more of the residential traffic originating at home to Harford Road via traffic control points (by use of intersection lights), it is recommended that several streets be closed.

Five streets are recommended for closing (see Map XI-2, 82.2); three are designated for off-street parking use for shoppers, and two

are proposed to revert to residential property use or public grass

strips. This reduces the present access street frontage to 7.7%. Cer-

tainly the advantages thus offered overshadow the slight inconveniences

brought upon those few residents who will have to travel around the block

to get home. An additional advantage accrues to the above-mentioned re-

sidents in that their homes will be located on a safe cul-de-sac, avoid-

ing traffic hazards to children who may then play in the street so closed.

One traffic light on Harford Road is proposed for removal (at

Southern Avenue), and one is suggested for placement at the intersection

of the neighborhood feeder street (Montebello Terrace) with Harford Road.

There are two shopping service roads proposed to parallel the main

traffic artery to the east, behind the commercial frontage uses. One

is for Shopping Center B, to be cut through from Moravia to Southern

Avenue. Three houses would have to be moved to accommodate the service

drive. They are frame houses which can be moved to vacant lots in the

area.

The other service road is proposed to cut through from Beverly

Avenue to Cedarhurst Road, opening up the spatial interiors of these

commercial properties for development. The "back yards" are presently

vacant, or in low intensity materials storage use. This, then, makes

land available for the many types of semi-retail uses (which sometimes

tend to invade retail business districts) at a lower land cost than main

arterial commercial frontage land.

No service road is suggested for Shopping Center A for two reasons.

It is a smaller center than B, serving a more restricted service area;

and the existing residential structure situation nearby did not appear

to justify what might be deemed excessively costly building removal.

Two houses and several service buildings and garages would have to be eliminated to make way for this service road. The houses are of stone but they are also old and expendable. The accessory buildings would create no problem.

While the need for these service roads might not be immediate (subject to a parking and traffic study) they should be indicated in the approved Plan in order to insure the availability of the land when the roads are needed. The affected properties might well be purchased over a period of time, using monies collected from the off-street parking meter funds.

Other slight road alignment modifications are indicated on the re-design drawing.

Parking - The re-design plan is self-explanatory with regard to the proposed additional off-street parking spaces.

To re-zone this strip development, without accomplishing the other proposals, the objective of revitalizing the commercial frontage would probably result in defeat. Only a coordinated planning and action program, as proposed, will allow a sufficient basis for strict adherence to the zoning plan.

CHAPTER XII

CONCLUSIONS

We have seen, in tracing the history land uses of a typical
string development, some evidence of the internal stress and strain
experienced by many shopping center businesses. Over a period of
about 30 years, the retail use retention record of the Massachusetts
Avenue stringment showed that only 11% of the stores in the beginning
of the period remained at the end of the period. The total number of
stores in the stringment increased by 15% in an earlier period of
years compared with an approximate 20% drop in the subsequent equal
period of years. In an attempt to get to the "heart" of the in-town
shopping center problem, store-type affinities for characteristically
agglomerated or deglommerated centers were measured and used as a base
for defining appropriate zoning classifications for commercial pro-
perties.

It was found that food and convenience stores showed affinity
for both local centers and string developments. Not all of the food
stores, however, reported a positive affinity for the two types of
classifications. Specialty food sales outlets, for instance, had nega-
tive affinity to local centers. The shopping goods stores (department
stores, variety, goods shops etc.) definitely tend toward locations in
compact centers. The apparel sales outlets for instance showed a very
high affinity for tightly agglomerated centers and a positive aversion
for string centers. The automotive and household maintenance service
enterprises had a degree of affinity for stringments.

These store-type patterns suggested a triple classification of commercial zoning districts for application to existing or potential urban commercial areas. The Local Business District contains the convenience stores, the Community Shopping District accommodates the shopping good stores and the General Business District caters to the auto and household maintenance service units.

The determination of the application of proper zoning districts to actual situations was aided by the information gathered in a local shopping service survey. The low density residential area which was surveyed reported that of all shopping trips to the stores of the study string development, almost 85% were for food and convenience items. If gas station and hardware visits are combined with the above, then 97% of all store visits were for these pure retail local convenience purchases.

This meant that 15 types of stores (36 out of 83 businesses of all kinds in the stringment) commanded most all of the shopping demand. Residents in the area had little or no association with the other 47 outlets. It has therefore been concluded that it is reasonable to zone for the local shopping centers in amongst the maze of haphazard development found along this typical Baltimore major road frontage.

Such districting, in application of the zoning proposals set forth must then be bolstered by the use of other planning tools such as community design, thoroughfare planning and off-street parking regulation. It is the coordinated effort in re-planning not only the more local types of centers which have been emphasized in this study, but also the community and general business centers, which will help our urban populations to realize a more efficient retail system of shopping service.

A P P E N D I C E S

APPENDIX A

CLASSIFICATION OF SHOPPING CENTERS BY CONFORMATION

The Boston Globe map of shopping centers in the Metropolitan Area presents commercial concentrations as either "compact centers" or "string streets." The dual breakdown is, however, too generalized for use in this analysis. Therefore, a more definitive classification of shopping center conformation is necessary.

What are the apparent physical characteristics of string developments? Appropriately named, they are linear in dimension. They are usually found in the outlying residential areas with frontage on the more heavily traveled thoroughfares. Often they consist of a mixture of residential, commercial and manufacturing uses, normally interspersed with some vacant properties and stores.

Using these basic identifying factors, a selected sample of 5% of the 379 centers was studied for the purpose of establishing measurements to be applied to all of the centers for distinguishing compact from string centers. String retail developments were found to be approximately 10 to 11 times as long (fronting on a single main thoroughfare) as they are wide (fronting on a perpendicular street). In comparison, the L/W ratio for concentrated centers ranged between, approximately, 2 and 3, a distinct difference. String shopping units are located on metropolitan or inter-community (town) thoroughfares, with a few locating on the more well-traveled intra-community (town) routes. That which consistently distinguishes string from compact developments is the fact that the axial street of the former is intersected only by local, usually residential, streets.

In order to determine the relative compactness or looseness of com-
mercial developments, a measure of the clustering of stores was selected.
While the ratio of non-retail frontage to total frontage indicates
store concentration,[1] it was felt that the use of the measurement of
number of stores per cluster[2] of stores within any center was more ex-
pressive of agglomeration. Applying this, compact centers averaged more
than 5 stores per cluster, as against 3 for stringments. (A cluster of
retail outlets includes contiguous stores without a street, vacant land,
church, off-street parking, or other non-retail use break.)

