AN ANALYSIS OF COMMERCIAL [illegible]
IN LANSING, MICHIGAN FROM
1952 TO 1959

Thesis for the Degree of M. U. P.
MICHIGAN STATE UNIVERSITY
Bradford S. Chase
1962

AN ANALYSIS OF COMMERCIAL USE CHANGES IN LANSING, MICHIGAN FROM 1952 TO 1959

BRADFORD S. CHASE

A THESIS SUBMITTED IN PARTIAL FULLFILLMENT OF THE REQUIREMENTS FOR THE DEGREE OF MASTER OF URBAN PLANNING IN MICHIGAN STATE UNIVERSITY

ABSTRACT

This study is primarily a descriptive analysis of the spatial patterns regarding the change in location of commercial establishments within the urban community of Lansing, Michigan. It seeks to add to our understanding of both the general patterns of commercial location and change and the more specific patterns of location and change of particular types of commercial establishments. The study is a direct description of commercial use patterns rather than the determination of correlations or causal relationships with other functions or characteristics of the community. The techniques of analysis which are used lead toward a fuller understanding regarding the various patterns and changes of different types of commercial uses, and are of direct interest to the urban planner as he faces problems of projecting and planning for the various commercial uses.

The study describes the overall patterns of commercial establishments which existed in Lansing in 1952, dealing separately with the patterns of convenience, shopping, service, and wholesale establishments. Changes in each of these patterns between 1952 and 1959 are described in terms of new establishments, abandonments, and relocations within the overall community. The resulting 1959 pattern is also described.

Specific investigation is then made of two points in the urban pattern which were determined to be the major commercial use focal points: the Central Business District focal cluster, and the East Michigan Avenue focal line. These two focal points are described and analyzed in detail, resulting in the general conclusion that change analysis of individual use types and

individual focal points can be extremely helpful in understanding the reason commercial use classes and commercial uses change as they do.

Using primarily a descriptive approach, the conclusions of the study are limited to general statements that do not depart significantly from already-established descriptions of concentration and dispersion and locational change of commercial establishments in communities in this country. Where this descriptive approach has greatest potential for adding to understanding is in providing more adequate techniques for describing the locational patterns of specific commercial types and more adequate measures of the various types of commercial use change.

Some of the principal implications for urban planning are explored briefly, including the potentials of this analytical approach to the description of the dynamics of spatial location of commercial establishments. The major implication for the urban planner is that the different patterns of location and change of the specific types of commercial establishments tend to change in such different ways that it is necessary to deal with these types separately in analyzing, projecting, and planning for future commercial development. It is also implied that urban planners must develop new approaches and techniques for handling the focal lines and scattered focal points of development more adequately in their overall plans for the community. This indicates that the present emphasis on planning for focal clusters may need to be balanced by greater attention to planning for the other parts of the urban commercial pattern.

PREFACE

The author observed that changes in business establishments over time seemed to reflect the needs of the service population for any one period in time. It was also observed that the type of commercial establishment existing generally governed the type and number of people who were attracted to its location. It was on these observations that initial research began in order to determine the feasibility of developing a study regarding the investigation of commercial use change in a community. After research and after discussion with many individuals, it was decided that a study analyzing commercial use changes in an urban pattern would not only be feasible but also might be of value to the field of urban planning.

The author would like to sincerely thank the Institute for Community Development and Services (ICDAS) at Michigan State University particularly Assistant Professors Baron Moots and Stewart Marquis, for allowing him to combine his thesis work with his work as a Graduate Assistant attached to the Tri-County Community Delineation Study. Without the support of ICDAS, this thesis could never have been written. The author is particularly indebted to Professor Marquis who acted also in the capacity of advisor for this thesis and whose patience and encouragement was greatly appreciated and whose detailed comments and criticisms were invaluable to the development of the study.

Special thanks is given to Professor Charles Barr whose criticisms regarding the author's initial outline established the foundation on which the thesis is based.

Acknowledgement is given to John Beck and Duane Trombly, staff members of the Lansing City Planning Commission, who freely provided the author with necessary source materials and graphics.

Finally, acknowledgement is given to Ann, the author's wife, without whose loyal support, there would have been no thesis.....

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INTRODUCTION

Framework

The spatial arrangement of urban functions forms the urban pattern. At any one point in time, the relationships which exist between the various urban activities seem to be held at a balance that is primarily governed by the stage of development of the whole urban composition. The urban pattern is dynamic; it is always developing, always changing, always being modified by changes in the balance between the urban functions. Therefore, the urban pattern becomes a composite group of urban functions operating together, producing characteristic relationships which can be analyzed, studied, and sometimes predicted.

The actions and activities of the various city functions as they operate within an urban pattern is the primary concern of the urban planner. The planner is charged with the responsibility of understanding and analyzing the various functions which compose the existing urban pattern, with the ultimate aim of determining the most harmonious arrangement of the various composite functions.

Since commercial uses are an important and dynamic part of the urban environment, some understanding concerning the changes which might occur in either the spatial location or the basic commercial use functions could be of invaluable assistance to the urban planner. Of particular significance are those areas in an urban pattern where commercial uses cluster. These clusters or focal points of commercial activity, change in composition and size in direct correlation with

their changing trade areas.[1] The commercial use clusters are usually located at points which are easily accessible to the most people within their "zone of patronage".[2] This means that as the composition and size of the population changes, as traffic patterns vary, and generally, as the other urban functions shift their patterns of activity, so then will the focal points of commercial uses shift their locations.

As commercial uses shift locations, two important things occur which are of concern to the planner. First, the abandoned location is either vulnerable to marginal use occupancy or it will lie vacant and be of little productive utility as a functional part of the entire pattern. Secondly, the establishment of the commercial use in a new location increases the consumer attraction to that location.[3] In both cases, serious problems result for the urban planner to solve.

The primary purpose of this thesis is to study the commercial use changes which have occurred in one urban pattern in an effort to describe and analyze the corresponding changes in the commercial use focal points. From this study it is hoped that a method of analysis will be developed which can be used by the urban planner in understanding better the activities of commercial uses as they operate in an urban pattern over time.

[1]Richard U. Ratcliff, "An Examination into Some Characteristics of Outlying Retail Nucleations in the City of Detroit Michigan" (Unpublished PHD Thesis, University of Michigan, 1935),130.

[2]Ibid.,131.

[3]Richard L. Nelson, The Selection of Retail Locations (New York: F.W. Dodge Corporation, 1958).

Literature

Initial search of the literature revealed that very little has been written concerning the description of the commercial use changes which occur in an urban area. Richard Ratcliff covered some changes concerning commercial uses but he only analyzed those commercial uses which were located in retail nucleations.[4] Paul Merry explained some of the commercial use changes which occurred on East Colfax Avenue, Denver, but he was more interested in the character of the businesses on the street than in how the businesses changed.[5]

During the past fifteen years, shopping center and central business district studies have been widely circulated in the literature, but the problems associated with commercial uses located in strip borders along highways, and consideration of the changes which occur in individually-located commercial establishments, have been treated little.

Various ideas used in this study were obtained from many sources in the literature, some of which were not traceable when the writing stage of the study began. The Selection of Retail Locations by Richard Nelson[6] provided very useful background material, as did

[4]Ratcliff, Op. cit.

[5]Paul R. Merry, "An Inquiry Into The Nature and Function of a String Retail Development - A Case Study of East Colfax Avenue, Denver, Colorado" (Unpublished PHD Thesis, Northwestern University, 1955).

[6]Richard L. Nelson, The Selection of Retail Locations (New York: F.W. Dodge Corporation, 1958).

Urban Land Economics by Richard Ratcliff[7] and Studies of Highway Development and Geographic Change by William L. Garrison et al.[8] Other general background material included the studies done by Murphy and Vance concerning the Central Business District[9] and Retailing - Principles and Methods by Duncan Phillips.[10]

Some criticisms have been aimed at the way planners have handled the study of commercial land uses in the past. B. J. Berry states that only nucleated clusters of commercial uses have been considered in planning for commercial uses.[11] This means that highway oriented businesses, urban arterial districts, and localized developments have not been sufficiently considered in planning for their future accommodation. Some criticize H. Bartholomew for only including the area within the city limits in his discussion regarding the characteristics of urban land uses.[12] And, it is general knowledge that the

[7]Richard U. Ratcliff, Urban Land Economics (1st. ed.; New York: McGraw Hill Book Co., 1949).

[8]William L. Garrison, et al, Studies of Highway Development and Geographic Change (Seattle: University of Washington Press, 1959).

[9]Raymond E. Murphy and J.E. Vance, "Economic Geography" (Worcester, Mass:Clark University Press) Volume XXX, July 1954 'Delimiting the CBD', Volume XXX, October 1954 'A Comparative Study of Nine CBD's', and Volume XXXI, January 1955 'Internal Structure of the CBD'.

[10]Delbert J. Duncan & Charles F. Phillips, Retailing-Principles and Methods (5th. ed.; Homewood,Ill.: R.D. Irwin Co., 1959).

[11]Brian J. L. Berry, "A Critique of Contemporary Planning for Business Centers", Land Economics (Madison: University of Wisconsin Press, Vol. 35, No.4, November, 1959).

[12]Ladislas Segoe, Discussion of Harland Bartholomew's article, "How Much Commercial Area Should Be Provided In Zoning Ordinances", Journal of AIP, Volume VII (1941), 25-30.

problems concerning strip or ribbon commercial development have received little attention.

There have been some attempts, however, to analyze commercial uses with regard to their activities and general nature. The Murphy-Vance studies present an insight into the activities of the Central Business District and offer a method for its delimitation.[13] Paul Merry found in his investigation that the character of the businesses located on East Colfax Avenue were definitely related to the type and amount of traffic that the Avenue carried.[14] Ratcliff, in his Detroit study, found that a classification system could be established forming a hierarchical system of business groupings based upon the rent paying abilities of the individual establishments.[15] Richard Nelson relates the affect a shopping center can have on the Central Business District of the city to the population that city contains.[16] And, Bartholomew presented statistics concerning the relationship between the amount of commercial space in a city and the number of people that the city contained.[17] There were some other studies found that considered additional aspects of commercial use activity, but no studies were found that pertained to the changes in commercial use concentrations or focal points throughout an entire urban area.

Search of the literature also revealed that planners could use

[13]Murphy-Vance, Op. cit.

[14]Merry, Op. cit.

[15]Ratcliff, "An Examination.....Detroit, Michigan", Op. cit.

[16]Nelson, Op. cit.

[17]Bartholomew, Op. cit.

an analysis which would indicate to them not only the trends in commercial use movements, but also the relationships which exist between the various concentrations of commercial uses existing in an urban area. It was decided, then, to attempt a study which would describe and analyze commercial use changes occurring in an urban area.

Approach

It was determined early in the study that limitations of time would not permit the extension of this study to encompass correlations with measures of other urban functions or to uncover specific causal relationships. It was felt to be more important to explore as fully as possible the potentials of describing the spatial location patterns and changes of commercial establishments in a way that would lend itself to such correlation by others in further studies of the area. Therefore, commercial uses are considered in this study as an individual pattern of uses distributed throughout the entire urban area.

The urban pattern of Lansing, Michigan was selected as a case study area primarily because of the many changes in commercial uses which have been evident in the area. Lansing was also chosen because the sources of information were readily accessible to the author. The subject area specifically includes the Lansing city limits as of 1952 plus small areas of Lansing Township. (See Plate I) This plate also shows the generalized land use of the Lansing area in 1959 and is presented in order to familiarize the reader with the spatial land use relationships found in the subject area.

The years covered in the study are from 1952 through 1959. Preliminary investigation showed that considerable commercial use ac-

P L A T E I

THE SUBJECT AREA - LANSING, MICHIGAN

PLATE I

TH[illegible]CT ARE[illegible]ING, MICHIGAN

tivity had occurred in the Lansing area from the early 1950's to well into 1959. The year 1952 was selected quite arbitrarily as being the base year and the year 1959 was chosen primarily because the 1959 City Directory was the latest directory which was available when the study began. It was felt that the selected seven year period would capture much of the commercial use changes and present considerable material which could be used for analysis.

Methodology

The primary sources of data used were the 1952 and the 1959 Lansing Polk City Directories. Commercial uses appearing in these two directories were compared resulting in three types of commercial use changes: new uses, abandoned uses, and relocated uses. All the commercial uses were grouped into appropriate classifications in order to observe specific individual commercial type characteristics. (See Appendix page 115 for details of the classification system used) The commercial uses existing in 1952 were plotted on Lansing city maps as to their specific location. The three types of changes were also plotted on city maps. The 1959 commercial use pattern was then derived by applying the commercial use changes to the 1952 existing commercial use pattern.

A grid system of one and one-half inch squares (which is approximately nine regular city blocks or 39 acres) was superimposed upon the city maps containing the commercial use locations. In applying the grid system to the maps, an attempt was made to include both sides of the major streets. The types of uses in each grid square were noted on individual cards from which lists were produced indicating the

distribution of commercial uses for the 1952 pattern and for the three types of commercial use change. It was from these lists that the various grid square analysis maps were made.

Definitions

The intention of this study is to describe changes which have occurred in the clusters or focal points of various commercial activities for a specified period of time. A question arises as to exactly what is meant by "focal points" and "commercial activities". Focal point is interpreted for use in this study as a grid square or a group of grid squares which contain a certain degree of commercial use concentration. The degree of concentration means that value assigned a grid square based upon the number of commercial uses the grid square contains.

There are various kinds of focal points for similarly classified commercial activities, each varying in importance according to the number of uses congregated. Because focal points are of varying types, terminology has been created which separates and defines them.

Focal Square: A grid square which has a certain degree of concentration

Focal Cluster : Two or more bordering grid squares which, because of their similar degree of concentration, are considered as a unit.

Focal Line : Three or more grid squares located side by side in line fashion which because of their similar degrees of concentration are analyzed as a unit and usually reflect the commercial activity of a major street.

The term "commercial activity" means the actions of those commercial uses which are included under the classification system used in

this study. Generally the classification system is as follows:

- Wholesale
- Retail
  - Convenience uses
  - Shopping uses
- Services
  - Business
  - Repair
  - Professional
  - Personal

C H A P T E R I

DESCRIPTION OF THE LANSING COMMERCIAL USE PATTERN FOR THE YEAR 1952

CHAPTER I

DESCRIPTION OF THE LANSING COMMERCIAL USE PATTERN FOR THE YEAR 1952

An Overall View

The 1952 commercial uses

The total number of commercial land uses existing in the Lansing urban pattern in 1952 was 2300. A breakdown by commercial use class of the 2300 uses is shown in Table 1.

TABLE 1

NUMBER OF COMMERCIAL USES EXISTING IN LANSING FOR THE YEAR 1952

Commercial use class	Number of uses	Per cent of the total
Convenience	780	33.9%
Shopping	424	18.4%
Service	1055	45.9%
Wholesale	41	1.8%
Total	2300	100.0%

Of note from the above table is the observation that the convenience and service classes composed just under 80 per cent of all the 1952 commercial uses. This means generally that, in the Lansing urban pattern in 1952, there were four convenience or service uses for every wholesale or shopping use.

The 1952 commercial use pattern

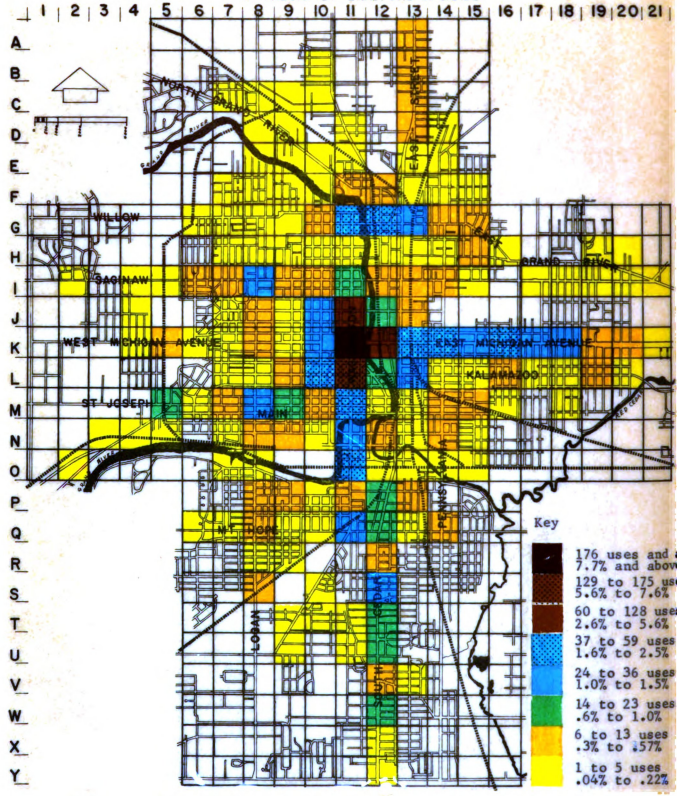
The significant commercial use focal points in the 1952 Lansing urban pattern consisted of three focal lines and a dominant focal cluster all of which were oriented primarily to the major highways. Observation of Plate II shows the three focal lines which are East Michigan

P L A T E II

THE 1952 COMMERCIAL USE PATTERN

PLATE II

AN ANALYSIS OF COMMERCIAL USE CHANGES IN LANSING, MICHIGAN FROM 1952 TO 1959
A THESIS BY BRADFORD S. CHASE



THE 1959 COMMERCIAL USE PATTERN

Avenue (K-12 to K-21), west and north Grand River Avenue in the vicinity of the bridge (G-11 to G-13), and South Washington Avenue to Mt. Hope Avenue (K-11 to Q-11). The focal cluster is the central business area surrounding the intersection of East Michigan and Washington Avenues (J-10,11,12 to L-10,11,12). Grid square K-11, which is the heart of the focal cluster, contained 20.5 per cent of all the commercial uses and is the predominant square in the grid system as it contains 13 per cent more commercial uses than any other grid square. The three focal lines and the dominant focal cluster accommodated 61.7 per cent of the total number of commercial uses in the entire subject area. Two less important focal lines --one on North East Street (A-13 to G-13) and the other on South Cedar Street (P-12 to Y-12) -- accommodated 7.9 per cent of the 1952 commercial uses. Therefore, in 1952, approximately 70 per cent of the commercial uses in the Lansing area were located on a few of the major highways and in the central business area.

It is seen from Plate II that as the degree of concentration of a grid square decreased, the number of grid squares containing a low degree of concentration increased and were distributed quite regularly around the major focal cluster. Also, as the distance from the major focal point increased, the number of commercial uses in the grid squares generally decreased. The focal lines of East Michigan Avenue (K-12 to K-21) and South Washington Avenue (M-11 to Q-11) are interesting in this respect because the grid squares in these focal lines decreased in the number of commercial uses they accommodated as the distance from the major focal point increased. The decrease was of a fluctuating nature

for, as the distance from the center increased, the grid squares decreased, then increased, then decreased again their degree of concentration with the total result being an overall decrease.

It is of interest to note that commercial uses only appeared in 41.1 per cent of the total grid squares. This means that in 58.9 per cent of the squares, no commercial uses existed. That high figure is partly the result of including some of the surrounding township area in the grid system. When the grid squares which contained .22 per cent degree of commercial use concentration or less are added to the number of squares which have no commercial uses in them, the percentage that those squares are of the total becomes 79.1 per cent. This means that in 1952, 21 per cent of the total grid system contained 89.5 per cent of the commercial uses which shows a concentrated commercial use pattern with the commercial uses fairly well confined to the major streets and the central business area.

A Look At Specifics

Convenience commercial uses in the 1952 pattern

The Uses - In 1952 there were 780 uses which fell logically under the convenience use category. These uses are shown in Table 2.

TABLE 2

CONVENIENCE COMMERCIAL USES

Convenience uses	Number of uses	Per cent of the total
Food stores	258	33.1%
Eating and drinking places	181	23.2%
Gasoline stations	160	20.5%
Drug stores	50	6.4%
Bldg. matls. and hardware	64	8.2%
Other convenience uses	67	8.6%
Total	780	100.0%

It was observed during the mapping that food and drug stores were distributed throughout the entire urban pattern, whereas many eating and drinking places and gasoline stations were located on the main roads. With 39.5 per cent of the convenience uses oriented throughout the general pattern, and with 43.7 per cent of the convenience uses being located mainly on major roads, a somewhat dispersed distribution pattern of convenience uses should be the result.