Setting a maximum and/or minimum for the stated measurements, con-
sidering the sample results, a definition for string retail developments
can be exacted: it is a shopping agglomeration which is elongated with
L/W greater than 5/1, which has fewer than 3.5 stores per cluster, and
which has its businesses fronting on a major street, which in turn is
intersected by purely local streets.

This definition fits 102 of the 379 centers of the study. Are then
all the rest well-nucleated centers? No, they are not; which gives rise
to an expansion of the classification system including not only bona
fide compact centers and string developments, but also those which are
express combinations of the two. Examples of these follow.

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[1] Compact centers were found to average 35% non-retail frontage, whereas
the percentage is 45 for string developments. The variation between
the two types of centers appears less significant than it should be in
this respect. However, the original delineation of the actual centers
by Walter is reflected in these figures.

[2] A cluster of stores is defined as a continuous frontage of stores without
a non-commercial land use break, excluding vacant store buildings. When
the break involved open land, streets, etc., it was considered as such
only if the distance between retail properties was more than 50'.

I. <u>Compact Center</u>: L/W is less than 3/1, with more than 5 stores per cluster, occurring at intersections of thoroughfares of substantially equal importance, and extending more than 3 blocks (600') in any one direction.

EXHIBIT A-1a
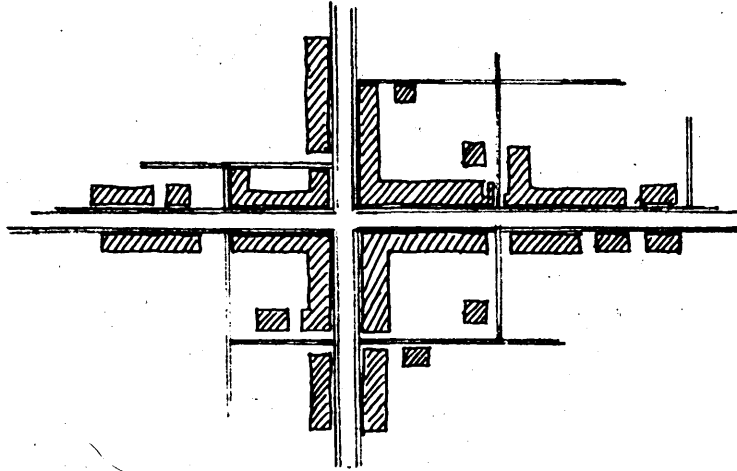
Ia. <u>Small Center</u>: All centers having 15 or less active retail stores, and extending not more than 3 average blocks (600').

EXHIBIT A-1b
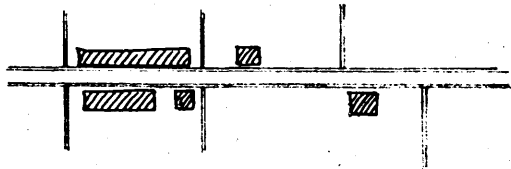
II. **Loose Center:** With L/W less than 3/1, with less than five stores per cluster, at intersections of major streets (though not necessarily equally important), and extending more than 3 blocks (600') in any one direction.

EXHIBIT A-1c
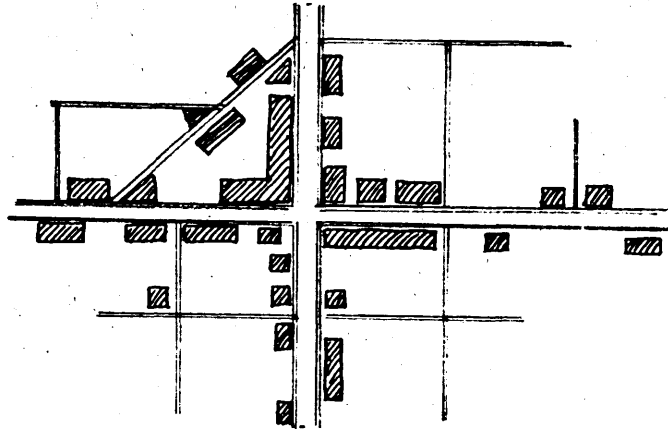
III. **Extended Center** (nucleation with a "tail"): L/W more than 3/1, with less than 4.5 stores per cluster, with a major intersection at or near the nucleation. (In a few cases the S/C is more than 4.5, but the L/W is so great as to preclude its being classified as compact center.)

EXHIBIT A-1d
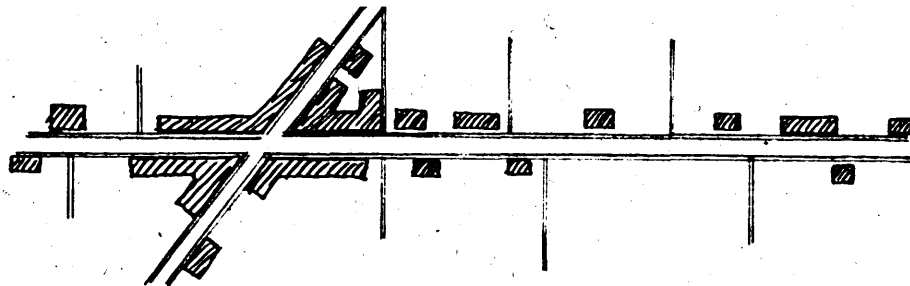
IV. <u>String Complex</u> (also called "stringment): L/W more than 5/1,
with less than 3 to 3.5 stores per cluster on major street intersected
by only local streets, and extending more than 3 blocks. (A few are
less than 600' in length, but if so, the stores per cluster hovers
around 1 to 1.5.)

EXHIBIT A-1e
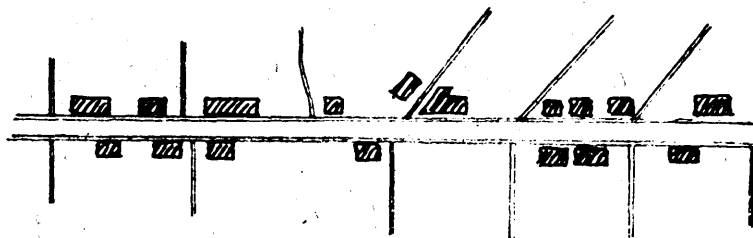
The above definitions are by no means suggested as the final word
for descriptive measurements of compactness (or absence of it) of shop-
ping centers. There were some cases of shopping concentrations which
did not clearly classify under one definition or another. This was es-
pecially true for the smaller units, most of which are compact centers.
Therefore, a special category was included describing small centers in
rather generalized terms.

Some disagreement arose on the writer's part in connection with the
delimitation of specific shopping agglomerations by Walter, since there
was question whether several "tail" stores were associated with their
designated center. However, Walter stated that it was sometimes dif-
ficult to tell where one center stopped and another started. Both the
original physical delimitation of the centers and the above breakdown
and subsequent classification appeared satisfactory for this report.

EXHIBIT A-2

DERIVATION OF SHOPPING CENTER TYPES BY CONFORMATION
BOSTON METROPOLITAN STUDY AREA, 1947[1]
FIVE PERCENT SAMPLE OF ALL CENTERS

"Centers" Reported as Compact[2]	Length/ /Width[3]	Major/ /Minor Thoroughfare	Stores per Cluster[5]
A	3.5	C/C	
B	1.1	C/C	
C	2.2	B/B	5.9
D	1.1	C/C	
E	2.5	A/B	9.1
F	2.1	C/C	5.2
G		B/B	
H		B/C	4.0
I	2.3	A/C	4.3
J	1.3	B/A	5.2
K	2.1		7.2
Total	18.2		40.9
Average	2.9		5.8

"Centers" Reported as String Devel.[2]			
L	13.0	B/C	2.4
M	11.1	C/C	
N	13.8	A/C	3.5
O	9.1	A/C	2.3
P	13.2	B/C	2.0
Q		B/C	2.6
R	8.3	B/C	2.4
Total	68.5		15.2
Average	11.4		2.5

1. Basic data from: K. W. Walter, Secondary Shopping Centers of Metropolitan Boston, unpublished thesis, Syracuse University, 1949.

2. Walter, Loc. Cit.

3. Length of Shopping Center vs. Width of the Center

4. A = metropolitan thoroughfare, B = intercommunity street (connecting definable large settlements of the metropolitan area), C = inter-neighborhood or residential street.

5. See footnote, page

APPENDIX B

STORE TYPE AFFINITY

CODE NUMBERS OF 171 STORE TYPES

0 - Vacant

Retail Sales

1a - Grocery Independent	44 - Floor Covering
1b - Grocery Chain	45 - Toys
2a - Grocery-Meat Independent	46 - Used Furniture
2b - Grocery-Meat Chain	47 - Books
3 - Gasoline Station	48 - Tavern
4 - Drug	49 - Tires
5 - Confectionery	50 - Bicycle
6 - Meat, Fish, Poultry	51 - Corsets
7 - Bakery	52 - Curtain
8 - Candy	53 - Mirrors & Glass
9 - Delicatessen	54 - Music
10 - Cigar	55 - Sewing Machine
11 - Creamery	56 - Yarn
12 - Frozen Food	57 - Furnaces
13 - Health Food	58 - Men's Shoes
14 - News Stand	59 - Picture Frames
15 - Fruit & Vegetable	60 - Shades
16 - Restaurant	61 - Wallpaper
17 - Women's Wear	62 - Artist Supply
18 - Electric Appliances & Radio	63 - Caterer
19 - Hardware	64 - Hobby
20 - Gift	65 - Hosiery
21 - Men's Wear	66 - Leather
22 - Jewelry	67 - Remnants
23 - Packaged Liquor	68 - Stoves
24 - Furniture	69 - Used Clothing
25 - Family Shoes	70 - Art Store
26 - Variety	71 - Used Auto Sales
27 - Stationery	72 - Awnings
28 - Millinery	73 - Doors
29 - Florist	74 - Farm Supplies
30 - Antique	75 - Hatter
31 - Family Clothes	76 - Insulation
32 - Women's Shoes	77 - Heating
33 - Auto Accessories	78 - Lingerie
34 - Fuel	79 - Mattress
35 - Department Store	80 - Monuments
36 - Children's Clothes	81 - Motor Boat Sales
37 - Cosmetics	82 - Novelty
38 - Dry Goods	83 - Pets
39 - Furrier	84 - Sewing Supplies
40 - Paint	85 - Sporting Goods
41 - Second Hand	86 - War Surplus
42 - New Auto Sales	
43 - Cameras	

Retail Services

87 - Barber

88 - Dry Cleaner

89 - Beautician

90 -	Shoe Repair	132 -	Locksmith
91 -	Realtor	133 -	Masseur
92 -	Laundry	134 -	Notary Public
93 -	Tailor	135 -	Painter
94 -	Bank	136 -	Personal Loan
95 -	Undertaker	137 -	Rug Cleaner
96 -	Auto Repair	138 -	Sewing Machine Repair
97 -	Elec. Appliance & Radio Repair	139 -	Chiropodist
98 -	Plumber	140 -	Hotel
99 -	Upholsterer	141 -	Travel Agency
100 -	Post Office	142 -	Tuxedo Rental
101 -	Theater	143 -	Auto Radiator Repair
102 -	Office	144 -	Auto Painting
103 -	Public Utility	145 -	Auto Storage
104 -	Optician	146 -	Auto Washing
105 -	Printer	147 -	Blacksmith
106 -	Building & Loan	148 -	Decorator
107 -	Bowling	149 -	Dressmaker
108 -	Oil Burner	150 -	Floor Sanding
109 -	Photographer	151 -	Hosiery Repair
110 -	Roofer, Tinner	152 -	Landscaping
111 -	Taxi	153 -	Lawnmower Repair
112 -	Dentist, Doctor	154 -	Paper Hanger
113 -	Electrician	155 -	Plasterer
114 -	Express & Moving	156 -	Shade Cleaning
115 -	Telegraph	157 -	Shoeshine
116 -	Builder	158 -	Typewriter Service
117 -	Insurance	159 -	Umbrella Repair
118 -	Lawyer	160 -	Veterinary
119 -	Watch Repair	161 -	Window Cleaning
120 -	Auto Body Repair	162 -	Advertising
121 -	Auto Rental	163 -	Architect
122 -	Billiards	164 -	Art Studio
123 -	Pawn	165 -	Auctioneer
124 -	Refrigerator Service	166 -	Employment Agency
125 -	Auto Ignition Repair	167 -	Photostats
126 -	Auto School	168 -	Sign Writer
127 -	Carpenter	169 -	Dancing School
128 -	Elocution School	170 -	Music School
129 -	Exterminator	171 -	Palmist
130 -	General Repair Shop	172 -	Special Club
131 -	Hat Cleaner	173 -	Library
		174 -	Wholesale

EXHIBIT B-2

DEVIATION INDICES FOR RETAIL STORE TYPES SHOWING
RELATIVE AFFINITY OR AVERSION FOR FIVE TYPES OF SHOPPING CENTERS

Boston Metropolitan Area

(Based on 1947 Data)

Key: Cs – Small Center;   C – Compact Center;   S – String Center;
     L – Loose Center;   E – Extended Center