The Pattern - In the 1952 pattern showing the distribution of convenience uses, there were two major focal points of convenience activity: the focal clusters 11-J,K,L and G-11,12,13. The former was the central business area which extended its convenience influence in a focal line from K-11 to K-18 (E. Michigan Ave.). The latter cluster was located on a major street at a point where other major streets intersected. Of note, as a less important focal point, was the focal line along South Cedar Street (O-11 to W-12).

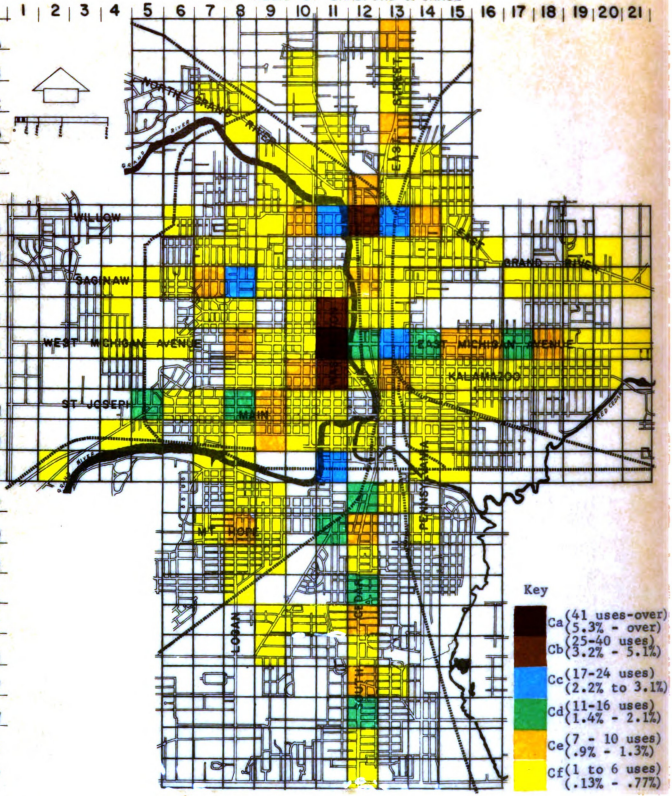
Observations of Plate III show generally a dispersed pattern of convenience uses in 1952.

P L A T E III

THE PATTERN - 1952 CONVENIENCE USES

PLATE III

AN ANALYSIS OF COMMERCIAL USE CHANGES IN LANSING, MICHIGAN FROM 1952 TO 1959
A THESIS BY BRADFORD S. CHASE



THE [illegible] - 1952 CONVENIENCE USES

To describe the distribution, the convenience uses were grouped into six degrees of concentration which are defined below:

Ca- This concentration degree was in only one grid square, K-11. It had 56 convenience uses, the most of any grid square and was, by far, the most dominant convenience focal point in the pattern.

Cb- There were three grid squares which had this degree of concentration. Two of these squares were next to the Ca square, and the third was located at the intersection of two major roads. These squares contained between 25 and 40 convenience uses.

Cc- There were five of these grid squares which contained between 17 and 26 convenience uses. They were distributed around the central area approximately three grid squares distant from K-11. Two of these squares were to either side of a Cb (G-12) concentration and formed a focal cluster.

Cd- Nine of the grid squares having between 11 and 16 convenience uses were placed in this category. These squares were distributed within one or two grid squares of each other and generally occurred where two main roads intersected.

Ce- In this category are the grid squares which contained between 7 and 10 convenience uses. There were 19 of these squares and they were distributed throughout the pattern, generally being located next to grid squares of a higher degree of concentration.

Cf- These grid squares contained between 1 and 6 convenience uses. There were 112 of these squares distributed randomly throughout the pattern.

Gradation of concentration degree was obvious in the convenience distribution. Extending from K-11 in all directions, the degree of grid square concentration diminished as the distance from the center increased. It was not a smooth gradation, however, because the grid squares containing high degrees of concentration usually existed at the street intersections. The general trend, however, showed that as the distance from the central point increased, the degree of concentration

in the grid squares decreased.

Shopping commercial uses in the 1952 pattern

The Uses - In 1952 there were 424 uses which were classified as being of the shopping type. These uses are detailed below.

TABLE 3

SHOPPING COMMERCIAL USES

Shopping uses	Number of uses	Per cent of the total
Apparel	88	20.8%
General merchandise	33	7.8%
Furniture, home furnishings	64	15.1%
Automotive group	98	23.1%
Other shopping uses	141	33.2%
Total	424	100.0%

Included in the "other" category above were many of the uses which were of the shopping type but did not fit easily into the other categories. Unintentionally, the "other" group became the largest of the categories, principally because music, jewelry, and florist uses were included. The automotive group was the only group which seemed to be distributed in a manner different from the other shopping uses. Used car lots, new car sales, and automotive supply stores were the major components of the automotive group and were found to be distributed in locations other than in the central business area.

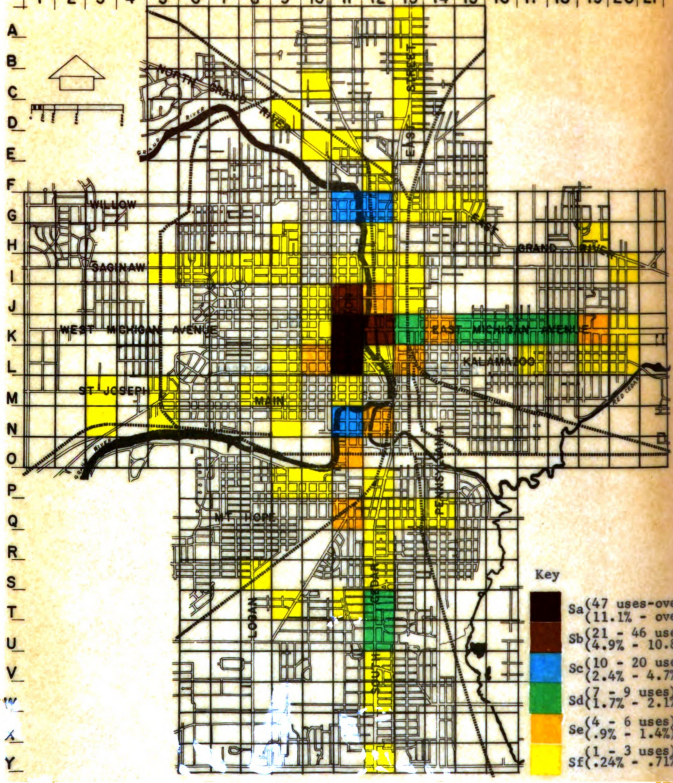
The Pattern - It can be seen from Plate IV that there are very few grid squares containing high degrees of shopping use concentration. The shopping use focal points consisted generally of three focal clusters (F-11,12; T-12, U-12; I,J,K-11,12) and two focal lines (K-12 to K-18) and K-11 to O-11).

P L A T E IV

THE PATTERN - 1952 SHOPPPING USES

PLATE IV

AN ANALYSIS OF COMMERCIAL USE CHANGES IN LANSING, MICHIGAN FROM 1952 TO 1959
A THESIS BY BRADFORD S. CHASE



THE PATTERN - 1952 SHOWING USES

The shopping uses were grouped into six degrees of concentration which were defined below.

Sa- There were two squares which are in this category; combined they accommodated 34.9 per cent of the shopping uses. These were grid squares K-11 and L-11, the heart of the central business area containing 148 shopping uses.

Sb- There were two grid squares in this category, each next to one of the Sa squares. These grid squares together contained 13.7 per cent of the shopping uses and combined with the Sa square, accommodated almost 50 per cent of all the shopping uses.

Sc- There were three of these squares containing 33 shopping uses which comprised 7.8 per cent of the total shopping uses. Two of these squares composed a focal cluster located on a major street at a point where other major streets intersected. The other square was a point in the focal line K-11 to O-11.

Sd- Seven of the grid squares accommodated this degree of concentration, five of which formed a focal line along East Michigan Avenue (K-12 to K-18). The other two squares were located together as an isolated cluster. These two focal points accommodated 57 shopping uses which was 13.4 per cent of the total.

Se- This degree of concentration was found in eight grid squares, six of which were in close proximity to the central point (K-11) and the other two were located at points on two of the major highways.

Sf- There were 55 of these grid squares distributed principally around the central area and along major streets.

The major focal point for shopping uses in 1952 was the focal cluster located in the central business area. The overall shopping use distribution pattern was one of high degree concentrations existing in relatively few focal points.

Service commercial uses in the 1952 pattern

The Uses - In 1952 there were 1055 uses which were classified as being of the service type. These uses are detailed in Table 4.

TABLE 4

SERVICE COMMERCIAL USES

Service uses	Number of uses	Per cent of the total
Personal services	307	28.4%
Business services	258	24.4%
Repair services	128	12.1%
Professional services	362	34.3%
Total	1055	100.0%

During the mapping stage, it was noticed that the distribution of repair services was of a widely scattered nature throughout the whole area. In contrast, professional services seemed to be concentrated in the central portion of the subject area. Also, a large portion of the business services were located in the central area with the remainder scattered throughout the entire area.

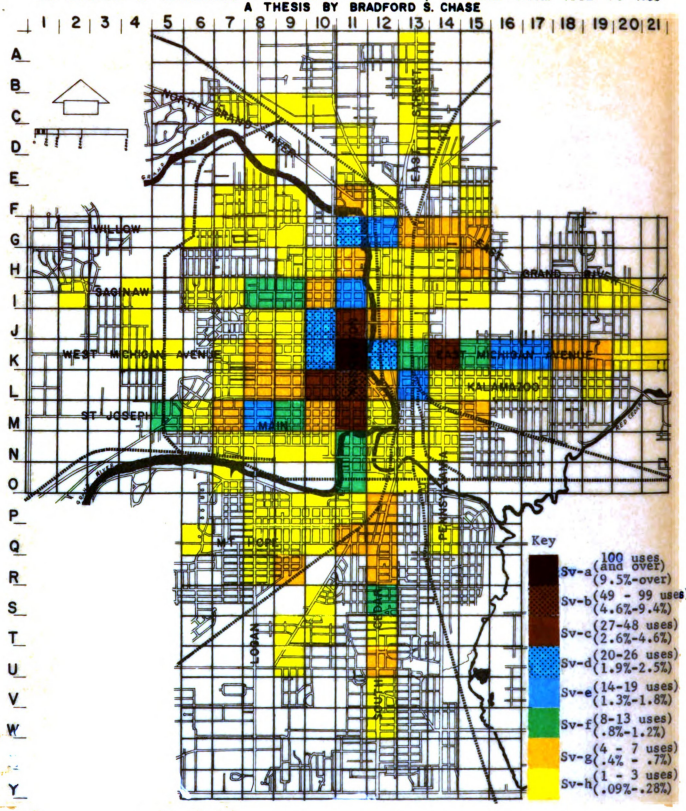
The Pattern - The service use focal points were generally confined to a focal cluster at the central area, a focal line extending from K-12 to K-19, and to a minor focal cluster at G-11 and G-12. The distribution of service focal points was similar to the distribution of shopping use focal points. Sixteen of the grid squares (Sv-a to Sv-e) accommodated over 65 per cent of the total service uses with square K-11 being, by far, the most dominant square. It is evident that the distribution of service uses in 1952 was of a concentrated nature with the central focal cluster accommodating the major portion of the uses.

P L A T E V

THE PATTERN - 1952 SERVICE USES

PLATE V

AN ANALYSIS OF COMMERCIAL USE CHANGES IN LANSING, MICHIGAN FROM 1952 TO 1959
A THESIS BY BRADFORD S. CHASE



THE [illegible] 52 SERVICE USES

Eight degrees of concentration were used in the analysis of the service use distribution.

Sv-a- This category consisted of one grid square (K-11) which was definitely the major focal point for the service category accommodating 323 or 30.6 per cent of the total.

Sv-b- This category consisted of one grid square (L-11) which contained 58 or 5.5 per cent of the total service uses. This square was located next to the Sv-a square and combined, they form a cluster comprising 36.1 per cent of the total.

Sv-c- There were four squares in this degree of concentration each containing between 27 and 48 service uses. Three of the Sv-c squares were located next to the Sv-a cluster and the other was located three grid squares distant.

Sv-d- Squares having from 20 to 26 service uses were included in this category. Four squares fell into this group, three of which were located next to Sv-a with the other some distance away as an isolated focal square.

Sv-e- There were six squares which had between 14 and 19 service uses so qualified for this category. Three of these squares were located just outside the central focal cluster; two of the squares were located as a cluster on a major street; and one of these squares was clustered with a Sv-c square.

Sv-f- A total of nine squares which contained from 8 to 13 service uses were placed in this category. The Sv-f squares were distributed away from the central cluster usually along the major streets.

Sv-g- & Sv-h
Squares of these concentration degrees contained between 1 and 7 service uses and were distributed throughout the entire pattern. There were 106 grid squares in these categories.

Wholesale commercial uses in the 1952 pattern

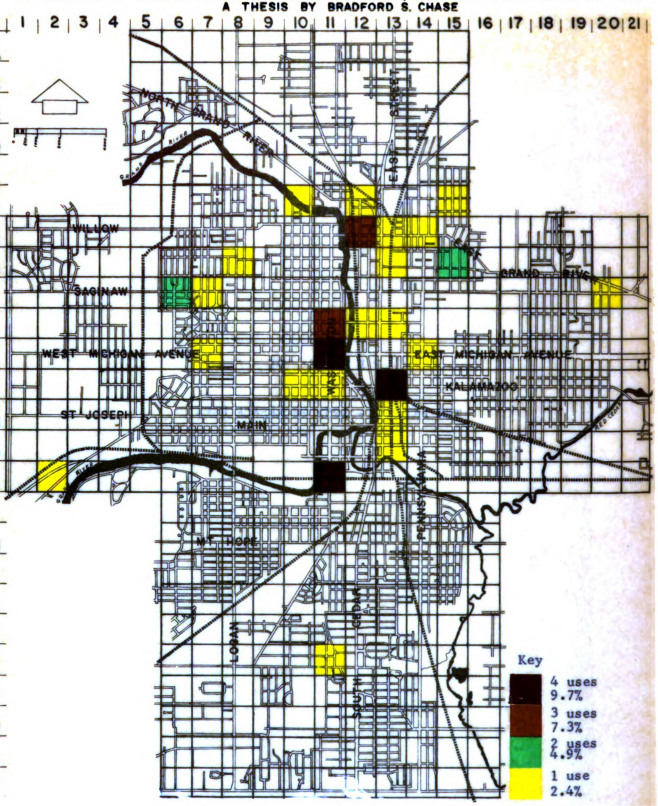
The Uses - Only those uses which the basic data clearly labeled as being wholesale are included as wholesale uses in this study. (See Appendix - Page 115) This means that uses which might have been

P L A T E VI

THE PATTERN - 1952 WHOLESALE USES

PLATE VI

AN ANALYSIS OF COMMERCIAL USE CHANGES IN LANSING, MICHIGAN FROM 1952 TO 1959
A THESIS BY BRADFORD S. CHASE



THE PATTERN - 1952 MULTIPLE USES

classified as wholesale but were not labeled as such in the city directory, have been included under other classifications. It was determined from the data that in 1952, 41 uses existed which could be classified as being of a wholesale nature.

The Pattern - Since there were only a few wholesale uses, just four degrees of concentration were used to analyze the distribution pattern. The overall distribution of the 41 wholesale uses, as seen in Plate 5, was one of dispersal, however, two groups of squares were seen to exist as generalized focal points with the remainder of the squares distributed randomly.

Central Area- This group includes J-11, J-12, J-13, K-11, K-14, L-10, L-11, L-13, M-13 and N-13. These ten squares comprised 43.8 per cent of the total wholesale uses and seemed to be a generalized wholesale use focal point.

Northern Area- This group includes F-12, F-15, G-12, G-13, G-14, H-13, and H-15. These seven squares comprised 29.3 per cent of the total number of wholesale uses and seemed to be another generalized wholesale use focal point.

Isolated Squares- Distributed elsewhere in the pattern were isolated squares which had wholesale uses in them and seemed to act as isolated minor focal points.

Summary

A majority of the commercial uses which existed in Lansing in 1952 were confined to a few focal points with each point containing a high degree of concentration. Evident in all commercial classes, was the dominance of the central area as a major focal point.

A second major focal point which accommodated all uses except wholesale, was the focal line of East Michigan Avenue (K-12 to K-21). Service and shopping uses predominated in this focal line with high

concentrations of convenience uses nucleated at major street intersections.

A third major focal point was the focal cluster G-11, G-12, and G-13 which was the intersecting area of four major streets. Convenience and shopping uses were particularly concentrated in this area, with some concentration degree of service and wholesale uses.

A last major focal point for commercial uses was the focal line extending from square M-11 south which was South Washington Avenue and South Cedar Street. Squares containing high degrees of concentration appeared on this focal line but were not confined to any one focal cluster. The squares were composed generally of shopping and convenience uses and were usually located at street intersections. There was one square containing a high degree of concentration regarding wholesale uses (O-11) but there were no squares containing high degrees of concentration regarding service uses.

Generally then, in 1952 the squares containing the highest degrees of concentration of shopping and convenience uses were located in the central area and in linear fashion along a minimum number of the major streets with the highest degrees of concentration appearing at points where streets intersected. Service uses principally located in the central area with some high concentrations distributed with shopping and convenience uses along one focal line. The wholesale uses distributed themselves in the central area as well as in the outlying areas.

C H A P T E R II

CHANGES OCCURRING IN THE LANSING COMMERCIAL USE PATTERN DURING THE PERIOD 1952 THROUGH 1959

CHAPTER II

CHANGES OCCURRING IN THE LANSING COMMERCIAL USE PATTERN DURING THE PERIOD 1952 THROUGH 1959

The concern of this chapter is principally with the locational changes which commercial uses have undergone for the period 1952 through 1959. It was apparent from Chapter I that certain highly concentrated focal points existed at specific locations in the 1952 urban pattern. Analyses in this chapter will attempt to show that over a period of time, the concentration of commercial uses change in size and composition resulting in a change in the location of major focal points for particular commercial activities.

Commercial Use Changes

If a commercial use stayed in the same location during the entire time period, it was considered in this study to be a stable use and not a commercial use change. If the same type of use existed at the same location for the entire time period but there was a change of ownership, the use was also considered stable and not a commercial use change. Following are the three types of commercial use changes considered in this study:

New Use--A firm not listed in the City Directory in 1952 but was listed in 1959

Abandonment--A firm listed in the City Directory in 1952 but was not listed in 1959

Relocation--A firm listed in the City Directory in 1952 and listed also in 1959 but at a different location

Since addresses were checked for only two years (1952 and 1959) out of the total number of years, it is recognized that a firm could have relocated more than once. It is felt, however, that enough of the relocations were obtained by the two year check to enable a significant analysis to be made of the relocation tendencies of the different commercial uses.

If a use was labeled as an abandonment, it was assumed to have either stopped operating or to have moved out of the Lansing area entirely. Also included as abandonments are firms which changed their name during the time period. These firms were almost impossible to distinguish particularly if a change in location had also occurred. Firms which changed their name and location were unavoidably listed with the new uses. It is felt, however, that firms that changed both their name and their location during the time period were few and would affect the total results little.

New Commercial Uses

Definition: A new commercial use is a firm not listed in the City Directory in 1952 but was listed in 1959.

An overall view

During the period 1952-1959, there were 702 new commercial uses that located in the study area. These uses are seen in Table 5.

TABLE 5

NUMBER OF NEW USES

Commercial use	Number of uses	Per cent of total new uses
Convenience uses	154	21.9%
Shopping uses	162	23.1%
Service uses	369	52.6%
Wholesale uses	17	2.4%
Total	702	100.0%

The figures in Table 5 are the absolute numbers of new uses and comparisons between the classes do not present a correct picture mainly because of the affect existing uses have on each commercial use class. In other words, ten service uses may be added to a pattern containing a total of one hundred service uses giving a 10 per cent increase, or two wholesale uses may be added to a pattern which contains a total of ten wholesale uses resulting in a 20 per cent increase in that class. In this case, more service uses than wholesale uses were added to the pattern but because of the number of existing uses in each class, the wholesale uses had a greater percentage increase.

In Table 6, then, the relationship between the total uses is shown as a percentage increase by commercial use class. In this manner comparisons between the classes concerning the tendency for each to add new uses is possible. This procedure will also be used in the discussions of change which follow.

TABLE 6

PERCENTAGE INCREASE OF NEW USES BY CLASS

Commercial use	Number of 1952 uses	New uses	Per cent increase
Convenience uses	780	154	19.7%
Shopping uses	424	162	38.2%
Service uses	1055	369	35.0%
Wholesale uses	41	17	41.5%
Total	2300	702	29.8%

Given the 1952 pattern of uses, it is seen from Table 6 that shopping, service, and wholesale uses had a high tendency to establish new uses. Wholesale had the greatest percentage increase whereas convenience uses had the least tendency to increase.

A look at specifics

Convenience uses

There were a total of 154 new convenience uses added during the time period. Composition of the new convenience uses is shown below.

TABLE 7

BREAKDOWN BY USE TYPE OF THE NEW CONVENIENCE USES

Convenience use type	Number of 1952 convenience uses	New uses	Per cent increase
Food stores	258	32	12.4%
Eating, drinking places	181	36	19.9%
Gasoline service sta.	160	47	29.4%
Drug stores	50	6	12.0%
Bldg. Matls., hardware	67	17	25.4%
Other convenience uses	64	16	25.0%
Total	780	154	19.7%

From Table 7 it is seen that gas stations and building materials-hardware uses increased by the most percentage during the time

period with food and drug stores increasing the least. Eating and drinking uses increased by approximately the same percentage that the total convenience uses had increased.

Shopping uses

There were 162 shopping uses added to the 1952 commercial use pattern. These uses are detailed below in Table 8.

TABLE 8

BREAKDOWN BY USE TYPE OF THE NEW SHOPPING USES

Shopping use type	Number of 1952 shopping uses	New uses	Per cent increase
Apparel stores	88	23	26.1%
General merchandise	33	10	31.3%
Furniture, home furnishings	64	27	42.2%
Automotive group	98	41	41.8%
Other shopping uses	141	61	43.3%
Total	424	162	38.2%

According to Table 8, the number of new shopping uses increased by 38.2 per cent which is a much higher percentage increase than the increase experienced by the convenience uses (Table 7). Three use types of the shopping class --furniture-home furnishings, automotive group, and the "other" group -- all had a greater percentage increase than the increase for the total shopping uses. The percentage increase of the apparel and general merchandise uses were well below the total for the class but still were considerably higher than the total increase of the convenience class. Therefore, new shopping uses showed a greater tendency to locate than did new convenience uses during the time period.

Service uses

A total of 369 uses classified as being of a service nature, were found to have established in Lansing during the time period. A breakdown of this total is seen in Table 9.

TABLE 9

BREAKDOWN BY USE TYPE OF THE NEW SERVICE USES

Service use types	Number of 1952 service uses	New uses	Per cent increase
Personal services	300	116	38.7%
Business services	257	114	44.3%
Repair services	128	76	59.4%
Professional services	362	63	17.4%
Total	1055	369	35.0%

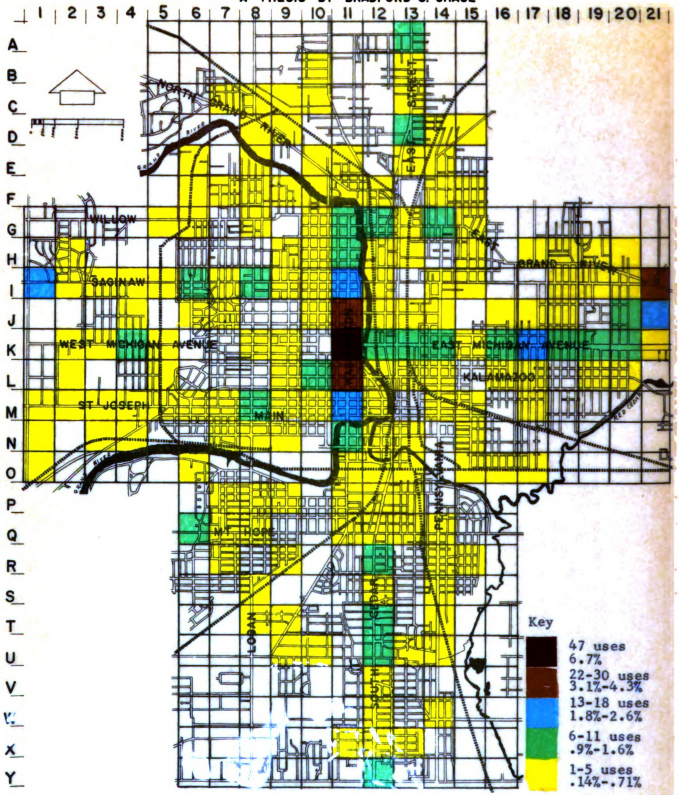
Table 9 reveals that repair services have increased by the largest percentage of any other commercial service use. Both business and personal service uses had a higher percentage increase than did the total for the class. The increase of new professional uses, compared to the other services, appears to be quite low.

P L A T E VII

THE PATTERN OF NEW COMMERCIAL USES

PLATE VII

AN ANALYSIS OF COMMERCIAL USE CHANGES IN LANSING, MICHIGAN FROM 1952 TO 1959
A THESIS BY BRADFORD S. CHASE



THE [illegible] COMMERCIAL USES

The pattern of new commercial uses

The new uses were distributed in a widely scattered manner. New high value grid squares were evident on either side of the grid system (I-1 and I-21, J-21) which are Edgemont Plaza and Frandor (two new shopping centers). Inspection of Plate VII, which is the total distribution pattern of new uses, shows the two new focal clusters which are the shopping centers and also shows the high concentration of new uses which occurred in the central area. Of note is the absence of high degrees of concentration in the focal line K-12 to K-21 which means that very few new uses located on East Michigan Avenue during the time period. Also important to note are the number of highly scattered grid squares which contain some new use concentration. This indicates that new uses located in all parts of the pattern during the time period.

Abandonments

Definition: An abandonment is a firm listed in the City Directory in 1952 but not listed in 1959.

An overall view

During the time period there was a total of 536 commercial uses which were determined to be abandonments. Details of this change category are seen in Table 10.

TABLE 10

NUMBER AND PERCENTAGE INCREASE OF ABANDONMENTS BY CLASS

Commercial use	Number of 1952 uses	Number of abandonments	Per cent of the total abandonments	Per cent decrease from 1952
Convenience uses	780	175	32.6%	22.4%
Shopping uses	424	133	24.8%	31.4%
Service uses	1055	216	40.3%	20.5%
Wholesale uses	41	12	2.2%	29.3%
Total	2300	536	100.0%	22.3%

Over 40 per cent of all the abandonments were in the service class and over 32 per cent of the abandonments were by the convenience class. Together, these two classes comprised 72.9 per cent of all the abandonments. However, when the number of commercial uses existing in 1952 are related to the abandoned uses a different set of relationships is shown.

According to Table 10, shopping uses had the most tendency to abandon their locations and service uses had the least tendency. It is seen, then, that the mortality rate in Lansing for commercial uses was the highest in the shopping and wholesale classes, and the lowest in the convenience and service classes.

A look at specifics

Convenience uses

A total of 175 convenience uses abandoned their locations during the time period. These abandonments are shown in Table 11 as they relate to the total number of convenience uses which existed in the 1952 pattern.

TABLE 11

BREAKDOWN BY USE TYPE OF THE CONVENIENCE ABANDONMENTS

Convenience use types	Number of 1952 convenience uses	Abandonments	Per cent increase
Food stores	258	67	26.0%
Eating, drinking places	181	35	19.3%
Gasoline service sta.	160	36	22.5%
Drug stores	50	10	20.0%
Bldg. matls.,hardware	67	15	23.4%
Other convenience uses	64	12	18.8%
Total	780	175	22.4%

According to Table 11, food stores and gasoline service stations had the highest mortality rate of the convenience uses, with drug stores, eating and drinking places, and the "other" convenience uses having the lowest percentage decrease. Of note is the closeness that the percentage decrease of convenience uses is to the total percentage decrease for the entire category as seen in Table 10.

Shopping uses

There were a total of 133 shopping uses which abandoned their locations during the time period. Details are given in Table 12.

TABLE 12

BREAKDOWN BY USE TYPE OF THE SHOPPING ABANDONMENTS

Shopping use types	Number of 1952 shopping uses	Abandonments	Per cent increase
Apparel stores	88	29	32.9%
General merchandise	33	5	15.2%
Furniture, home furnishings	64	21	32.8%
Automobile group	98	37	37.4%
Other shopping uses	141	41	29.1%
Total	424	133	31.4%

The mortality rate for the individual shopping use types is higher than the percentage decrease experienced by the convenience uses. The automotive group, apparel stores, and furniture-home furnishings uses were all well above the 31 per cent total mortality rate with the "other" shopping use type being just under the 31 per cent. By definite contrast, the general merchandise stores had a very low mortality rate which tends to indicate a degree of stability for this use type.

Service uses

There were a total of 216 uses which abandoned their locations during the time period and were classified under the service category. The details of these uses are shown below in Table 13.

TABLE 13

BREAKDOWN BY USE TYPE OF THE SERVICE ABANDONMENTS

Service use types	Number of 1952 service uses	Abandonments	Per cent decrease
Personal services	300	74	24.7%
Business services	257	49	19.1%
Repair services	128	48	37.5%
Professional services	362	45	12.4%
Total	1055	216	20.5%

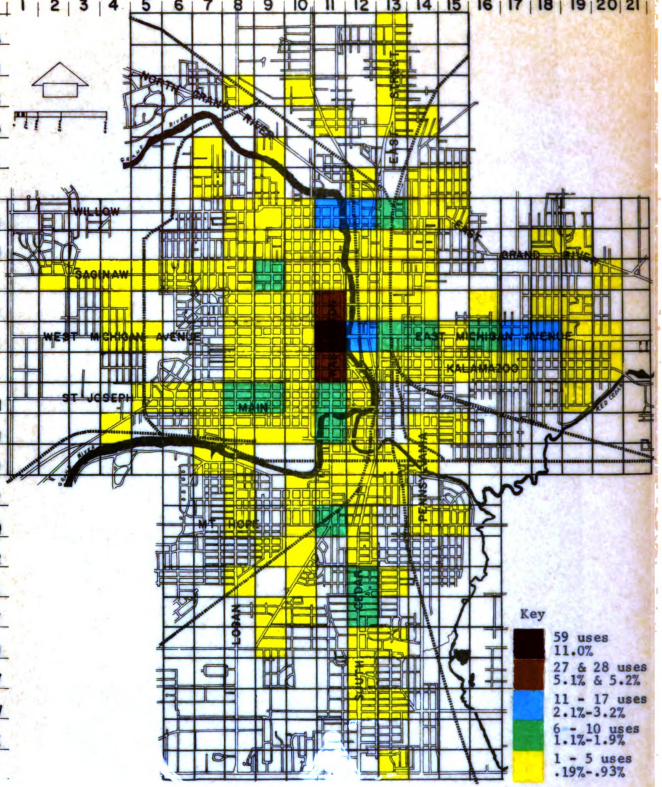
From Table 13, it is seen that repair service uses had many more abandonments than did the other services. Repair and personal service uses combined accounted for 62.2 per cent of all service use abandonments. On the other hand, professional and business services had relatively low abandonment percentages. Of note is the fact that the total percentage decrease for the service class is under the per-

P L A T E VIII

THE PATTERN OF ABANDONED COMMERCIAL USES

PLATE VIII

AN ANALYSIS OF COMMERCIAL USE CHANGES IN LANSING, MICHIGAN FROM 1952 TO 1959
A THESIS BY BRADFORD S. CHASE



THE P/ N OF ABANDONED MMERCIAL USES

centage decrease for all commercial uses as seen in Table 10.

The pattern of abandoned commercial uses

Grid square maps which were made for each of the classes showed the major abandonment focal points for each class to be in the central area. This means that the central area evidenced a loss of firms in every class during the time period.

The abandonment focal points for all classes together are shown on Plate VIII. It is seen that primarily three focal clusters existed. These clusters were the central area (11-J, K, L and K-12), the mid point in the East Michigan Avenue focal line (K-12 to K-21), and at East and West Grand River Avenue in the vicinity of the bridge (G-11, G-12 and G-13). These three areas, then, were the location in the Lansing pattern where the highest percentage of firms ceased operations.

Relocations

Definition: A relocation is a firm listed in the City Directory in 1952 and listed also in 1959 but at a different location.

An overall view

During the time period there were 348 uses which were determined to have moved from one location to another in the Lansing area. The details are given in Table 14 by class.

TABLE 14

NUMBER AND PERCENTAGE OF THE RELOCATIONS BY CLASS

Commercial use	Number of 1952 uses	Number of relocations	Per cent of the total relocations	Per cent of 1952 uses relocated
Convenience uses	780	39	11.2%	5.0%
Shopping uses	424	80	23.0%	18.9%
Service uses	1055	215	61.8%	20.4%
Wholesale uses	41	14	4.0%	34.1%
Total	2300	348	100.0%	14.8%

According to Table 14, a great number of service uses relocated during the time period and only a few of the wholesale uses shifted locations. However, when the number of relocations are related to the uses existing in 1952, the wholesale class becomes the most active in the relocation of operations (34.1 per cent). The shopping and service uses also had large relocation percentages, whereas only 5 per cent of the convenience uses shifted their locations during the time period. This observation suggests that convenience uses which exist through time have a much lower tendency to shift their locations than do the other commercial use classes.

A look at specifics

Convenience uses

The percentages for each of the convenience use types is shown in Table 15.

TABLE 15

BREAKDOWN BY USE TYPE OF THE CONVENIENCE RELOCATIONS

Convenience use types	Number of 1952 convenience uses	Relocations	Per cent of 1952 uses relocated
Food stores	258	11	4.3%
Eating, drinking places	181	9	5.0%
Gasoline service sta.	160	3	1.9%
Drug stores	50	5	10.0%
Bldg. matls., hardware	67	7	10.4%
Other convenience uses	64	4	6.3%
Total	780	39	5.0%

Examination of the data regarding convenience use types reveals that building materials-hardware and drug store uses have the highest relocation percentages in the class and gasoline service station uses have the lowest percentage. Of note is the fact that the two use types (building materials-hardware and drug stores) had twice the tendency to relocate than did the convenience class as a total. This observation means that within a class the various composite use types vary considerably regarding change.

Shopping uses

A total of 80 shopping uses were found to have relocated during the time period. Details of this class are shown in Table 16.

TABLE 16

BREAKDOWN BY USE TYPE OF THE SHOPPING RELOCATIONS

Shopping use types	Number of 1952 shopping uses	Relocations	Per cent of the total relocated
Apparel stores	88	11	12.5%
General merchandise	33	4	12.1%
Furniture and home furnishings	64	12	18.8%
Automotive group	98	15	15.3%
Other shopping uses	141	38	27.0%
Total	424	80	18.9%

The shopping use types seemed to all have about the same percentage of relocation. Listed in the "other" category were apparently many unstable shopping use types because of the high relocation percentage evident. Of note is the fact that all the shopping uses relocated by a greater percentage than any of the convenience uses. This observation means that as far as the Lansing urban pattern is concerned, shopping uses had more of a tendency to shift locations during this period than did convenience uses.

Service uses

There were a total of 215 service uses which changed their location during the time period. The details are shown in Table 17.

TABLE 17

BREAKDOWN BY USE TYPE OF THE SERVICE RELOCATIONS

Service use types	Number of 1952 service uses	Relocations	Per cent of the total relocated
Personal services	307	26	8.5%
Business services	258	76	29.5%
Repair services	128	30	23.4%
Professional services	362	83	22.9%
Total	1055	215	20.4%

From Table 17, it is seen that service uses had a fairly high tendency to relocate. This tendency is not, however, true for all services as seen by the low relocation percentage of personal services. Business services had the greatest tendency to relocate, with repair and professional services having a slightly less relocation tendency. This data indicates that in general, service uses shift locations more readily than either the shopping or the convenience classes. Specifically, however, it was found that personal service uses did not have a high relocation tendency and had a lower tendency to relocate than the shopping uses, and a higher relocation tendency than the convenience uses.

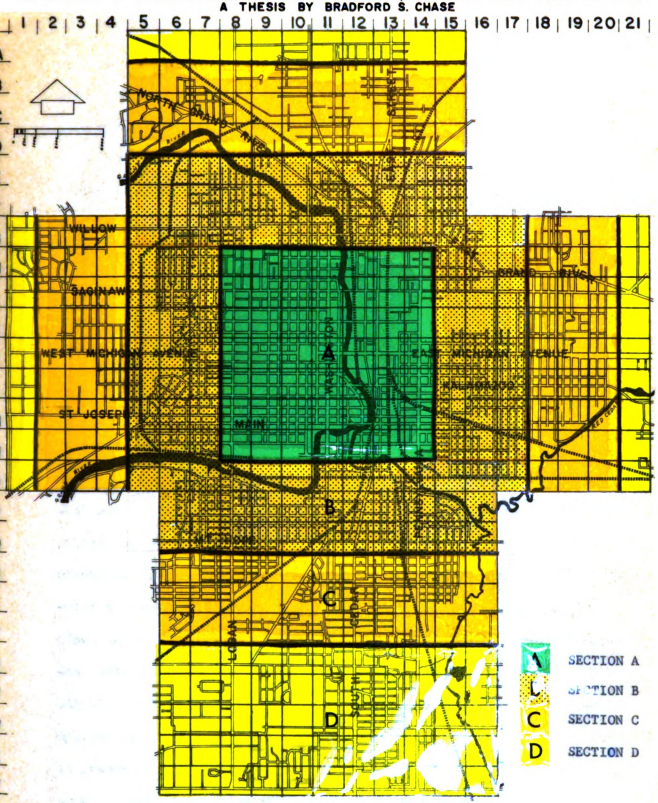
The pattern of relocations

Technique of analysis

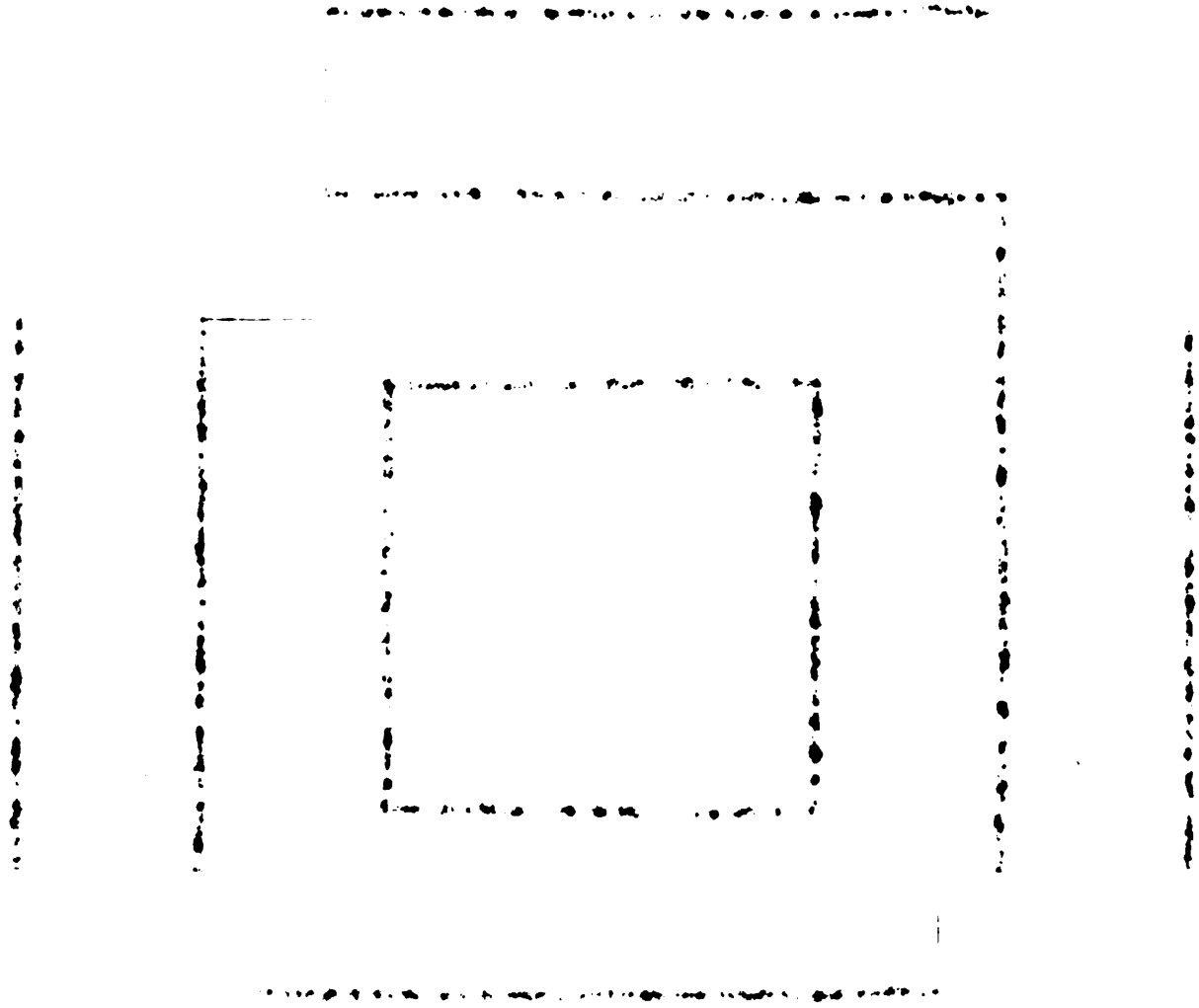
Grid square maps were made showing, by class, the distribution of the various relocated commercial uses by degree of concentration. Two maps were made for each class: one called the relocation-to map which shows the grid squares where uses which shifted location established; and the other called the relocation-from map which shows the

PLATE IX

AN ANALYSIS OF COMMERCIAL USE CHANGES IN LANSING, MICHIGAN FROM 1952 TO 1959
A THESIS BY BRADFORD S. CHASE



SECTION MAP AN...



grid squares of the uses which shifted their location. Thus for each firm that relocated, the 1952 location was plotted on the relocation-from map and the 1959 location plotted on the relocation-to map. The maps have been placed side by side to enable the relocation activity during the time period to be readily observed.