Code Number	Affinity			0	Aversion		
	50 or More	25 – 49	0 – 24		0 – 24	25 – 49	50 or More
1a	Cs/S		L		E	C	
1b	Cs		S/E		L/C		
2a	Cs		E/S		L/C		
2b		C	E		L/Cs	S	
3	S		Cs/E		L	C	
4	Cs		S/E		L/C		
5	Cs	S	L		E	C	
6		E	L		Cs/C/S		
7			E/C		L/Cs/S		
8	C				Cs/E		S/L
9		Cs	E/S		C	L	
10	C				L	E	S/Cs
11		C	E			L/S	Cs
12	C	Cs			E	L	S
13	C		E				L/S/Cs
14	C				E	S/L	Cs
15			E/L		C/S		Cs
16			C/L/S		E	Cs	
17	C				E	L	Cs/S
18		C	E		L	S	Cs
19			E/C		S/L		Cs
20			C/E		Cs/L	S	
21	C		L			E	Cs/S
22	C				L/E		S/Cs
23			Cs/L/C		S/E		
24			C/E/L			S	Cs
25		C	L		E		S/Cs
26		E	C		L	S	Cs
27			C		L/E	S/Cs	
28	C		E		L		S/Cs
29			C		E/S/Cs	L	
30	S		C		Cs	L/E	

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(Continued)

Code Number	Affinity			0	Aversion		
	50 or More	25 - 49	0 - 24		0 - 24	25 - 49	50 or More
31			C/E/L				S/Cs
32	C		L			E	S/Cs
33			E/C/L				S/Cs
34		C			E/L/S		Cs
35			L/E/C				S/Cs
36			C/E		L/Cs	S	
37	C		L			E	S/Cs
38			C/E/L				S/Cs
39		C/E				Cs	L/S
40			C/L/E				S/Cs
41	L		C		E	S	Cs
42			S/L/E		C		Cs
43	C		E			L	S/Cs
44		C	E		L		S/Cs
45			E/C		Cs/L	S	
46			C/S		E/L		Cs
47	C					L	E/S/Cs
48		L	S		E/C/Cs		
49		L	S/E		C		Cs
50		L	E		C	S	Cs
51	C/E						L/S/Cs
52	E		C			L	S/Cs
53			C/E/L				S/Cs
54		C			E	L/S	Cs
55	C	L				E	S/Cs
56	C		E			S	L/Cs
57		L	E		C/S		Cs
58	C	L				E	S/Cs
59	Cs	C				E/S/L	
60	L	E				S/C	Cs
61	C				E	L	S/Cs
*							
64	Cs/E				S		C/L
65	L/E				C		S/Cs
66	C					L/E	S/Cs
67		L	S/Cs		C	E	
68	L		C		E	S	Cs
69	C				L		E/S/Cs
70	C/L						E/S/Cs

*Insufficient data

(Continued on next page)

(Continued)

Code Number	Affinity			0	Aversion		
	50 or More	25 – 49	0 – 24		0 – 24	25 – 49	50 or More
71	L/S				E		C/Cs
72		S	E		C/L		Cs
*							
76	E		S			C	L/Cs
77	E		C		S		L/Cs
*							
79	Cs	L	E		C		S
80	L/E/S						C/Cs
*							
82	E	S				C/L	Cs
83		C			S/L/E		Cs
*							
85	C/Cs	L					E/S
*							
87		Cs	S		L/E/C		
88	Cs		S		E/L/C		
89		Cs	E		S/C/L		
90		Cs	S/E		L/C		
91			L/C		S/E	Cs	
92	Cs		S		E/L/C		
93			S/E		C/L/Cs		
94		C	L			E	S/Cs
95			L/S		C/E	Cs	
96		S	L/E		Cs/C		
97		S	E		C/Cs/L		
98			E/L/Cs		S/C		
99			Cs/C/L		E/S		
100			C/L		E	S/Cs	
101		C	E			L	S/Cs
102		C	L		Cs	E/S	
103	C		L			E	S/Cs
104		C/L			E/Cs		S
105			C/E		Cs/L/S		
106		C	E		L		S/Cs
107		C	E		L		S/Cs
108	S	E			C	L	Cs
109		S	E/C		Cs		L
110		E	L/S/Cs			C	
111	Cs		C		L/E/S		
112		C	L/E				S/Cs
113		S	C		L	E/Cs	

*Insufficient data

(Continued)

Code Number	Affinity			0	Aversion		
	50 or More	25 - 49	0 - 24		0 - 24	25 - 49	50 or More
114			C/S		L	E	Cs
115	C		L				E/S/Cs
116		L/S			E/C		Cs
117	L		C		E	S	Cs
118	L/E						C/S/Cs
119		C/L				E	S/Cs
120	L/S					E	C/Cs
121	C		E			L	S/Cs
122	S/L					E/C	Cs
123	C		L				E/S/Cs
124	S		E		C	L	Cs
125		S	E/L		C		Cs
126		E/Cs	C		L	S	
127	S	Cs	L/E			C	
128	C/E						L/S/Cs
129	S	L					C/E/Cs
130	L		S			C/E	Cs
*							
132		C	L		E/S		Cs
*							
135		L			S/E/C		Cs
136	C		E				L/S/Cs
137	S				L/C		E/Cs
*							
140	L	C					S/E/Cs
141	Cs/S				C/E		L
142		C/E			L		S/Cs
143	S/E						L/C/Cs
*							
147	C				E		L/S/Cs
148		L/E			S/C		Cs
*							
154	Cs		S/L/C				E
*							
157		C			L/S	E	Cs
158	L		E		C		S/Cs
*							
161	Cs/S				C/E		L
162	Cs		L/C		E		S
*							
166	Cs	C			S/L	E	
*							
168		L	C		E	S	Cs
*							

*Insufficient data

EXHIBIT B-3

NUMBER OF STORES, PERCENT OF TOTAL STORE TYPE, AND
DEVIATION INDEX (PERCENT), BY COMBINATIONS OF RELATED STORES
ACCORDING TO SHOPPING CENTER CONFORMATIONS

Boston Metropolitan Area
(Based on 1947 Data)

Key: Cs - Small Center; C - Compact Center; L - Loose Center;
      E - Extended Center; S - String Center.

Code Number	Cs	C	S	L	E	Total
Total Stores, Metropolitan Area	830	8,167	3,865	3,996	4,797	21,655
Percent	3.7	37.7	17.9	18.5	22.1	100.0

I. Food and Convenience

A - Convenience

	Cs	C	S	L	E	Total
1a	101	312	392	289	242	1,336
1b	35	96	72	51	77	331
2a	11	55	39	28	46	179
4	56	244	160	138	189	787
5	60	206	188	155	167	776
9	10	71	43	26	57	207
23	16	148	63	70	73	370
Total	289	1,132	957	757	851	3,986
% of Total	7.2	28.4	24.0	18.8	21.3	100.0
Dev. Index	+90	-25	+35	+2	-4	

B - Personal Care Services

	Cs	C	S	L	E	Total
87	63	398	246	220	270	1,197
89	30	211	101	87	150	579
Total	93	609	347	307	420	1,776
% of Total	5.2	34.3	19.6	17.3	23.6	100.0
Dev. Index	+37	-9	+9	-6	+7	

C - Personal Effects Services

	Cs	C	S	L	E	Total
88	67	321	210	162	215	975
90	42	243	167	142	201	795
92	40	196	121	107	129	593
93	15	169	101	80	116	481
Total	164	929	599	491	661	2,844
% of Total	6.0	32.6	19.3	17.2	23.2	100.0
Dev. Index	+57	-14	+8	-7	+5	

(Continued on next page)

Code Number	Cs	C	S	L	E	Total
D — Other Necessity Food Sales						
2b	3	68	15	24	35	145
6	20	224	90	120	190	644
7	16	188	72	88	124	488
15	7	195	74	110	132	518
Total	46	675	251	342	481	1,795
% of Total	2.6	37.6	14.0	19.0	26.8	100.0
Dev. Index	-32	-3	-22	+3	+21	
E — Specialty Food Sales						
8	3	48	7	6	17	81
11	1	34	8	10	19	72
12	1	13	1	2	4	21
13	0	7	0	1	3	11
Total	5	102	16	19	43	185
% of Total	2.7	55.1	8.7	10.3	23.2	100.0
Dev. Index	-29	+46	-51	-44	+5	
F — Dining						
16	36	637	279	312	273	1,537
48	2	110	63	73	69	317
Total	38	747	342	385	342	1,854
% of Total	2.0	40.3	18.5	20.8	18.5	100.0
Dev. Index	-47	+7	+3	+13	-16	
TOTAL GROUP I	634	4,194	2,512	2,301	2,798	12,439
% of Total	5.1	33.7	20.2	18.5	22.5	100.0
Dev. Index	+34	-11	+13	0	+2	
Percent of: (Stores in Group I) / (Stores in Center Type)	76.4	51.3	65.0	57.6	58.4	57.5
Total Class. A, B, C, F	583	3,417	2,245	1,940	2,274	10,495
Percent of: (Stores in A,B,C,F) / (Strs in Ctr Type)	70.3	42.0	58.2	48.5	47.4	48.4

(Continued)

Code Number	Cs	C	S	L	E	Total
II. Auto Sales and Service						
A - Gas Stations						
3	39	224	236	154	187	840
% of Total	4.6	26.7	28.1	18.3	22.3	100.0
Dev. Index	+21	-29	+57	-1	+1	
B - Auto Sales						
42	3	57	35	33	38	166
71	0	4	10	13	6	33
Total	3	61	45	46	44	199
% of Total	1.5	30.6	22.6	23.1	22.1	100.0
Dev. Index	-74	-19	+26	+25	0	
C - Auto Parts						
33	1	31	20	23	23	98
49	3	45	13	21	29	111
Total	4	76	33	44	52	209
% of Total	1.9	36.4	15.8	21.0	24.9	100.0
Dev. Index	-50	-3	-12	+14	+13	
D - Auto Repair						
96	10	94	69	62	67	302
120	0	2	4	6	2	14
125	0	5	4	3	4	16
143	0	2	5	1	5	13
Total	10	103	82	72	78	345
% of Total	2.9	29.9	23.8	20.8	22.6	100.0
Dev. Index	-24	-21	+33	+12	+2	
E - Other						
121	0	5	0	1	2	8
126	1	9	2	3	6	21
Total	1	14	2	4	8	29
% of Total	3.4	48.2	6.9	13.8	27.6	100.0
Dev. Index	-11	+28	-61	+25	+25	
TOTAL GROUP II	57	478	398	320	369	1,622
% of Total	3.5	29.5	24.5	19.7	22.8	100.0
Dev. Index	-8	-22	+37	+6	+7	
Percent of: (Stores, Group II) / (Strs in Ctr Type)	6.7	5.9	10.3	8.0	7.7	7.5

(Continued)

Code Number	Cs	C	S	L	E	Total
III. Household Maintenance & Services						
A - Convenience and Maintenance						
97	8	85	59	38	58	248
98	11	89	49	54	74	277
99	8	68	26	33	38	173
110	5	26	23	26	34	114
127	3	15	17	13	14	62
Total	35	283	174	164	218	874
% of Total	4.0	32.2	19.9	18.8	25.1	100.0
Dev. Index	+5	-15	+11	+2	+14	
B - Other Maintenance						
108	0	12	11	5	12	40
113	1	19	10	6	6	42
116	0	7	5	6	4	22
124	0	9	7	3	6	25
129	0	2	5	3	1	11
130	0	5	4	7	3	19
135	0	11	5	8	8	32
137	0	2	3	1	0	6
148	0	4	2	3	4	13
161	1	2	2	0	1	6
168	0	16	5	10	7	38
Total	2	89	59	52	52	254
% of Total	0.1	35.0	23.2	20.4	20.4	100.0
Dev. Index	-97	-7	+30	+10	-9	
C - Other Services						
105	4	52	18	20	30	124
119	0	18	3	9	5	35
132	0	23	7	9	8	47
147	0	4	0	0	1	5
158	0	3	0	4	2	9
Total	4	100	28	42	46	220
% of Total	1.8	45.5	12.7	19.1	20.9	100.0
Dev. Index	-53	+21	-29	+3	-5	
TOTAL GROUP III	41	472	261	258	316	1,348
% of Total	3.0	35.0	19.3	19.2	23.5	100.0
Dev. Index	-21	-7	+8	+4	+6	
Percent of:						
(Stores, Grp III)						
(Strs in Ctr Type)	4.9	5.8	6.8	6.5	6.6	6.2

(Continued)

Code Number	Cs	C	S	L	E	Total
IV. Apparel Sales						
17	5	245	17	54	69	390
21	4	125	9	42	35	215
25	2	115	19	41	40	217
28	0	43	4	11	17	75
31	0	64	17	29	35	145
32	0	28	0	9	7	44
36	2	31	7	12	18	70
38	0	21	2	10	12	45
39	1	26	2	4	14	47
51	0	7	0	0	5	12
58	0	8	0	3	2	13
65	0	3	0	3	3	9
142	0	8	1	3	5	17
Total	14	724	78	221	262	1,299
% of Total	1.1	55.8	6.0	17.0	20.1	100.0
Dev. Index	-71	+48	-67	-8	-9	

Percent of:

(Stores, Group IV) / (Strs in Ctr Type)	1.7	8.9	2.0	5.5	5.5	5.8

V. General & Specialty Sales

A - Department Store Sales

	Cs	C	S	L	E	Total
26	1	93	21	31	59	205
35	0	15	0	9	9	33
Total	1	108	21	40	68	238
% of Total	0.4	45.4	8.7	16.8	28.5	100.0
Dev. Index	-90	+20	-51	-9	+29	

B - Quick Pick-up Sales & Service

	Cs	C	S	L	E	Total
10	0	69	4	20	18	111
14	0	15	3	3	5	26
157	0	7	2	2	2	13
Total	0	91	9	25	25	150
% of Total	0.0	60.6	6.0	16.7	16.7	100.0
Dev. Index	-100	+61	-67	-10	-24	

C - Specialty Sales

	Cs	C	S	L	E	Total
20	6	74	19	26	42	167
22	0	116	9	34	35	194
27	2	44	11	17	20	94
29	6	80	29	22	37	174
37	0	34	2	12	6	54
43	0	19	0	3	7	29
45	2	30	8	11	18	69
47	1	42	5	7	6	61

(Continued)

Code Number	Cs	C	S	L	E	Total
50	0	16	6	12	12	46
54	0	13	3	3	5	24
56	0	20	4	3	10	37
66	0	6	0	1	1	8
67	1	8	5	6	3	23
70	0	3	0	2	0	5
83	0	6	2	2	2	12
85	1	9	0	4	1	15
Total	19	520	103	165	205	1,012
% of Total	1.9	51.3	10.2	16.3	20.3	100.0
Dev. Index	-50	+36	-43	-12	-8	

D - Pastime Sales

	Cs	C	S	L	E	Total
64	1	1	1	0	3	6
82	0	7	7	3	10	27
Total	1	8	8	3	13	33
% of Total	3.0	24.2	24.2	9.0	39.6	100.0
Dev. Index	-21	-36	+35	-51	+80	

	Cs	C	S	L	E	Total
TOTAL GROUP V	21	727	141	233	311	1,433
% of Total	1.5	50.7	9.9	16.2	21.7	100.0
Dev. Index	-61	+35	-45	-12	-2	

	Cs	C	S	L	E	Total
Percent of: (Stores, Group V) / (Strs in Ctr Type)	2.5	8.9	3.6	5.8	6.5	6.6

VI. Household and Furnishing Sales

A - Household Furnishings

	Cs	C	S	L	E	Total
18	5	196	43	59	87	390
24	3	109	26	46	61	245
55	0	5	0	2	1	8
59	1	5	1	1	1	9
68	0	4	1	3	2	10
79	1	3	0	2	2	8
Total	10	322	71	113	154	670
% of Total	1.5	48.0	10.6	16.9	23.0	100.0
Dev. Index	-61	+28	-41	-9	+4	

B - General

	Cs	C	S	L	E	Total
19	6	152	67	54	97	376
% of Total	1.6	40.4	17.8	14.4	25.8	
Dev. Index	-58	+7	-1	-22	+17	

(Continued)

Code Number	Cs	C	S	L	E	Total
C - Household Maintenance Sales						
34	1	31	9	10	14	65
40	0	26	5	12	13	56
44	1	28	5	8	14	56
52	0	12	3	3	9	27
53	0	19	2	9	11	41
57	0	4	2	3	3	12
60	0	8	4	11	9	32
61	0	7	0	1	2	10
72	0	9	6	4	6	25
76	0	1	1	0	3	5
77	0	5	2	1	4	12
Total	2	150	39	72	88	351
% of Total	0.6	42.7	11.1	20.5	25.1	100.0
Dev. Index	-84	+13	-38	+11	-14	
D - Realty						
91	10	146	67	79	81	383
% of Total	2.6	38.1	17.5	20.4	21.2	100.0
Dev. Index	-32	+1	-2	+10	-4	
TOTAL GROUP VI	28	770	244	318	420	1,780
% of Total	1.6	43.3	13.7	17.9	23.5	100.0
Dev. Index	-58	+15	-23	-3	-6	
Percent of:						
(Stores, Group VI)						
(Strs in Ctr Type)	3.5	9.3	6.3	8.0	8.8	8.2

VII. Business & Professional Services

Code Number	Cs	C	S	L	E	Total
A - Financial						
94	2	89	14	35	27	167
103	1	38	0	15	10	64
106	1	27	5	10	16	59
136	0	6	0	0	2	8
Total	4	160	19	60	55	298
% of Total	1.3	53.8	6.4	20.1	18.4	100.0
Dev. Index	-66	+43	-64	+9	-17	
B - Communications						
100	2	37	8	16	17	80
115	0	10	0	3	1	14
141	1	2	2	0	1	6
162	1	2	0	1	1	5
Total	4	51	10	20	20	105
% of Total	3.8	48.7	9.5	19.0	19.0	100.0
Dev. Index	0	+29	-47	+3	-14	

(Continued)

Code Number	Cs	C	S	L	E	Total
C - Professional Personal Services						
104	2	32	4	17	12	67
112	0	19	3	9	9	40
117	0	19	4	13	8	44
118	0	3	1	5	9	18
166	1	3	1	1	0	6
Total	3	76	13	45	38	175
% of Total	1.7	43.4	7.5	25.7	21.7	100.0
Dev. Index	-55	+15	-58	+40	-2	
TOTAL GROUP VII	11	287	42	125	113	578
% of Total	1.9	49.6	7.3	21.6	19.6	100.0
Dev. Index	-50	+32	-59	+17	-11	
Percent of:						
(Stores, Group VII)						
(Strs in Ctr Type)	1.3	3.5	1.1	3.1	2.4	2.7

VIII. Other

Code Number	Cs	C	S	L	E	Total
A - Used Sales						
30	3	39	34	11	11	98
41	2	59	16	36	26	129
46	0	23	10	7	9	49
69	0	24	3	6	3	36
123	0	28	1	8	2	39
Total	5	173	64	68	51	351
% of Total	1.4	49.3	18.2	19.4	14.7	100.0
Dev. Index	-63	+31	+2	+5	-33	
B - Recreation						
101	0	63	8	16	32	119
107	1	28	2	9	13	53
122	0	17	20	19	11	67
Total	1	108	30	44	56	239
% of Total	0.4	45.3	12.5	18.4	23.4	100.0
Dev. Index	-90	+20	-30	-1	+6	
C - Funeral						
80	0	0	3	4	4	11
95	5	87	42	54	45	233
Total	5	87	45	58	49	244
% of Total	2.0	35.6	18.5	23.7	20.2	100.0
Dev. Index	-53	-6	+3	+28	-9	