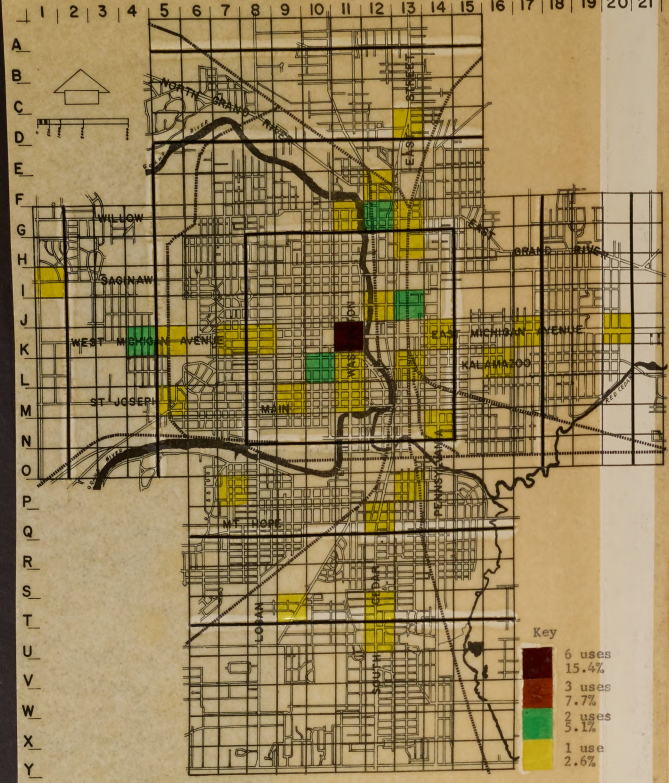
In order to show the distribution tendencies of relocating uses clearly, a technique of analysis was derived which divides the entire pattern into sections which are of equal distance from the central point in the grid system (center of grid square K-11). Observation of Plate IX reveals that there are four of these sections. Section A is that group of grid squares which are three squares distant from the central square (K-11), plus K-11. Section B is that group of squares which are from four to six grid squares from K-11. Seven to nine grid squares from K-11 is the area that is included in Section C, with all other squares in the system being included in Section D. The purpose of developing this technique is to show the number of squares which have some degree of concentration regarding relocated uses which exist in each section of the entire grid system during both the beginning and the end of the time period. By comparing the number of squares and their degree of concentration by section for the two time periods, significant insight as to the relocation activity of the various commercial use classes and use types is possible. For each class a graph is presented showing the degree to which the grid squares containing some concentration value are, or are not, uniformly distributed throughout the entire grid system.

PLATE X

CONVENIENCE USE RELOCATIONS

PLATE X

AN ANALYSIS OF COMMERCIAL USE CHANGES IN LANSING, MICHIGAN FROM 1952 TO 1959
A THESIS BY BRADFORD S. CHASE

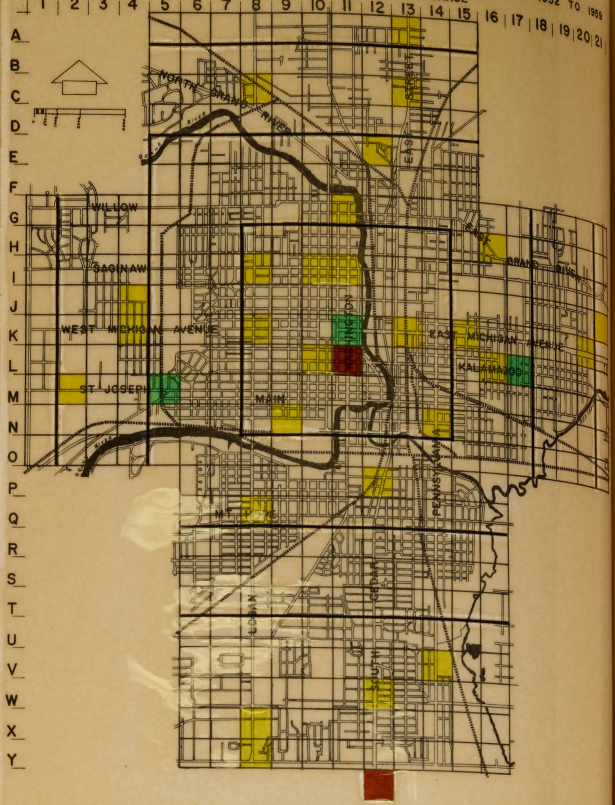


Relocation-From Squares

The 1952 Location of Firms that Relocated

PLATE X

AN ANALYSIS OF COMMERCIAL USE CHANGES IN LANSING, MICHIGAN FROM 1952 TO 1959
A THESIS BY BRADFORD S. CHASE



Relocation-To Squares

The 1959 Location of Firms that Relocated

Convenience uses

The following table presents data concerning the number and percentage of relocated uses involved in the convenience class.

TABLE 18

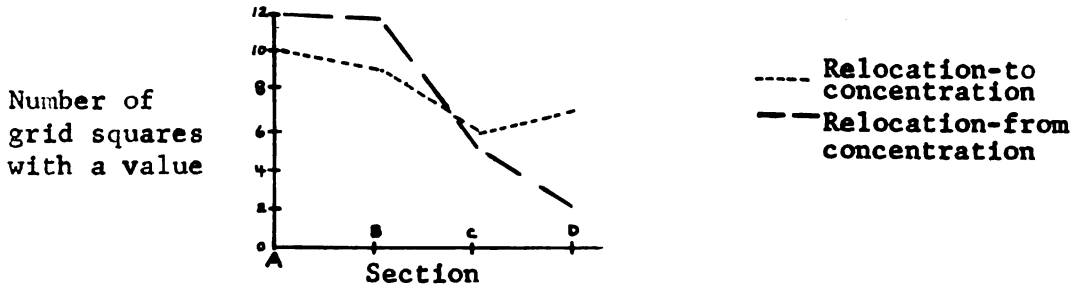
CONVENIENCE RELOCATIONS BY SECTION MAP ANALYSIS

Section	Number of relocation-from squares	Per cent of total reloc-from squares	Number of relocation-to squares	Per cent of total reloc-to squares
Section A	12	38.7%	10	31.3%
Section B	12	38.7%	9	28.1%
Section C	5	16.1%	6	18.8%
Section D	2	6.5%	7	21.9%
Total	31	100.0%	32	100.0%

Table 18 and Plate X indicate that convenience uses relocated from a fairly confined pattern to a pattern which is scattered. It can be seen from Table 18 that 77.4 per cent of the total relocation-from squares were contained within the limits of Sections A and B. By contrast, only 59.4 per cent of the relocation-to squares were located within the same limits. Even more striking is Section D for it accommodated almost 22 per cent of the relocation-to squares but had only 6.5 per cent of all the relocation-from squares.

GRAPH 1

DISTRIBUTION OF CONVENIENCE RELOCATIONS

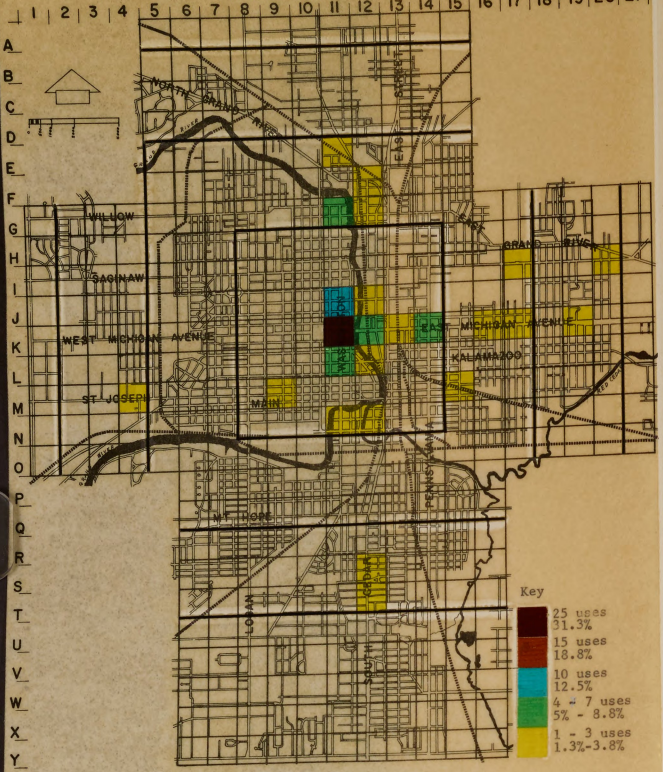


P L A T E XI

SHOPPING USE RELOCATIONS

PLATE XI

AN ANALYSIS OF COMMERCIAL USE CHANGES IN LANSING, MICHIGAN FROM 1952 TO 1959
A THESIS BY BRADFORD S. CHASE

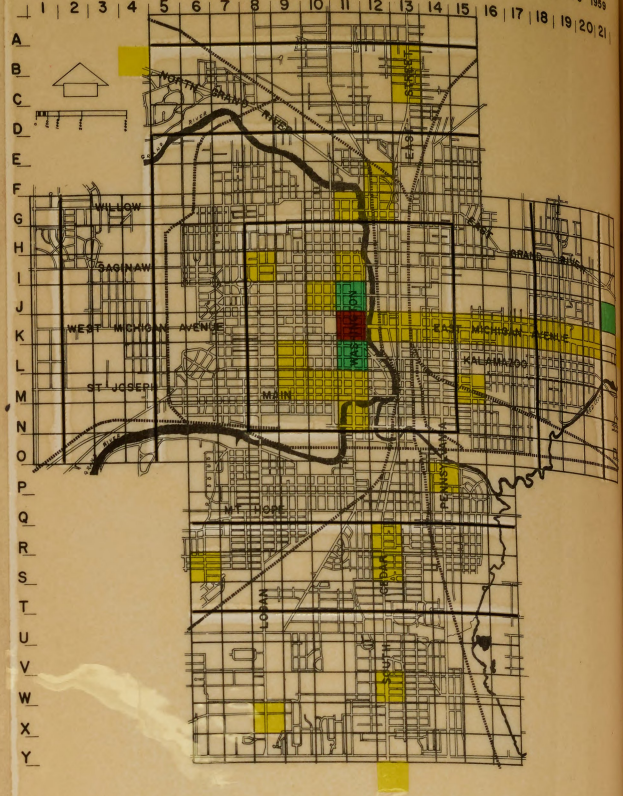


Relocation-From Squares

The 1952 Location of Firms that Relocated

PLATE XI

AN ANALYSIS OF COMMERCIAL USE CHANGES IN LANSING, MICHIGAN FROM 1952 TO 1959
A THESIS BY BRADFORD S. CHASE



Relocation-To Squares

The 1959 Location of Firms that Relocated

A much more even distribution of relocation squares was found in the relocation-to curve which means that convenience relocations, both in number and location, were fairly evenly distributed throughout the pattern. In contrast is the relocation-from curve which shows a high number of relocation squares located in Section A, with the number of relocation squares decreasing as the distance from the center increases.

Shopping uses

The distribution of shopping use relocation squares is seen in Table 19 and on Plate XI.

TABLE 19

SHOPPING RELOCATIONS BY SECTION MAP ANALYSIS

Section	Number of relocation-from squares	Per cent of total relocation-from squares	Number of relocation-to squares	Per cent of total relocation-to squares
Section A	11	45.8%	14	38.8%
Section B	8	33.3%	8	22.2%
Section C	5	20.8%	9	25.0%
Section D	0	0.0%	5	13.9%
Total	24	99.9%	36	99.9%

Almost 80 per cent of the relocation-from squares were existing within the limits of Sections A and B. In contrast to this was the fairly even distribution of squares in the relocation-to category. What was particularly striking was the contrast seen in the distribution of the relocation squares in section D. In this section, the relocation-from pattern had no relocation squares, whereas the relocation-to pattern had almost 14 per cent of its relocation squares in the D section.

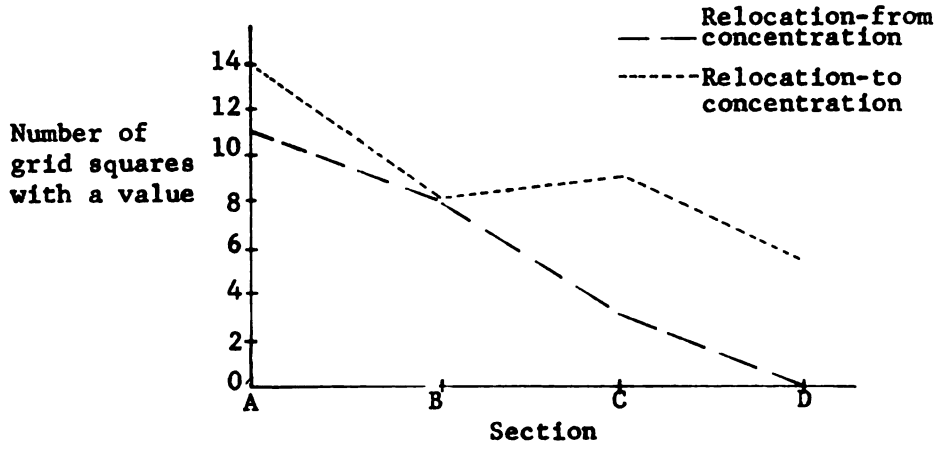
Also evident in comparing the two patterns was the fact that in

the relocation-from pattern there were fewer relocation squares but the few squares had higher degrees of concentration than the many squares which were evident in the relocation-to pattern. This data indicates that shopping uses were shifting from locations where many shopping uses were grouped to locations where only a few shopping uses were established. This indication suggests a decentralization of the shopping uses during the time period.

The distribution of the shopping use relocation squares is shown in Graph 2.

GRAPH 2

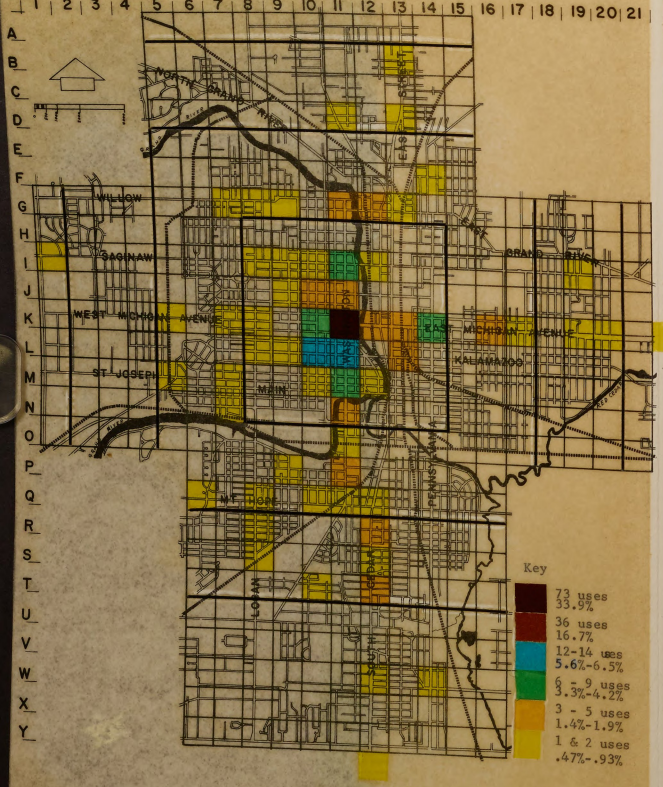
DISTRIBUTION OF SHOPPING RELOCATIONS



From the graph, it is seen that as the distance from A increases, the relocation-from squares decrease in number. In the relocation-to pattern, there was a decrease in the number of squares also, but the decrease is not as much as was found in the relocation-from pattern. Therefore, the data indicates that shopping uses which shifted location in Lansing, generally shifted from the central portion of the area to locations in the outlying parts of the area.

PLATE XII

AN ANALYSIS OF COMMERCIAL USE CHANGES IN LANSING, MICHIGAN FROM 1952 TO 1959
A THESIS BY BRADFORD S. CHASE

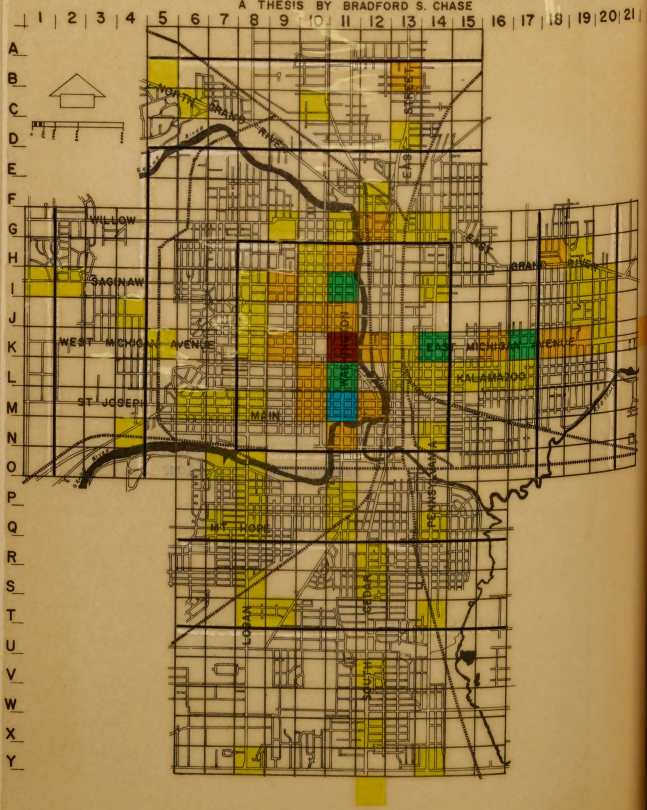


Relocation-From Squares

The 1952 Location of Firms that Relocated

PLATE XII

AN ANALYSIS OF COMMERCIAL USE CHANGES IN LANSING, MICHIGAN FROM 1952 TO 1959
A THESIS BY BRADFORD S. CHASE



Relocation-To Squares

The 1959 Location of Firms that Relocated

Service uses

The distribution of the service relocation squares is presented in Table 20 and on Plate XII.

TABLE 20

SERVICE RELOCATIONS BY SECTION MAP ANALYSIS

Section	Number of relocation-from squares	Per cent of total relocation-from squares	Number of relocation-to squares	Per cent of total relocation-to squares
Section A	23	37.1%	26	33.3%
Section B	22	35.5%	22	28.2%
Section C	12	19.3%	23	29.5%
Section D	5	8.1%	7	9.0%
Total	62	100.0%	78	100.0%

It can be seen from Table 20 and Plate XII that there were fewer service relocation squares containing a higher degree of concentration in the relocation-from pattern than there were in the relocation-to pattern. Over 72 per cent of the relocation-from squares were included in Sections A and B whereas only 61.5 per cent were in those sections of the relocation-to squares. The relocation-from pattern is seen to have fewer concentration squares than does the relocation-to pattern which is another sign that a confined pattern had partially broken up during the time period and distributed service uses over a very wide area.