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(Continued)

Code Number	Cs	C	S	L	E	Total
D – Express & Moving						
114	0	17	8	7	6	38
% of Total	0	44.7	21.1	18.4	15.8	100.0
Dev. Index	-100	+19	+18	-1	-29	
E – Other	13	130	42	43	66	284
TOTAL GROUP VIII	24	515	189	220	208	1,156
Percent of:						
(Stores, Grp VIII)						
(Stores in Ctr Type)	2.9	6.3	4.9	5.5	4.3	5.4

APPENDIX C

SAMPLE SURVEY METHODOLOGY

The major steps involved in the design of the sample study were
these:

1. Selection of a typical stringment with a service
   area of approximately one square mile

2. Field check of dwelling units and selection of
   units to be interviewed

3. Development of a questionnaire

4. Interview

5. Editing and tabulating of results; analysis of
   findings.

Step 1 - An attempt was made to select a string development which
closely approached the typical in terms of store types, as well as se-
lecting one which met the physical characteristics of the definition set
up in this report. The choice and the reasons for its selection are ex-
plained in the text (Chapter VIII).

The total study area was smaller than originally intended, primarily
because of the desire to incorporate one or more whole census tracts
(1950), if possible. Since the northern boundary of census tract 27-2
coincided with the northern limit of this Harford Road string development,
the end study product involved the full tract 27-2 and smaller parts of
27-1, 8-1 and 902. (See Map VIII-2, p. 48.1)

Step 2 - The second step called for a field check of the location,
type and number of dwelling units in the study area. Block statistics
of the 1950 U. S. Census for the area were checked against dwelling units

in the field, using 1" = 200' official Baltimore City base maps[1] as work sheets. Dwelling units were checked by block and cases where personal enumeration was less than the census count, the latter was used. This was necessary because occasional conversion units (usually apartments on upper floors of the large, older houses of the area) were not easily detected through observation. The table below gives the results of the field check of dwelling units by census tracts, compared to the 1950 official count.

EXHIBIT C-1

| Census Tract | Dwelling Units | | % Increase |
	1950 U.S. Census[2]	1954	
8-1	40	40	
9-2	60	60	
27-1	837	848	
27-2	1,214[3]	1,231	
Totals	2,141	2,169	1%

[1]These maps show each building and are kept up to date by the City Engineering Department as building permits are issued. In addition, the City Planning Commission had recently prepared land use overlays for the base maps as a result of field inspection of the area, which were helpful in double checking dwelling units.

[2]U. S. Department of Commerce, Bureau of Census, U. S. Census of Population, Baltimore, Maryland, Census Tracts, Washington, D.C. 1950.

[3]It was found that blocks 37 and 38 of tract 27-2 were reported with no dwelling units in 1950. A field check revealed that 31 units were omitted, since the structures now in these blocks all appear to be much older than 4 years. Therefore, this accounts for the discrepancy between the 1,183 dwelling units as recorded by the census and the 1,214 used in this report.

Stores in the stringment were mapped by individual concern (name and type of outlet) on the large base maps. Also, the interviewer familiarized himself with all stores and centers within 3 miles.

It was decided to take a 5% sample interview of households in the study area, requiring 108 individual interviews. The 200' scale base maps were used, with each dwelling unit plotted, and systematically numbered consecutively thereon. Every twentieth dwelling unit was selected, starting from the seventh in the universe. The number seven was elected by chance from the series of numbers, 1 through 20. These 108 specific units, as listed by actual house numbers, then formed the interview sample.

Step 3 - The questionnaire (see Exhibit C-2, p. 120) was developed to elicit the necessary information concerning shopping trips and purchases at retail outlets in the Harford Road shopping complex. After 10 test interviews were taken, the decision was made to gather data on all purchases made by every member of the family in order to: (a) avoid the need of explaining the limits of the shopping center under study to each interviewee, (b) to eliminate possible suspicion which would ordinarily arise that the interviewer was representing a specific store or stores in the area, and (c) to have information available on shopping trips and purchases made at centers or isolated stores other than those of the study, to offer a comparison with the study outlets.

Initially, the desire was to obtain information for 7 days (one week's time) prior to the study of the interview, but test samplings discouraged this; because it was found to be an imposition on the interviewee's time and memory. Concensus of test opinion recommended that data from three days prior to the actual interview was reasonable. This

EXHIBIT C-2   (page 120)   Interview # _____

Date _____

LOCAL SHOPPING SURVEY - INTERVIEW QUESTIONNAIRE

A. Identification

   1. Address _____

         2. Census Tract # _____   3. Census Block # _____

B. Consumer Particulars and Characteristics

   4. Size of family: a) # of Adults _____   b) # of Children _____

   5. Type of residency: Single family, duplex, 3-4 family, group, apartment

   6. Length of residency at place interviewed: _____ years.

   7. Automobile: _____   8. Auto available during day: _____
                   # of cars in family   yes/no

C. Consumer Preferences and Desires

                                                            at different stores
   9. Do you make a list of needs in order to make multiple purchases/at one time?

         _____ Usually   Remarks:

         _____ Sometimes

         _____ Once in a While

   10. Do you consider traveling further worthwhile if parking is easy
        and available?

         _____ Yes   Remarks:

         _____ No

Respondent's position in household: Interviewer's reaction:

      Man of house   _____   Very cooperative _____

      Woman of house   _____   Cooperative   _____

      Other   _____   (over)   Reluctant   _____

Mon.	Tues.	Wed.	Thurs.		Fri.	Sat.	Sun.
(List name of store)				store attended			
(Identify location by center/address)				shop. center			
(Food,furniture,hardware,haircut,etc.				prod. or serv.			
(Home,work,shopping,school,etc.)				origin of trip			
(Walk,auto,bicycle,masstransit,etc.)				mode of transp.			
(At curb, off street)				where parked			
(Morning, afternoon, evening)				time of day			
(Number of adults, number of children)				# in shop. pty.			
(Yes or no; if no, then impulse)				premed. purch.			
(In miles)				dist. to store			
				store attended			
				shop. center			
				prod. or serv.			
				origin of trip			
				mode of transp.			
				where parked			
				time of day			
				# in shop. pty			
				premed. purch.			
				dist. to store			
				store attended			
				shop. center			
				prod. or serv.			
				origin of trip			
				mode of transp.			
				where parked			
				time of day			
				# in shop. pty			
				premed. purch.			
				dist. to store			
				store attended			
				shop. center			
				prod. or serv.			
				origin of trip			
				mode of transp.			
				where parked			
				time of day			
				# in shop. pty			
				premed. purch.			
				dist. to store			
				store attended			
				shop. center			
				prod. or serv.			
				origin of trip			
				mode of transp			
				where parked			
				time of day			
				# in shop. pty			
				premed. purch.			
				dist. to store			

time period was used.

The questionnaire itself is self-explanatory. Items 1, 2, 3 and 5 were filled in by the interviewer; the remainder of the information resulted from answers given by those interviewed.

Step 4 - The interviews were conducted by the writer over a period of eight days (April 22-29, 1954). Each selected dwelling unit was visited in consecutive order as listed. Results of the interviews are shown below:

EXHIBIT C-3

	Number	Percent
Total Interviews	108	100.0
Interviews completed	103	95.4
Return Trip Required	(18)	(16.5)
Interviews Without Response	5	4.6
Refused	(4)	(3.7)
Vacant D.U.	(1)	(0.9)

If no one was at home on the initial call, a return trip was made before the end of the day; and if no one was at home on the second visit, this call was placed at the beginning of the next day's interviewing. Only twice was a third call necessary. Since the bulk of the interviews were made during the day time (10 a.m. - 4:30 p.m.), single calls were predominant.

Interview data collected, tabulated by day of the week, was as follows:

EXHIBIT C-4

Day of Week	Number of Days	Percent
Monday	32	10.7
Tuesday	37	11.9
Wednesday	49	15.8
Thursday	46	14.9
Friday	60	19.4
Saturday	45	14.5
Sunday	40	12.8
Total	309	100.0

The scheduling of interviews endeavored to follow the general pattern of recognized shopping day preferences, whereby more purchases and trips are made at the end of the week than at the beginning. Moderate success in this attempt was obtained.

Some seasonal bias may have been injected into the study since the first part of the interview week was spring vacation for school children. This situation, to some extent, would correspond to the summer shopping habit pattern (lasting for one-quarter of a year's time), when children are not in school. Also, some few respondents were occupied by annual spring cleaning chores, which tended to curtail the number of family purchases made during that period. This factor, on the other hand, aided in minimizing the number of return interviews required. So did the fact that Baltimore's newly franchised baseball team was being televised in out-of-town games during the week, holding many folks at home, and therefore available for interviewing.

While the seasonal bias was uncontrollable, it has been recognized

that the spring time (avoiding the Easter buying spree) is generally a good period of the year for interview studies.

Step 5 - Editing and analysis of results constituted the final phase of the sample study. Here, the longest operation involved the measurement of shopping trip distances. This was done subsequent to the interview by plotting both store visited and origin of trip; then taking the straight-line mileage between the two.

The analysis of the survey data is presented in the text.

Critique and Check of Sample Study - (Refer to numbered steps in previous section) - (1) It must be emphasized that the study area represented only a small fraction of urbanized Baltimore. As such, the findings relate directly to the socio-economic and physical characteristics of the neighborhood involved.

(2) Due to a variation in defining the type of dwelling unit occupancy, some difficulty was encountered in comparing this item with the 1950 census. The latter emphasized type of structure, while the author was more interested in the type of family occupancy. Many of the residential units of this established district were large, older houses, the upper floors of which have been converted for apartment use.

By combining the single and dual family occupancy, except for semi-detached units, for census tract 27-2 (60% of study area) a crude check was ascertained. .

The following table shows that a fairly representative sampling of types of dwelling units was obtained.

EXHIBIT C-5

	1950 Census[4]		Study Sample	
	# of D.U.	%	# of D.U.	%
Total	1,183	100.0	103	100.0
1 & 2 D.U., Except Semi-Detached	882	74.5	81	78.6
Semi-Detached	185	15.6	17	16.5
3 & 4 D.U.	82	7.0	3	3.0
1 D.U., Attached Group	34	2.9	2	1.9

The sampling was also fairly representative of the number of persons per dwelling unit in comparison with the 1950 population per household (U.S. Census)-- both for census tract 27-2. For the sample, 201 persons in 67 dwelling units showed 3.02 persons per dwelling unit, while the census reported 2.96.[5] This does not imply that there has not been some shifting in the kinds of residencies in the dwellings of the area; it merely suggests that over the last four years (if, in fact, the sample is a true one) the number of persons per dwelling unit has remained constant.

(3) The decision to enumerate shopping trips for three days prior to the interview was a compromise between obtaining a 20% or larger sample, asking for only the previous day's shopping activity, versus making a smaller sample, enumerating a week or more of retail purchasing. The limited number of man-hours available for the survey affected this deci-

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[4]U.S. Department of Commerce, Bureau of Census. U.S. Census of Population, Baltimore, Maryland, Census Tracts, Washington, D.C., 1950. p. 57.

[5]Ibid. p. 15

sion, since a larger sampling would have required the same amount of project explanation to each interviewee, yielding proportionately fewer results per hour of interviewing.

Only a relatively insignificant check on the reliability of actual trips or purchases reported during the week was made. The number of expanded survey trips to Vincent's Barber Shop[6] was 40 (2 x 20) while information solicited from the entrepreneur for the days involved showed a total of 46 attending the shop. He claimed that most of his customers came from the neighborhood. The interviewer felt that the information requested was, in most cases, completely and unhesitatingly given. However, at least two points of caution in the use of the data are worth noting: (1) the total number of trips enumerated for tavern visits was only 1. Experience would lead us to suspect that bar trips were under-reported; ; (2) in some cases, the person interviewed was not sure of trips made by other members of the family, such as, mothers not aware of teenage children's shopping activities (movies, delicatessen, etc.) during the survey days. Husbands and wives did, however, seem to know of each other's activities, which, no doubt, comprised the major portion of all family purchases.

The apparent success of each interview was judged separately and is presented in the following table, according to the members of the household answering the interview.

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[6]Located in the middle of the stringment; therefore, well within the "service area" of the study, with little apparent likelihood of attracting others from beyond the limits of the study.

EXHIBIT C-6

	Very Cooperative	Cooperative	Reluctant	Totals
Man of House				
Number	9	10	1	20
Percent	8.7	9.7	1.0	19.4
Woman of House				
Number	46	26	5	77
Percent	44.6	25.2	4.8	74.6
Others*				
Number	5	1	0	6
Percent	4.8	1.0	0.0	5.8
Totals				
Number	60	37	6	103
Percent	58.2	36.0	5.8	100.0

*Husband and wife together, whole family, older child, etc.

It is obvious that the "woman of the house" was most frequently interviewed, and that almost 95% of the interviewees were adjudged as cooperative responses.

(4) The questions on consumer preferences and desires (see items 9 and 10 on the questionnaire) were the least satisfactory part of the survey.. Psychological biases may have been introduced into the results of both answers. More initial testing should have been made on these items.

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