The distribution of the service use relocation squares is shown in Graph 3.

P L A T E XIII

WHOLESALE USE RELOCATIONS

PLATE XIII

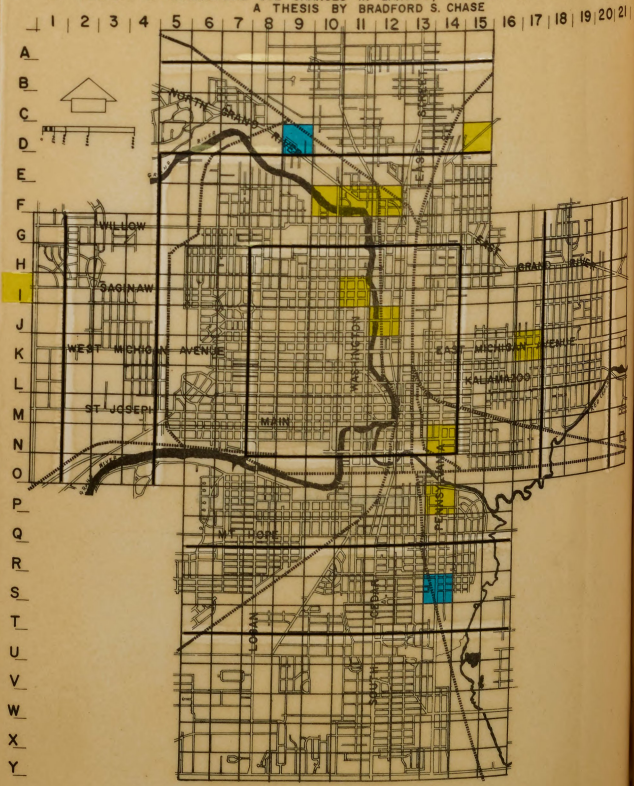
AN ANALYSIS OF COMMERCIAL USE CHANGES IN LANSING, MICHIGAN FROM 1952 TO 1959
A THESIS BY BRADFORD S. CHASE

Relocation-From Squares

The 1952 Location of Firms that Relocated

PLATE XIII

AN ANALYSIS OF COMMERCIAL USE CHANGES IN LANSING, MICHIGAN FROM 1952 TO 1959
A THESIS BY BRADFORD S. CHASE

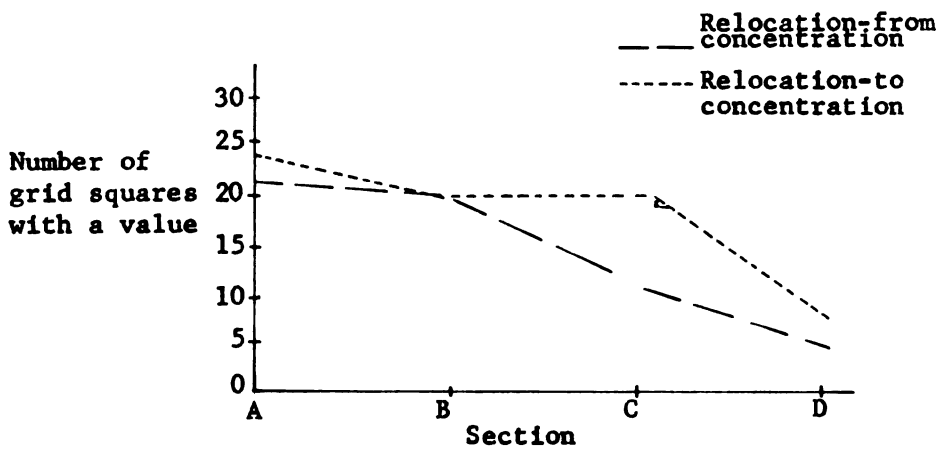


Relocation-To Squares

The 1959 Location of Firms that Relocated

GRAPH 3

DISTRIBUTION OF SERVICE RELOCATIONS



In Graph 3 it is observed that the two curves are rather close which means that the two patterns are somewhat similarly distributed. This observation is supported when Plate XII is closely inspected.

Wholesale uses

The distribution of wholesale relocation squares is shown in Table 21 and on Plate XIII.

TABLE 21

WHOLESALE RELOCATIONS BY SECTION MAP ANALYSIS

Section	Number of relocation-from squares	Per cent of total relocation-from squares	Number of relocation-to squares	Per cent of total relocation-to squares
Section A	6	54.5%	3	25.0%
Section B	5	45.5%	5	41.7%
Section C	0	0.0%	3	25.0%
Section D	0	0.0%	11	8.3%
Total	11	100.0%	12	100.0%

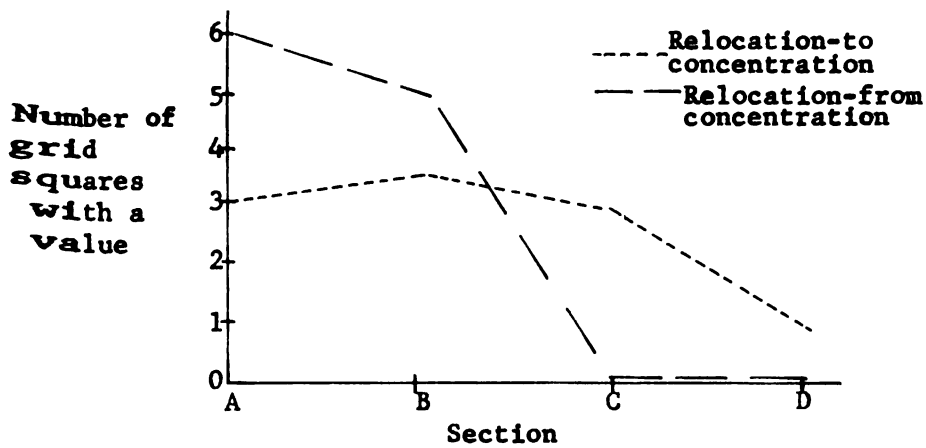
From observation of Table 21 and from Plate XIII, it is evident that a definite shift of the wholesale uses away from the central area

occurred during the time period. The relocation-to squares were distributed around the central area, whereas the relocation-from squares were found to be confined mostly to the central area.

In Graph 4, the relocation-to curve shows the wholesale relocation squares fairly evenly distributed throughout the entire pattern. In contrast, the relocation-from curve shows a definite gradation with the squares containing the high degree of concentration located in the central area and declining in degree as the distance from the center increases. The relocation-to squares contained lesser degrees of concentration and were located in areas other than the central portion of the pattern. Graph 4 supports the observation that during the time period, wholesale uses shifted from centrally located high degree concentrations to dispersed low degree concentrations.

GRAPH 4

DISTRIBUTION OF WHOLESALE RELOCATIONS



The total pattern of relocated uses

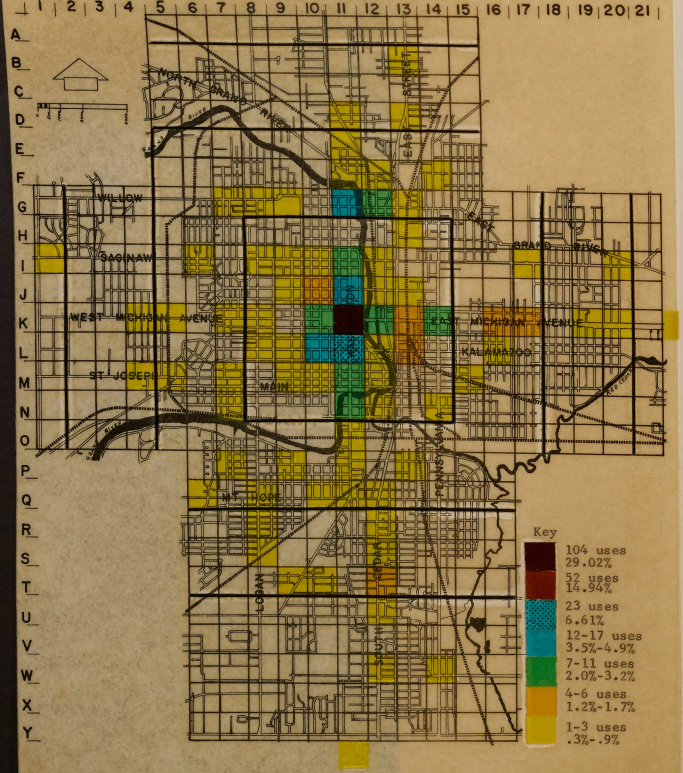
It is evident from Plate XIV that the overall pattern shows that commercial uses shifted from the grid squares containing high

P L A T E XIV

TOTAL PATTERN OF RELOCATED USES

PLATE XIV

AN ANALYSIS OF COMMERCIAL USE CHANGES IN LANSING, MICHIGAN FROM 1952 TO 1959
A THESIS BY BRADFORD S. CHASE

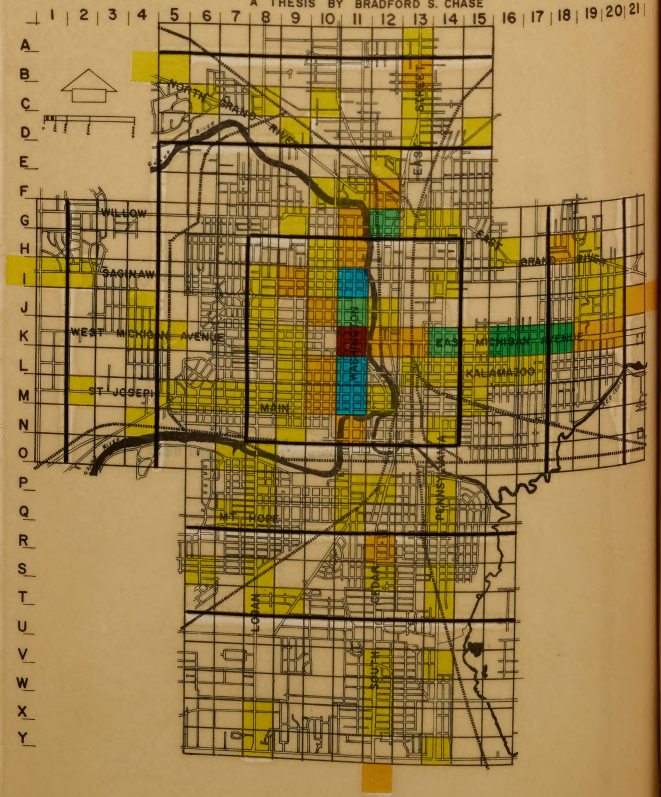


Relocation-From Squares

The 1952 Location of Firms that Relocated

PLATE XIV

AN ANALYSIS OF COMMERCIAL USE CHANGES IN LANSING, MICHIGAN FROM 1952 TO 1959
A THESIS BY BRADFORD S. CHASE



Relocation-To Squares

The 1959 Location of Firms that Relocated

degrees of concentration in the central area to squares containing lower degrees of concentration located in the outlying portion of the grid system. It is seen from Table 22 that only 82 relocation squares existed in the relocation-from pattern, whereas 106 relocation squares existed in the relocation-to pattern. This data indicates that the relocated uses were distributed from the central area to scattered locations over the entire pattern.

The relocating uses in all classes showed the tendency to shift to the outlying portions of the pattern. Plate XIV showed generally that relocations shifted from confined squares containing high degrees of concentration to dispersed squares containing low degrees of concentration spread throughout the entire pattern.

TABLE 22

TOTAL RELOCATIONS BY SECTION MAP ANALYSIS

Section	Number of relocation-from squares	Per cent of total relocation-from squares	Number of relocation-to squares	Per cent of total relocation-to squares
Section A	30	36.6%	30	28.3%
Section B	31	37.8%	31	29.2%
Section C	15	18.3%	32	30.2%
Section D	6	7.3%	13	12.3%
Total	82	100.0%	106	100.0%

The 1959 Commercial Use Pattern

An Overall View

Derivation of the 1959 commercial use pattern

The spatial distribution of commercial uses was derived for the year 1959 instead of being plotted from a 1959 city directory in order

to save mapping time (plotting, making cards, compiling a list) and also to use the derivation process as a tool for analyzing the changes which had occurred. The basis for the derivation is founded upon the concept that the 1952 commercial uses, plus the new commercial uses, minus the commercial use abandonments, plus the adjustments of relocated commercial uses, should present the 1959 commercial use pattern. The basic data for the 1952 commercial use pattern had been arranged by grid square, therefore, all the changes and the 1959 commercial use pattern data were so arranged. This arrangement made the derivation of the 1959 pattern fairly simple and provided a uniform level of analysis based upon the grid square unit.

The same degree of concentration has been assigned to the grid squares according to the number of uses existing for both the 1952 and the 1959 pattern. The percentage each square is of the total number of squares differs slightly between the 1952 and the 1959 pattern because the totals in the various classes and use types differ for the two years. That is the primarily reason for giving a percentage and numerical range on the plate keys. The maps for the two years are presented side by side and compared as far as the changes in the number of uses are concerned, and as far as general changes are concerned in the spatial distribution of the grid squares containing various degrees of concentration. In many cases, change activity either increased or decreased the degree of concentration of existing commercial use focal points, or new focal points were established.

The 1959 commercial uses

What is of interest in the 1959 commercial use pattern is the

manner in which the commercial use changes have affected the spatial distribution of commercial uses throughout the Lansing urban area during the time period. In Table 23, the number of commercial uses existing in 1952 are shown along with the percentages of change which occurred during the time period.

TABLE 23

NUMBER OF COMMERCIAL USES DERIVED FOR THE 1959 LANSING PATTERN

Commercial use class	Number of commercial uses - 1952	New uses	Abandon. uses	Net change	Number of commercial uses - 1959	Per cent change 1952-1959
Convenience	780	154	175	-21	759	-2.7%
Shopping	424	162	133	+29	453	6.8%
Service	1055	369	216	+153	1208	14.5%
Wholesale	41	17	12	+5	46	12.2%
Total	2300	702	536	+166	2466	7.2%

Note: Relocated uses have no affect on the total net commercial use change, but they are included in the plates which follow

From Table 23, it is seen that the convenience use group is the only class to decrease in the number of uses during the time period. Service uses experienced a large increase, as did wholesale uses. However, the limited number of wholesale uses have certain limitations in this analysis. The shopping uses have increased at approximately the same percentage as the increase experienced by the changes in the total number of all the classes.

The 1959 commercial use pattern

As seen in Plate XV, there were more squares with high degrees of concentration located on the major streets in 1959 than there were in 1952. The squares which are the major streets extending from the central square (K-11) have a higher degree of concentration of commer-

P L A T E XV

THE 1959 COMMERCIAL USE PATTERN

PLATE XV

THE 1959 COMMERCIAL USE PATTERN

cial uses in 1959 than existed in 1952. This data indicates that a majority of the commercial uses tended, during the time period, to locate on the major streets which extend from the central area.

Observation of the overall 1959 pattern seems to indicate a tendency for the commercial uses to be distributed over a wider portion of the urban pattern than was the case in 1952. This observation is supported by the fact that commercial uses were in only 41 per cent of the grid squares in 1952 but appeared in over 52 per cent of the grid squares in 1959. There have been noticeable increases in the number of uses at specific points in the 1959 pattern. Focal square A-13, and focal clusters I-21, J-21 and I-7, I-8, I-9 all show a large increase in the number of commercial uses and therefore were the more important focal points formed during the time period. The focal line P-12 to W-12 contained grid squares which had lower degrees of concentration in 1959 than in 1952 with more 1959 squares containing higher degrees of concentration. This means that in 1952 the commercial uses on the focal line of South Cedar Street were nucleated and confined to a few points along the street. During the time period, the nucleations tended to break up with commercial uses establishing at points all along the street. One other observation is that the 1952 central focal cluster lost a number of commercial uses during the time period but it still remained the dominant location for commercial uses in the pattern.

A Look At Specifics

Convenience commercial uses in the 1959 pattern

The Uses - Between 1952 and 1959 there was a 2.7 per cent

decrease in the number of convenience uses in the study area. The nature of this decrease is shown in Table 24.

TABLE 24

CONVENIENCE COMMERCIAL USES - 1959

Convenience uses	Number of convenience uses in 1952	New uses	Abandon uses	Net change	Number of convenience uses in 1959	Per cent change 1952-1959
Food stores	258	32	67	-35	223	-13.6%
Eating, drinking places	181	36	35	+1	182	.5%
Gasoline service stations	160	47	36	+11	171	6.9%
Drug stores	50	6	10	-4	46	8.0%
Bldg., matls., and hardware	64	17	12	+5	69	7.8%
Other convenience uses	67	16	15	+1	68	1.5%
Total	780	154	175	-21	759	2.7%

Note: Relocated uses have no affect on the total net commercial use change, but they are included in the plates which follow.

From Table 24, it is seen that the major reason convenience uses decreased as a total group was the very high decrease of food stores. As a matter of fact, the drug store category was the only other convenience use type to decrease, as all other convenience uses showed an increase. Therefore, it can be said that convenience uses during the time period decreased as a group, but most convenience use types increased individually.

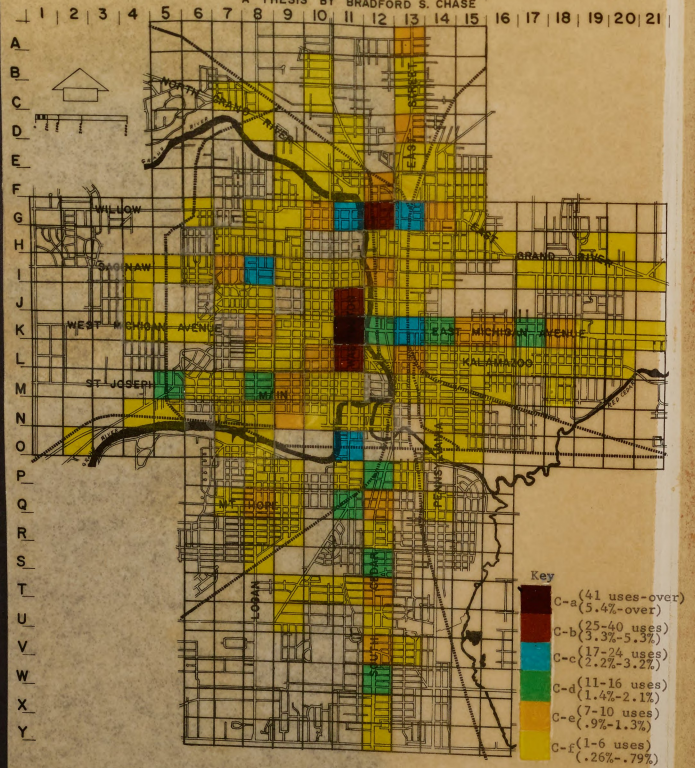
The Pattern - A comparison between the 1952 and the 1959 grid square maps indicates that some of the convenience use focal points have shifted during the time period. The pattern is shown on Plate XVI.

P L A T E XVI

THE PATTERN - 1959 CONVENIENCE USES

PLATE XVI

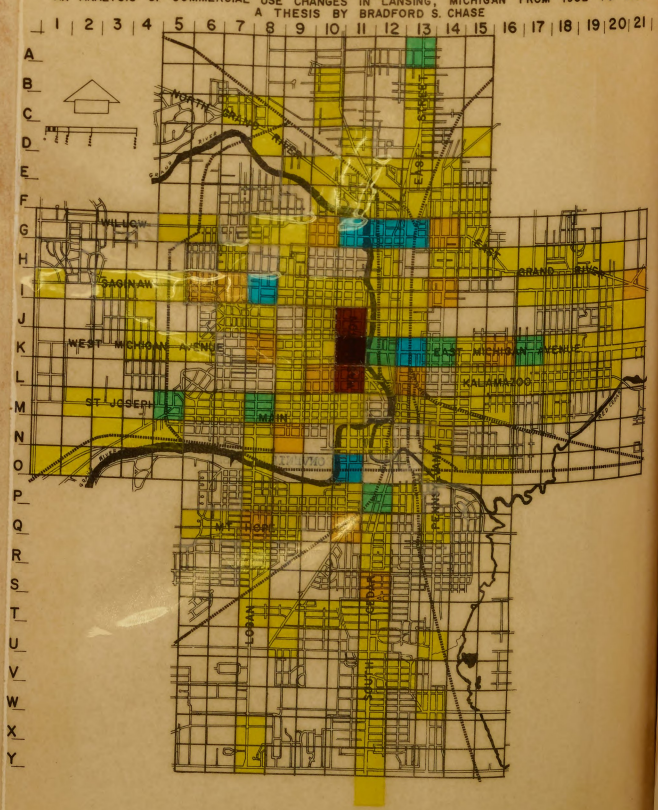
AN ANALYSIS OF COMMERCIAL USE CHANGES IN LANSING, MICHIGAN FROM 1952 TO 1959
A THESIS BY BRADFORD S. CHASE



The 1952 Convenience Uses

PLATE XVI

AN ANALYSIS OF COMMERCIAL USE CHANGES IN LANSING, MICHIGAN FROM 1952 TO 1959
A THESIS BY BRADFORD S. CHASE



The 1959 Convenience Uses

Six degrees of concentration were chosen to describe the changes which occurred in the number and location of convenience uses during the time period.

Ca - There was only one of these squares in each pattern; the one in 1959 showed a loss of nine uses. This square also had a lower percentage of the total number of convenience uses in 1959 than it had in 1952.

Cb - There were two squares of this degree of concentration in 1959 which showed a decrease of one square from the three which existed in 1952. The one that decreased is at square G-12 which was a point of two intersecting streets.

Cc - There were six of these squares in 1959 whereas there were only five in 1952. The increase of the one was due to the decrease in the C-b concentration degree.

Cd - Only seven of these squares appeared in 1959 whereas nine existed in 1952. Most of the losses in this group were on South Cedar Street which, as a whole, showed a general decrease in convenience uses. Square A-13 increased and appeared to be a growing convenience focal point.

Ce - There was a decrease of five C-e squares during the time period, most of which were on major roads. Observation of this group revealed that a new focal point was created at I-21 which was Frandor Shopping Center.

Cf - A large and quite significant increase in the number of C-f squares was evidenced in 1959. There were 112 of these squares in 1952 with the number increasing to 131 by 1959 which is almost a 17 per cent increase. An increase such as this means that convenience uses had been establishing in areas of the urban pattern where no convenience had been established previously. This indicates that a general spreading out of the convenience uses had occurred during the time period.

Shopping commercial uses in the 1959 pattern

The uses - There was a 6.8 per cent increase in the number of shopping uses during the time period. The changes concerning this increase are shown in Table 25.

TABLE 25

SHOPPING COMMERCIAL USES - 1959

Shopping uses	Number of shopping uses in 1952	New uses	Abandon. uses	Net change	Number of shopping uses in 1959	Per cent change 1952-1959
Apparel	88	23	29	-6	82	-6.8%
General merchandise	33	10	5	+5	38	15.2%
Furniture, home furnish.	64	27	21	+6	70	9.4%
Automotive group	98	41	37	+4	102	4.1%
Other shopping	141	61	41	+20	161	14.2%
Total	424	162	133	+29	453	6.8%

Note: Relocated uses have no effect on the net commercial use changes, but they are included in the plates which follow

It is seen from Table 25 above that even though there was an increase in the total number of shopping uses, apparel stores decreased by 6.8 per cent. General merchandise uses increased the most in the shopping class with a 15.2 per cent increase and the automotive group increased the least of the class with a 4.1 per cent increase.

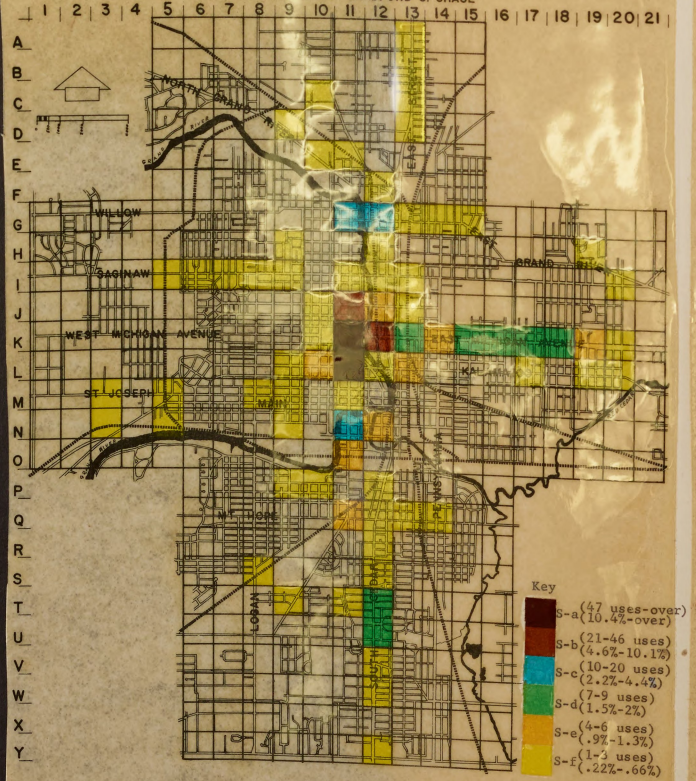
The Pattern - Comparison between the two grid square maps indicates that shopping uses had established new focal points in the urban area. The pattern is shown on Plate XVII.

PLATE XVII

THE PATTERN - 1959 SHOPPING USES

PLATE XVII

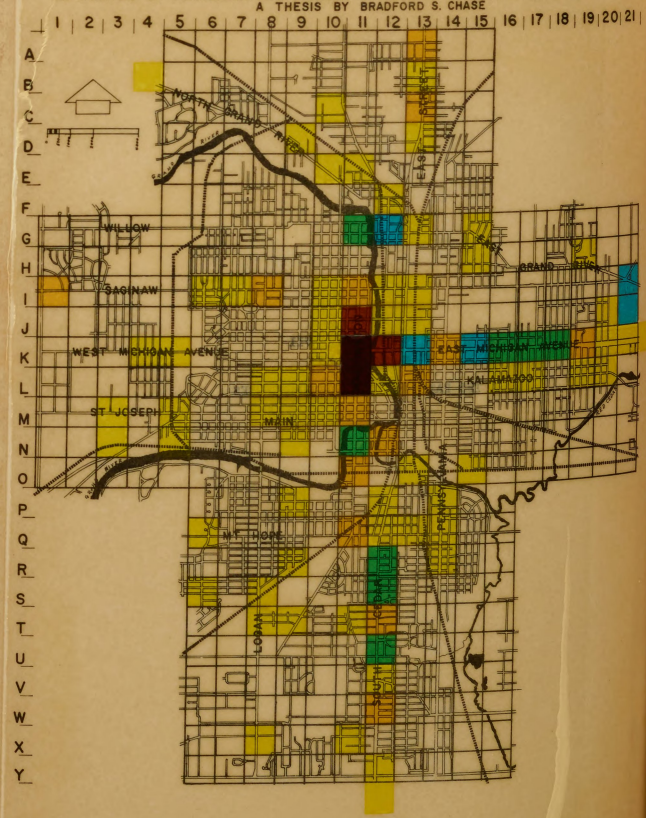
AN ANALYSIS OF COMMERCIAL USE CHANGES IN LANSING, MICHIGAN FROM 1952 TO 1959
A THESIS BY BRADFORD S. CHASE



The 1952 Shopping Uses

PLATE XVII

AN ANALYSIS OF COMMERCIAL USE CHANGES IN LANSING, MICHIGAN FROM 1952 TO 1959
A THESIS BY BRADFORD S. CHASE



The 1959 Shopping Uses

Six degrees of concentration describe the changes in the number and location of shopping uses during the time period.

Sa - This degree of concentration appeared in the same two squares (K-11, L-11) in both 1952 and 1959; however, significant changes occurred within them just the same. In 1959 there was a 6.8 per cent decrease in the number of shopping uses accommodated in these two squares. Of particular note is the percentage that the two squares are of the total number of shopping uses. In 1952 the two squares together comprised 34.9 per cent of all shopping uses and in 1959 the two squares only held 17.7 per cent of the total number of shopping uses.

Sb - Grid squares J-11 and K-12 in both maps showed the same degree of concentration. A small decrease had occurred concerning percentage these squares are of the total number of shopping uses. In 1952 the two squares accommodated 13.7 per cent of the total shopping uses and in 1959 their share had decreased to 11.5 per cent.

Sc - There were only three of these squares in 1952 and there were five in 1959. All of the five in 1959 showed an increase during the time period except one which was G-12 and was part of a focal point that was decreasing. A significant increase in the number of shopping uses was evident in squares I-21 and J-21 which is Frandor Shopping Center. Also, an increase in the squares with this degree of concentration was evident on East Michigan Avenue.

Sd - There was an increase of one in the number of squares having this degree of concentration. Observation of the S-d squares revealed that South Cedar Street had increased in its number of shopping uses and the focal cluster at G-11 and G-12 had decreased in the number of commercial uses.

Se - There were fifteen grid squares of this degree of concentration in 1959 whereas there were only eight in 1952. Most of these squares were located on major roads but not necessarily side by side.

Sf - There was an increase of six squares containing this degree of concentration during the time period. The increase means that shopping uses located in areas which previously did not have them.

Service commercial uses in the 1959 pattern

The uses - Service uses increased by the largest percentage of any of the classes during the time period. The changes which caused this increase are shown in Table 26.

TABLE 26

SERVICE COMMERCIAL USES - 1959

Service uses	Number of service uses in 1952	New uses	Abandon. uses	Net change	Number of service uses in 1959	Per cent change 1952-1959
Personal	307	116	74	+42	349	13.7%
Business	258	114	49	+65	323	25.2%
Repair	128	76	48	+28	156	21.9%
Professional	362	63	45	+18	380	4.9%
Total	1055	369	216	+153	1208	14.2%

According to Table 26, business and repair service uses showed the highest increase of the class. Professional service uses increased well under the total increase for the group, with personal service uses showing a moderate increase.

The Pattern - In general, a comparison between the two patterns showed a decrease in the number of service uses in the central area and an increase in the number of service uses on highways extending from the central area. East Michigan Avenue (K-12 to K-21) has points of increase in service uses as does North Washington Avenue (G-11, H-11, I-11). The pattern is shown on Plate XVIII.

P L A T E XVIII

THE PATTERN - 1959 SERVICE USES

PLATE XVIII

AN ANALYSIS OF COMMERCIAL USE CHANGES IN LANSING, MICHIGAN FROM 1952 TO 1959
A THESIS BY BRADFORD S. CHASE

The 1952 Service Uses

PLATE XVIII

AN ANALYSIS OF COMMERCIAL USE CHANGES IN LANSING, MICHIGAN FROM 1952 TO 1959
A THESIS BY BRADFORD S. CHASE

The 1959 Service Uses

Eight degrees of concentration are analyzed below concerning the changes in the number and location of service uses during the period.

Sva - Grid square K-11 had 323 service uses in 1952 but had only 290 in 1959 which is over a 10 per cent decrease. K-11 also had 7 per cent less of the total number of service uses in 1959 than it had in 1952.

Svb - Grid square L-11 contained this degree of concentration and contained approximately the same number of service uses during both 1952 and 1959. However, because of the increase in the number of service uses in the outlying areas during the time period, L-11 accommodated less of the total uses in 1959.

Svc - There were five of these squares in 1959 which was one more than existed in 1952. Four of these squares were located in the central area; one was located on E. Michigan Avenue during both years.

Svd - There were only two of these squares in 1959 which is a decrease of two during the time period. The two that existed in 1959 were both found on E. Michigan Avenue, one of which was a service use focal point. The decrease concerning the number of these squares was very evident in the central area.

Sve - There were six of these squares in 1959 which is the same number that existed in 1952. Three of these squares in a cluster were located at G-11 which showed a decrease in the value of the focal cluster but an increase in the area covered by higher value squares. In 1929, the focal square K-17 on E. Michigan Avenue showed an increase in the number of service uses accommodated.

Svf - There were eight more of these squares in 1959 than there were in 1952. The increase is an 88 per cent rise in the number of Sv-f squares. Six of the new Sv-f squares were at points where the number of service uses increased while only two of the new squares lost service uses. Of note is the fact that the new Sv-f squares are all located on major streets.

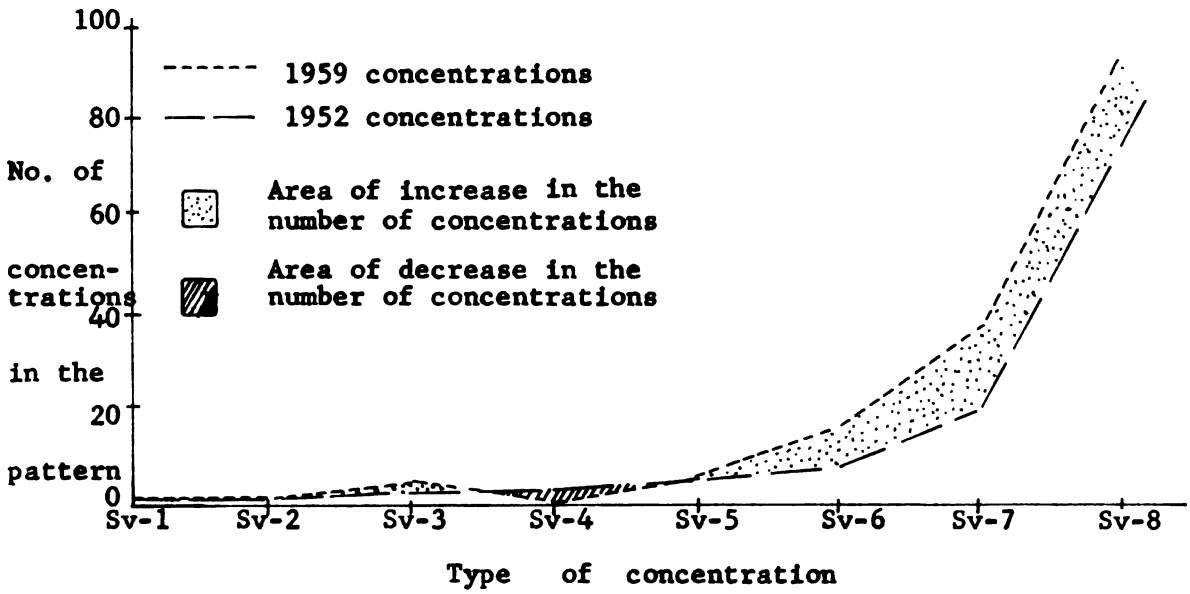
Svg -

Svh - During both years, these squares were distributed throughout the entire urban area. There were 39 of the Sv-g type in 1959 which is an increase of 16 squares or 69.5 per cent. There was also an increase of 16 Sv-h type squares in 1959 which was a 19.2 per cent increase.

There seemed to be a general decentralization of service uses during the time period. This observation is supported by Graph 5 below which shows a general tendency for the service squares of high concentration degree to decrease in total number of service uses and low value squares to increase in number of uses.

GRAPH 5

DISTRIBUTION OF SERVICE SQUARES



Wholesale commercial uses in the 1959 pattern

The uses - During the time period there was an increase of five establishments which were determined to be of a wholesale nature. The limitations of this category are discussed elsewhere in this study.

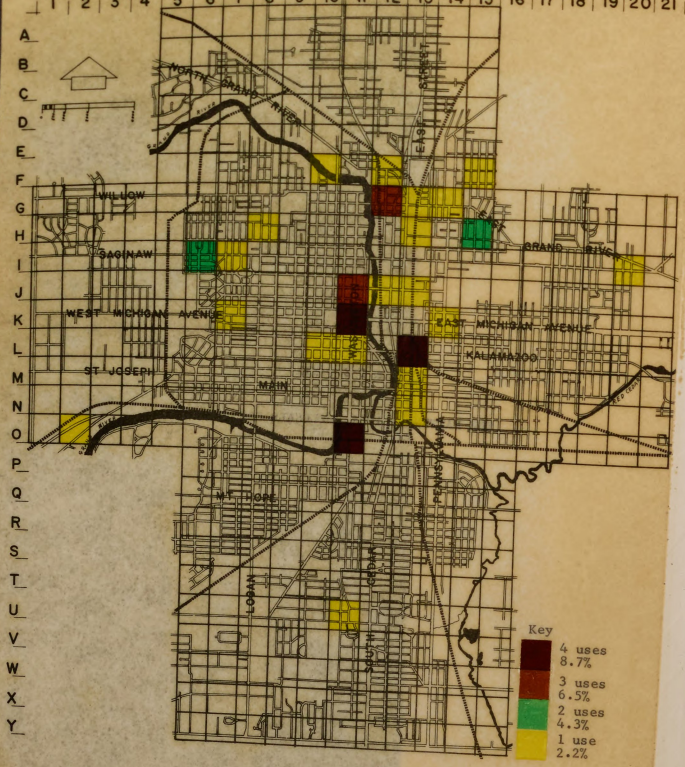
The pattern - It is obvious from observing Plate XIX that a decentralization of wholesale uses had occurred during the time period.

P L A T E XIX

THE PATTERN - 1959 WHOLESALE USES

PLATE XIX

AN ANALYSIS OF COMMERCIAL USE CHANGES IN LANSING, MICHIGAN FROM 1952 TO 1959
A THESIS BY BRADFORD S. CHASE



The 1952 Wholesale Uses

PLATE XIX

AN ANALYSIS OF COMMERCIAL USE CHANGES IN LANSING, MICHIGAN FROM 1952 TO 1959
A THESIS BY BRADFORD S. CHASE

The 1959 Wholesale Uses

There were primarily four general areas in the grid system where groups of wholesale uses were located.

The central area - The size and number of the squares located in this general area have decreased considerably. Grid square K-11 remained the same but squares L-13 and J-11 decreased with an increase evident in J-13. Approximately 44 per cent of the wholesale uses were located in this area in 1952, whereas in 1959 only 30 per cent were located there.

The northern area - This area is the location of the wholesale use growth during the time period. An increase in the number of wholesale uses is seen in squares F-12, H-15, and F-10, plus four other squares with some value were added.

New focal point - The establishment of S-14 with other new squares with value nearby, shows this general area to be a new major wholesale focal point which had been established since 1952. Worth mentioning is the decrease in value of grid square 0-11.

Isolated concentrations - There are more squares with a low degree of concentration and less squares containing a high degree of concentration in 1959 than there were in 1952. The squares with value in 1959 spread to all parts of the urban area from essentially the centrally oriented character of the 1952 pattern.

Net Commercial Use Changes

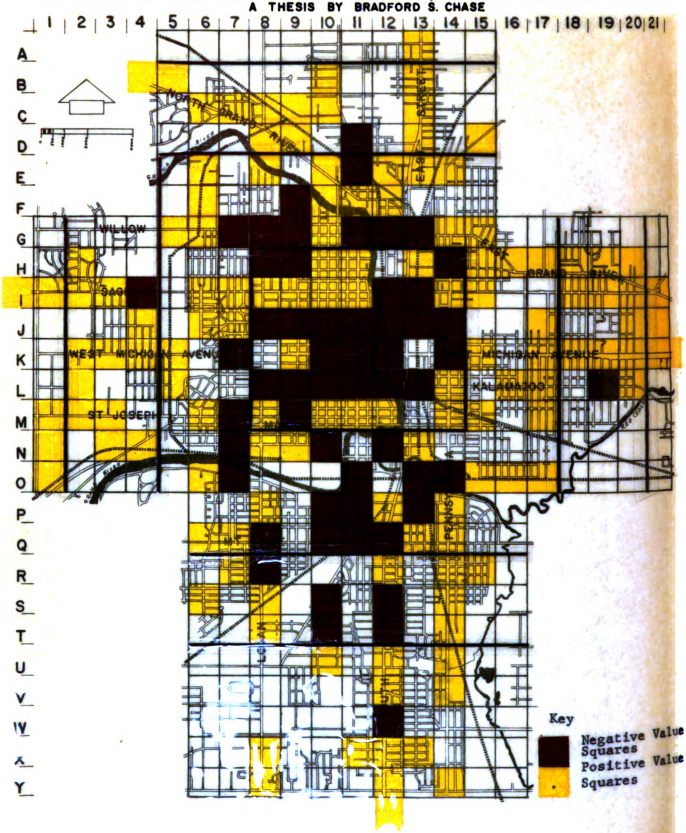
The purpose of this section is to show those areas in the pattern where commercial uses were established and those areas in which commercial uses decreased during the time period. From the previous change analyses, it was observed that commercial uses had decreased in the central part of the area and increased in the outlying portion of the area. This observation is supported by the net change map shown as Plate XX.

PLATE XX

NET COMMERCIAL USE CHANGES

PLATE XX

AN ANALYSIS OF COMMERCIAL USE CHANGES IN LANSING, MICHIGAN FROM 1952 TO 1959
A THESIS BY BRADFORD S. CHASE



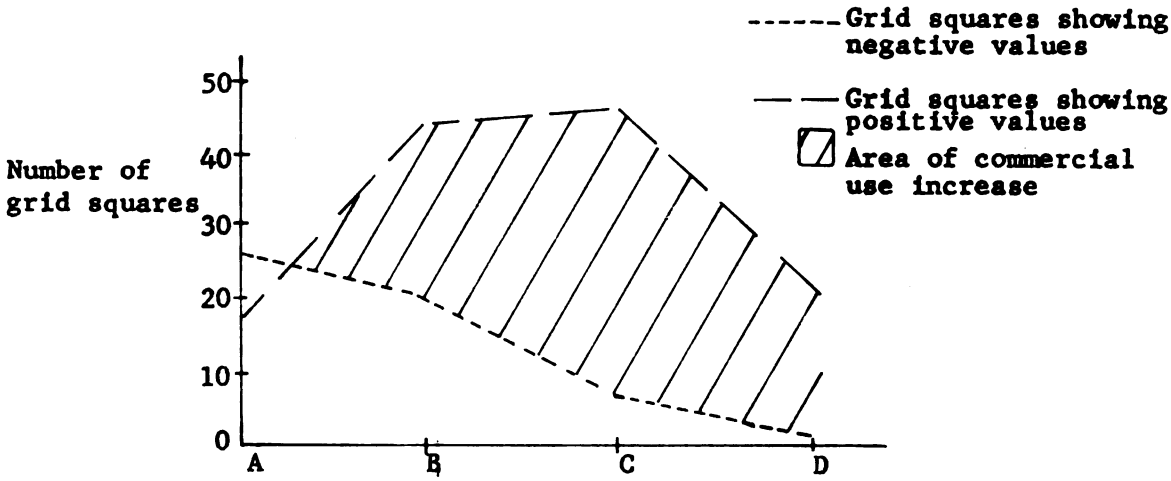
NET COMMERCIAL USE CHANGES

In preparing Plate XX, the total commercial use changes were calculated for all the grid squares which contained any commercial uses at all. The new uses and the relocation-to changes were then subtracted from the abandonments and the relocation-from changes, resulting in either a negative, a positive, or a zero value. The squares containing a zero value were left blank for they had no actual net value. The zero squares may have had commercial use changes but the net total of uses gained minus the uses lost was zero.

Plate XX shows a predominance of negative squares located in Section A. The section technique, similar to that used previously, shows, in Graph 6, that there was a definite increase of the positive grid squares in the outlying portions of the pattern.

GRAPH 6

DISTRIBUTION OF NET CHANGE SQUARES



According to Graph 6, more net negative grid squares existed in Section A than there were net positive squares. This means that in Section A, the predominant tendency was for commercial uses to leave

their locations without being replaced by other commercial uses. In Sections B, C, and D, a majority of the 1959 commercial uses exceeded the number of uses which existed in that area in 1952; therefore, more squares of positive value are evident. The number of net use changes by each section is shown on Table 27.

TABLE 27

NET COMMERCIAL USE CHANGES BY SECTION AND CLASS

	Section			
	Sec. A	Sec. B	Sec. C	Sec. D
Net number of commercial uses in the negative squares	-154	-57	-17	-2
Net number of commercial uses in the positive squares	+81	+85	+126	+104
Net number of commercial uses by section	-73	+28	+109	+102

	Class			
	Sec. A	Sec. B	Sec. C	Sec. D
Net number of commercial uses by section	-73	+28	+109	+102
Convenience uses	-45	-9	+11	+22
Shopping uses	-25	+2	+18	+34
Service uses	+3	+37	+69	+44
Wholesale uses	-6	-2	+11	+2

The information for the above table was gathered by actually counting the net number of commercial use changes in all the positive

and negative squares for each class and then condensing the data by section. An analysis of the above table is shown below by section.

Section A This section had a net total loss of 73 commercial uses over half of which were convenience type uses. Shopping uses also showed a large net loss.

Section B A net of 28 commercial uses was experienced in this section, a majority of which were service uses.

Section C Showed a net increase of 109 uses over half of which were of a service use nature. All classes of uses showed a net increase in their numbers in this section.

Section D This section had a net increase of 102 uses. The shopping and service classes contributed a majority of these uses with many also from the convenience class.

Summary

Service uses were the most dynamic of all the commercial uses during the time period. The service uses had the greatest tendency to relocate, many new service uses were added, and a few service uses were abandoned. Convenience uses were very stable having few abandonments, few uses added, and very few relocated. Shopping uses demonstrated some tendency to relocate, however, this class showed a greater tendency to either abandon a location or start a new operation. Although only a limited number of wholesale uses were included, the class did demonstrate a tendency to shift location readily. Therefore, it was found that convenience uses were fairly stable during the time period, shopping uses were being abandoned and created, wholesale uses readily shifted their location, and service uses dynamically added uses and readily shifted locations.

The distribution of the changing uses was one of dispersal. The central area was found to contain squares of less value in 1959 than existed in 1952. Also, the outlying area showed more squares which exhibited some degree of concentration. This means that the major focal points existing in 1952 have tended to become less intensive in number of uses that they accommodate with the complimenting activity occurring regarding the creation of more squares in the outlying area containing a small degree of concentration.

The new focal points which formed during the time period were located on the major streets which extended from the central area and in two focal clusters which were two newly-formed shopping centers. The shopping centers showed that the increase in shopping uses was due mainly to a few shopping use relocations and many new shopping uses being established. The many squares containing a small degree of concentration which were newly created, primarily in the outlying portion of the pattern, were mainly the result of the dynamic activity of the service uses which were found to have been distributed in all parts of the urban area.

C H A P T E R III

ANALYSIS OF THE CHANGE OCCURRING IN TWO MAJOR COMMERCIAL USE FOCAL POINTS

CHAPTER III

ANALYSIS OF THE CHANGE OCCURRING IN TWO MAJOR COMMERCIAL USE FOCAL POINTS

It has been seen throughout the study that there are primarily two major centers, or focal points, of commercial activity in the Lansing urban pattern. These focal points are the central business area, a focal cluster, and East Michigan Avenue, a focal line. An analysis of these two focal points as to their commercial use change activity was considered to be of great benefit to the study as a whole. It was felt that an analysis of these specific focal points might give more insight as to the nature of the change activity which has occurred during the time period. Also, more specific analysis is made possible regarding minor focal squares which exist as part of the focal point complex.

East Michigan Avenue

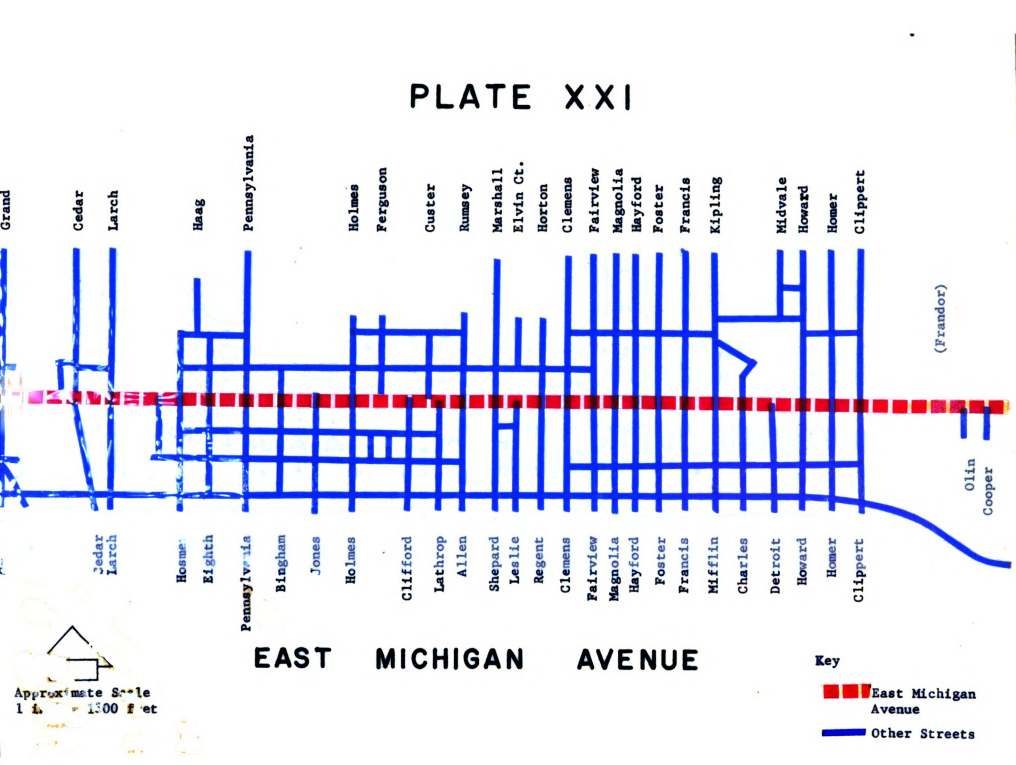
An overall view

East Michigan Avenue is a main highway located between Lansing and East Lansing and is approximately three miles in length. The east end of the Avenue is in the East Lansing central business area and the west end is in the Lansing central business area at the State Capitol Building site. Earlier in this study, it was shown that East Michigan Avenue accommodated a large portion of the total number of commercial

GRID SQUARES

L-12	L-13	L-14	L-15	L-16	L-17	L-18	L-19	L-20	L-21
K-12	K-13	K-14	K-15	K-16	K-17	K-18	K-19	K-20	K-21
J-12	J-13	J-14	J-15	J-16	J-17	J-18	J-19	J-20	J-21

PLATE XXI


Grand
Cedar
Larch
Haag
Pennsylvania
Holmes
Ferguson
Custer
Rumsey
Marshall
Elvin Ct.
Horton
Clemens
Fairview
Magnolia
Hayford
Foster
Francis
Kipling
Midvale
Howard
Homer
Clippert
(Frandor)
Olin
Cooper
Cedar
Larch
Hosmer
Eighth
Pennsylvania
Bingham
Jones
Holmes
Clifford
Lathrop
Allen
Shepard
Leslie
Regent
Clemens
Fairview
Magnolia
Hayford
Foster
Francis
Mifflin
Charles
Detroit
Howard
Homer
Clippert
EAST MICHIGAN AVENUE
Approximate Scale
1 inch = 1500 feet
Key
East Michigan Avenue
Other Streets

uses in the Lansing area. This section is an examination of the number, type, and distribution of commercial uses along the Avenue in an attempt to find any minor commercial use focal points which exist within the focal line. The aim of this section also is to describe any changes which have occurred in the composite focal squares and to the entire line during the selected time period.

East Michigan Avenue applied to the grid system falls under the grid squares K-11 to K-21 (See again Plate I). Grid square K-11, however, has been determined to be one part of the Central Business District therefore, it is not included in this analysis of the Avenue. Each grid square contains approximately thirty nine acres or nine city blocks. The section of East Michigan Avenue which is included in this study extends from the point where the Grand River crosses the Avenue and extends 2.6 miles east near the East Lansing city limits at Cooper Street. (See Plate XXI)

There was a total of 295 commercial uses located on East Michigan Avenue in 1952, which was 12.2 per cent of all commercial uses existing in the entire Lansing area at that time. In 1959, there was a total of 302 commercial uses on the Avenue which is a 2.3 per cent increase in the total number of commercial uses on the focal line and is 12.2 per cent of the total number of uses in the study area. All types of commercial uses did not show an increase, however, as seen in Table 28. Also noted in this table is the similarity in the percentages of the four commercial use classes in both 1952 and 1959.

TABLE 28

COMMERCIAL USES ON EAST MICHIGAN AVENUE BY CLASS

Commercial uses	Number of uses on E. Mich. Ave.		Number of uses in study area		Per cent E. Mich. Ave. to study area	
	1952	1959	1952	1959	1952	1959
Convenience uses	90	76	780	759	11.8%	10.0%
Shopping uses	80	83	424	453	18.9%	18.3%
Service uses	124	143	1055	1208	11.8%	11.8%
Wholesale uses	1	0	41	46	2.4%	0.0%
Total	295	302	2300	2466	12.2%	12.2%

According to the above table, even though there was an increase in the number of shopping uses, the Avenue accommodated a slightly less percentage of the total number of commercial uses existing in 1959. There was a decrease of 15.6 per cent in the number of convenience uses, an increase of 13.3 per cent in the number of service uses, and a slight increase (3.8 per cent) in the number of shopping uses the Avenue accommodated during the time period. There was only one wholesale use on the Avenue in 1952 and it had disappeared by 1959.

During the time period, there was considerable commercial change activity occurring on East Michigan Avenue which the gross figures in Table 28 do not show. Table 29 presents the commercial use changes which occurred on the Avenue specifically by class.

TABLE 29

COMMERCIAL USE CHANGES ON EAST MICHIGAN AVENUE BY CLASS

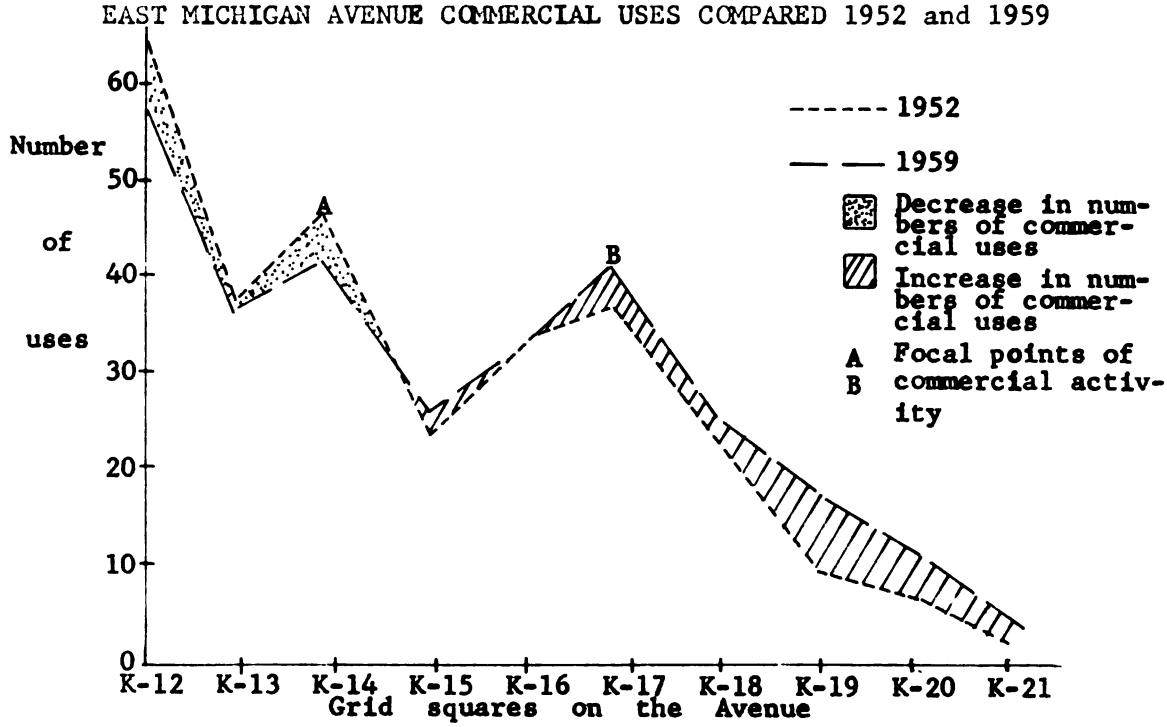
Commercial uses	E. Mich. Ave. uses 1952	New uses	Abandon uses	Relo- from	Relo- to	Net	E. Mich. Ave. uses 1959
Convenience uses	90	11	25	3	3	-14	76
Shopping uses	80	32	32	15	18	+3	83
Service uses	124	32	23	23	33	+19	143
Wholesale uses	1	0	1	1	1	-1	0
Total	295	75	81	42	55	+7	302

From Table 29, it is seen that most of the net loss of the convenience uses occurred because of abandonments. The increase in the number of service uses was partly due to a net gain of new uses over those uses which abandoned their locations in the area, and partly due to the relocation of more uses into the area than moved out. The increase in shopping uses was due to a net gain in the number of these uses relocating into the area.

An interesting comparison between the commercial uses which existed on the Avenue during the time period is shown on Graph 7. The graph clearly shows the change in the distribution of the commercial uses as they established in various locations along the Avenue. The graph also shows characteristics regarding the location of the major focal squares along the Avenue.

GRAPH 7

EAST MICHIGAN AVENUE COMMERCIAL USES COMPARED 1952 and 1959



One thing of note in Graph 7 is the decrease in the numbers of commercial uses as the distance from the center of the whole urban area (from grid square K-12) increases. This gradation appears to be characteristic regarding the distribution of commercial uses along some of the major streets in the Lansing area. Of particular significance in the graph are squares K-14 and K-17 which are the major commercial use focal points for all the commercial uses which lie along the Avenue. Focal square K-14 has decreased in the number of uses during the time period, but is still considered a major focal point of commercial activity. Focal square K-17 shows an increase in the number of uses during the time period.

A look at specifics

The changes in the distribution and number of commercial uses along Michigan Avenue have added significance when analyzed by individual use types, for it can be shown that the gross class changes do not always reflect the change activity of all the composite use types. Each type of commercial use changes in a different manner in relation to the number of uses either gained or lost and in its manner of spatial distribution over time.

Convenience commercial uses

There was a 15.6 per cent decrease in the numbers of convenience uses existing on East Michigan Avenue during the time period. As seen in Table 30, most of this decrease was due to the abandonment of food stores. This probably means that many of the small neighborhood grocery stores went out of business during this time. This supposition seems quite logical in the light of the increased acceptance by the

public of the large super-market facility.

TABLE 30

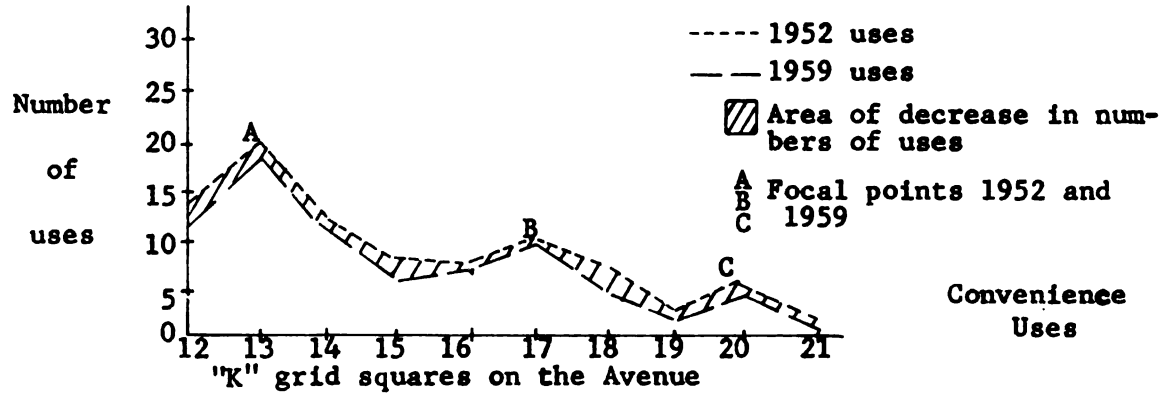
CONVENIENCE USES ON EAST MICHIGAN AVENUE BY USE TYPES

Convenience use types	Number of convenience uses on E. Mich. Ave. in 1952	New uses	Abandon. uses	Relo-from	Relo-to	Net	Number of convenience uses on E. Mich. Ave. in 1959
Food stores	21	2	11	2	1	-10	11
Eating, drinking places	27	5	7	1	1	-2	25
Gas ser. sta.	15	0	4	0	0	-4	11
Drug stores	6	0	1	0	0	-1	5
Bldg. matls, hardware	10	2	1	0	0	+1	11
Other convenience uses	11	2	1	0	1	+2	13
Total	90	11	25	3	3	-14	76

The distribution of convenience uses as seen in Graph 8 centers on three focal squares: K-17, K-13, and K-20. During the time period, convenience uses decreased in number the whole extent of East Michigan Avenue. However, it is noted that the amount of the decrease is less at the focal squares which indicates that the area between the focal squares lost convenience uses, principally food store use types.

GRAPH 8

DISTRIBUTION OF CONVENIENCE USES ON THE AVENUE



Shopping commercial uses

In Table 31, a total increase of three shopping uses occurred on the avenue during the period. Even though there was an increase, furniture and home furnishing uses experienced a decrease in the number of uses which was primarily due to abandonments. The automotive group showed the largest increase in numbers of uses indicating that there had been an increase in the number of new and used car agencies locating on the avenue.

TABLE 31

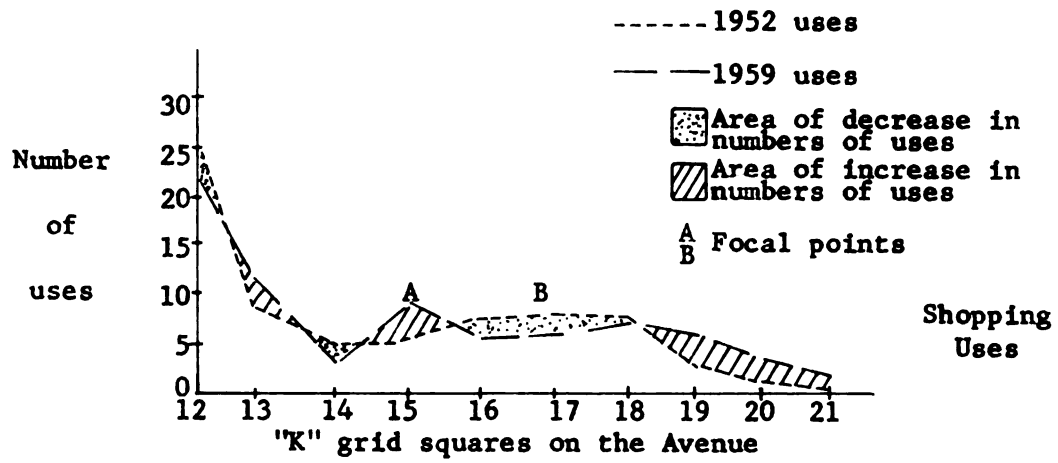
SHOPPING USES ON EAST MICHIGAN AVENUE BY USE TYPE

Shopping use type	Number of shopping uses on E. Mich. Ave in 1952	New uses	Abandon. uses	Relo- from	Relo- to	Net	Number of shopping uses on E. Mich. Ave in 1959
Apparel stores	8	2	3	2	0	-3	5
Gen. merch.	5	0	1	1	2	0	5
Furn., home furnishings	21	5	9	2	1	-5	16
Automotive group	34	20	14	6	8	+8	42
Other shopping uses	12	5	5	4	7	+3	15
Total	80	32	32	15	18	+3	83

The distribution of shopping uses as seen on Graph 9, has two major focal squares. Focal square K-15 is a new high value focal square having been established within the time period. One thing of note in the graph is the increase in the number of shopping uses from grid square K-18 to grid square K-21. Focal square K-17 decreased in its degree of concentration during the time period which indicates that a change in character regarding the predominant types of commercial uses existing at that point on the Avenue has occurred.

GRAPH 9

DISTRIBUTION OF SHOPPING USES ON THE AVENUE



Service commercial uses

Table 32 shows that even with an overall increase in the number of service uses, there was a decrease in the number of repair uses. The decrease was partly due to a minus net total of the uses which relocated. Personal and business service uses increased substantially while professional service uses increased only slightly.

TABLE 32

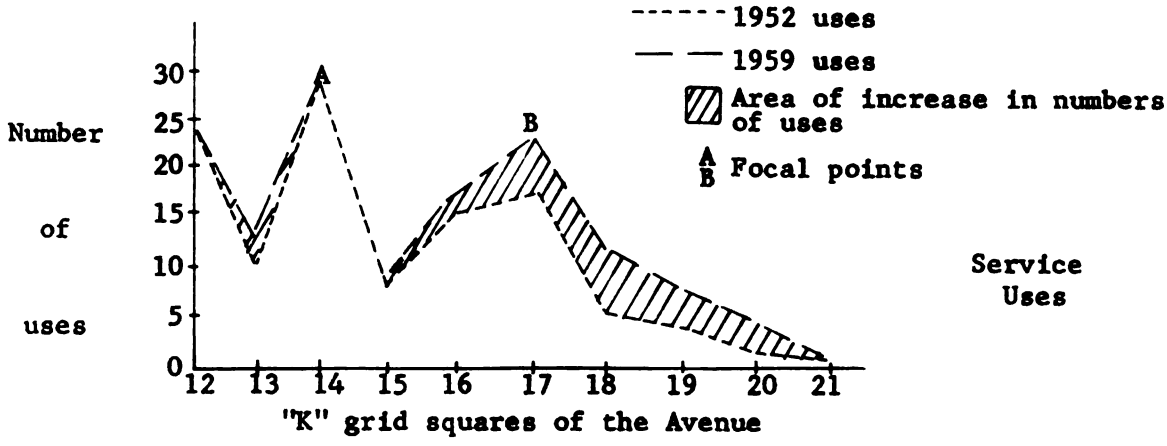
SERVICE USES ON EAST MICHIGAN AVENUE BY USE TYPE

Service use type	Number of service uses on E. Mich. Ave. in 1952	New uses	Abandon. uses	Relo- from	Relo- to	Net	Number of service uses on E. Mich. Ave. in 1959
Personal	33	16	8	3	5	+10	43
Business	45	9	6	7	16	+12	57
Repair	24	4	8	7	5	-6	18
Professional	21	4	1	6	7	+4	25
Total	123	33	23	23	33	+20	143

The distribution of service uses as seen in Graph 10 has two major focal squares. Focal square K-14 was a focal square of the same degree of concentration in both years. Focal square K-17 increased its degree of concentration during the time period which is significant in the respect that it was at this square along East Michigan Avenue that the other commercial use classes also had focal squares of high value. The large gain demonstrated by service uses at square K-17 made it a square of major significance on the Avenue. Also of note in graph 10, is the increase in the distribution of service uses from grid square K-15 to grid square K-21. This increase indicates that service uses have tended to locate principally on the eastern section of East Michigan Avenue during the time period.

GRAPH 10

DISTRIBUTION OF SERVICE USES ON THE AVENUE



Summary

Between 1952 and 1959, there was very little change in the gross number of uses located along East Michigan Avenue. However, there was a decrease experienced in the number of convenience uses located on the

Avenue. Shopping and service uses gained slightly with the wholesale class being of negligible importance because only one existed in 1952 and that had disappeared by 1959.

There were, however, many commercial use changes which occurred on East Michigan Avenue that gross figures did not show. Inspection of the change activity concerning the establishment of new uses, relocating uses, and uses abandoning their locations, indicates that the 1959 pattern differs considerably in the types of commercial uses from the pattern found in 1952. In both patterns, however, a gradation in the number of uses occurs with the most uses appearing closest to the central area (K-11) and a general decrease in the number as the distance from the central area increases.

Noteced in the gradation are focal squares along the Avenue which contain high degrees of concentration. Convenience uses had three high value squares, only one of which corresponded with the high value focal squares of the other commercial classes. Convenience uses decreased in number the entire length of East Michigan Avenue but at the focal squares, the decrease was less. Shopping uses showed a gain in the number of uses at three areas along the Avenue, one of which was the establishment of a new high value shopping focal square. Service uses had an overall increase in the number of uses with most of the increase occurring on the eastern half of the Avenue.

The total number of uses then, show two predominant high value focal squares (K-14 and K-17). Inspection indicates that K-14 is primarily a high value focal square because of the high number of service and convenience uses; K-17 is a high value focal square for all

three commercial use classes. However, at K-17, the shopping uses are decreasing in number and the number of service uses are increasing, which could mean a change in the character of the commercial uses locating at that point.

Also indicated by the change data is the increase of commercial uses on the eastern half of East Michigan Avenue. There seems to be a general decrease in the numbers of uses from K-12 to K-15 and a general increase from K-15 to the East Lansing city limit. This observation indicates that one half of East Michigan Avenue is declining in importance as a commercial use attraction point while the other half seems to be increasing in importance.

Central Business District

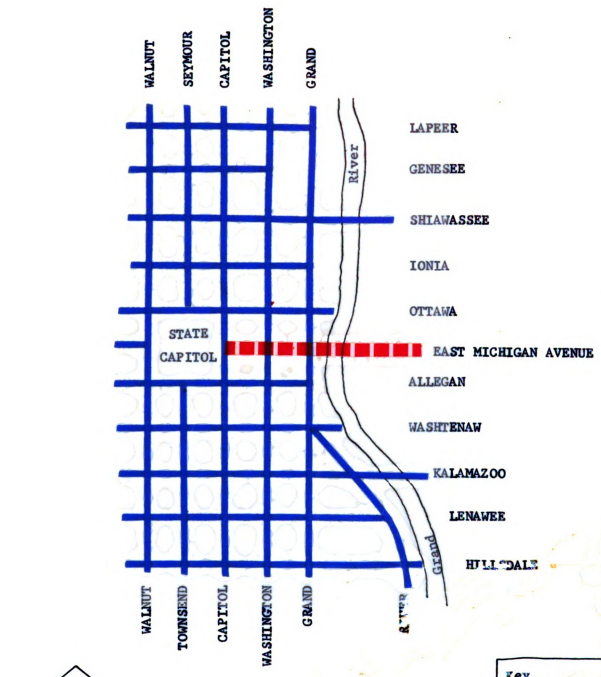
An overall view

The Central Business District is analyzed because, being the most important commercial use focal point, any description of the commercial use changes which have occurred in the district will enable the commercial use changes in other parts of the urban pattern to be better understood.

The central business area revolves about the intersection of East Michigan Avenue and Washington Avenue and is generally composed of grid squares J-10,11,12 - K-10,11,12 and L-10,11,12. Most of the centrally located commercial uses are accommodated in the blocks surrounding the East Michigan - Washington Avenue intersection. Observation of the central area in the 1952 and 1959 grid square maps results in the ten-

9-10	9-11	9-12
K-10	K-11	K-12
L-10	L-11	L-12

PLATE XXII

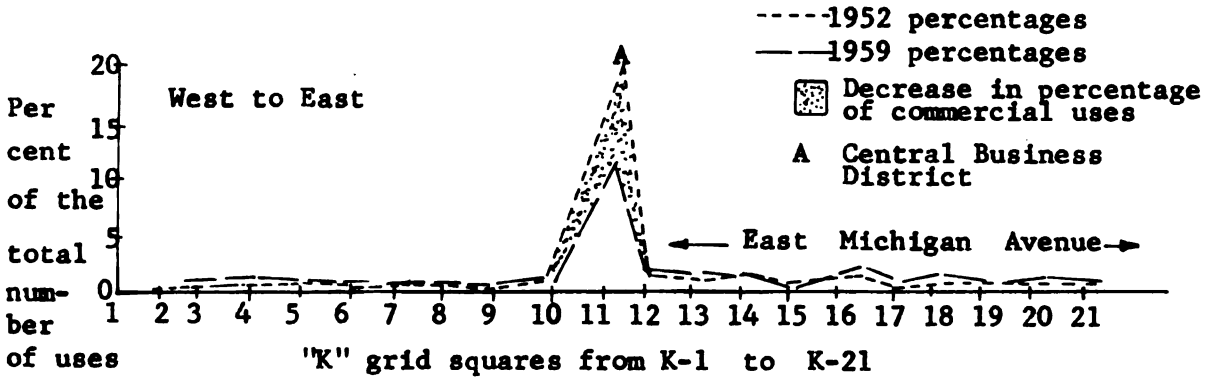


THE CENTRAL BUSINESS DISTRICT

tative conclusion that the area contained within squares J-11, K-11, and L-11 is the most consistantly high value portion of the general central business area. The J,K,L-11 area is roughly bordered to the north by Genesee Street,south by Lenawee Avenue, to the west by Seymour Street, and to the east by Grand Avenue and contains approximately 110 acres. The tentative conclusion that the above three grid squares is the area of highest commercial use concentration is supported by Graphs 11 and 12 which demonstrate, in cross section fashion, the frequency counts of the commercial uses which exist in grid squares K-1 to K-21 and squares 11-A to 11-Y. The cross section graphs, then, show those points at which the most commercial uses are located.

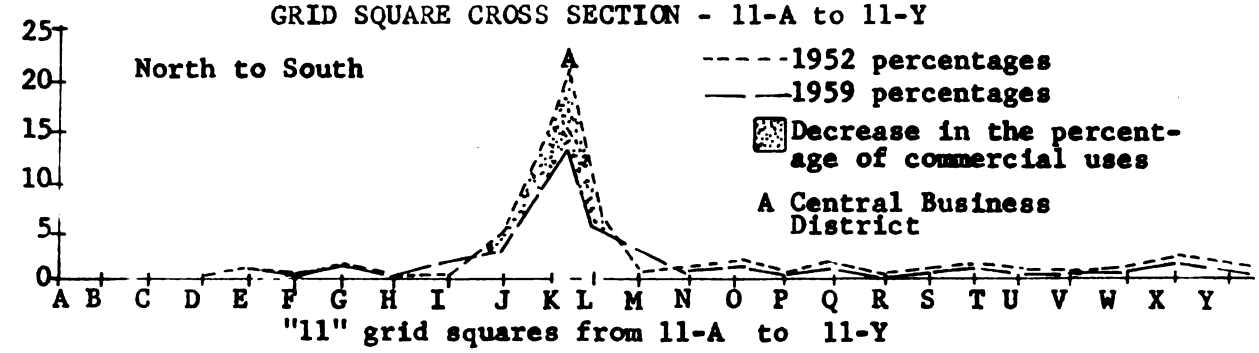
GRAPH 11

GRID SQUARE CROSS SECTION - K-1 to K-21



GRAPH 12

GRID SQUARE CROSS SECTION - 11-A to 11-Y



Two things are seen by the above graphs. The first is that the highest number of commercial uses occurs in grid square K-11 and, that grid squares J-11 and L-11 are next in order by rank. Grid square K-12 shows a fairly high percentage of the total number of uses but it is included in the East Michigan Avenue analysis. From the graphs it appears that grid square M-11 should be included as a part of the Central Business District. However, M-11 contains less than 2 per cent of the total number of commercial uses which is not comparable to the other higher value grid squares which have at least 3.8 per cent of the total number of commercial uses. Therefore, for the purposes of this study, the area to be known as the Lansing Central Business District (CBD) includes the area contained within grid squares J-11, K-11 and L-11.

There was a total of 726 commercial uses located in the CBD in 1952 which was 31.6 per cent of all the commercial uses in the study area. In 1959, there were only 648 commercial uses in the CBD which was a decrease, from the 1952 figures of over 10 per cent. In 1959 the CBD only accommodated 26.3 per cent of the total number of commercial uses which was a 5 per cent decrease during the seven year period. These figures are shown in Table 33 which compares the CBD commercial uses for both 1952 and 1959 with the total commercial uses existing in the area during those particular years.

TABLE 33

COMMERCIAL USES IN THE CENTRAL BUSINESS DISTRICT BY CLASS

Commercial uses	Number of uses in CBD		Number of uses in study area		Per cent CBD to the study area	
	1952	1959	1952	1959	1952	1959
Convenience uses	120	105	780	759	15.4%	13.8%
Shopping uses	179	154	424	453	42.2%	34.0%
Service uses	419	385	1055	1208	39.7%	31.9%
Wholesale uses	8	4	41	46	19.5%	8.7%
Total	726	648	2300	2466	31.6%	26.3%

According to Table 33, all commercial use classes decreased in total numbers during the time period. There were only eight wholesale uses recorded for the three CBD squares and four of these disappeared during the seven year period. Since only a few of the wholesale uses existed in the CBD, no further specific analysis will be made of this class.

The decrease in commercial uses in the CBD is better understood by examination of Table 34 which shows specifically how the decreasing changes occurred.

TABLE 34

COMMERCIAL USE CHANGES IN THE CENTRAL BUSINESS DISTRICT BY CLASS

Commercial uses	CBD commercial uses-1952	New uses	Abandon. uses	Relo-from	Relo-to	Net	CBD commercial uses-1959
Convenience uses	120	13	25	8	5	-15	105
Shopping uses	179	36	49	39	27	-25	154
Service uses	419	50	42	91	49	-34	385
Wholesale uses	8	1	1	4	0	-4	4
Total	726	100	117	142	81	-78	648

By taking the difference which occurs between new and abandoned uses and between the relocations, a significant aspect of the change

picture occurs. It was found that over 78 per cent of the decrease in the number of commercial uses was due to commercial uses shifting out of the CBD to other sections of the urban area. The remainder of the decrease was due to an excess of abandoned uses. Of particular note is the fact that the four losses experienced by the wholesale uses also shifted out of the CBD during the period.

A look at specifics

Explanation of the change activities regarding the individual commercial use types, as presented below, is intended to show specifically how the components of each commercial class changed during the time period.

Convenience commercial uses

There was a decrease of 15 convenience uses during the time period, which is a 12.5 per cent decrease related to the number of CBD convenience uses which existed in 1952. Table 35 demonstrates the exact nature of the commercial use changes which occurred in the convenience use types.

TABLE 35

CONVENIENCE USES IN THE CENTRAL BUSINESS DISTRICT BY USE TYPES

Convenience use types	Number of convenience uses in CBD - 1952	New uses	Abandon. uses	Relo- from	Relo- to	Net	Number of conv. uses in CBD-1959
Food stores	22	1	7	3	1	-8	14
Eating,drinking places	45	4	9	1	1	-5	40
Gas ser. sta.	9	0	4	0	0	-4	5
Drug stores	10	0	1	2	1	-2	8
Bldg. matls., hardware	29	8	4	1	1	+4	33
Other conv. uses	5	0	0	1	1	0	0
Total	120	13	25	8	5	-15	105

Table 35 shows that a major portion of the decrease in convenience uses was due to abandonments. A loss or no gain was experienced by all the convenience uses except building materials-hardware which showed a slight increase.

Shopping commercial uses

Shopping uses decreased in number by approximately 14 per cent which is the highest percentage decrease experienced by any of the classes except for the wholesale uses. The reason for the decrease is due to both abandonments and relocations. The specific change activity for the shopping uses is seen in Table 36.

TABLE 36

SHOPPING USES IN THE CENTRAL BUSINESS DISTRICT BY USE TYPES

Shopping use type	Number of shopping uses in CBD in 1952	New uses	Abandon. uses	Relo-from	Relo-to	Net	Number of shopping uses in CBD in 1959
Apparel stores	60	8	24	8	6	-18	42
Gen. merch. uses	16	2	1	3	2	0	16
Furn., home furnishings	16	6	6	1	3	+2	18
Automotive group	14	3	3	6	2	-4	10
Other shop. uses	73	17	15	21	14	-5	68
Total	179	36	49	39	27	-25	154

It is seen from Table 36 that apparel stores decreased by 18 uses which was a decrease of 30 per cent. Furniture and home furnishings uses increased by over 13 per cent, while the general merchandise uses had some change activity but resulted, in 1959, with the same number of uses as existed in 1952. The automotive group and the "other" shopping uses group decreased slightly mainly due to uses

shifting out of the area.

Service commercial uses

There was slightly over an 8 per cent loss experienced in the number of service uses in the CBD during the time period. This percentage was the lowest decrease of all the commercial use classes. The changes which service uses underwent during the time period are shown on Table 37.

TABLE 37

SERVICE USES IN THE CENTRAL BUSINESS DISTRICT BY USE TYPES

Service use type	Number of service uses in CBD-1952	New uses	Abandon. uses	Relo-from	Relo-to	Net	Number of service uses in CBD-1959
Personal	79	9	14	12	5	-12	67
Business	136	24	17	46	17	-21	114
Repair	19	7	3	1	1	+4	23
Professional	185	10	8	32	26	-4	181
Total	419	50	42	91	49	-33	385

It is seen that there was a decrease in all service uses except the repair category which increased by 21 per cent. Personal and business services decreased by approximately the same percentage, whereas professional uses decreased only slightly. There were more service uses relocated out of, than in to, the CBD during the time period. The large number of service uses shifting out of the CBD is also the main reason that the CBD as a whole showed a loss in the total number of uses during the seven year period.

Summary

An examination of the most predominant focal point in the Lansing area reveals that a variety of changes and activities have occurred,

all of which show a general tendency for commercial uses to decrease in number during the time period. Since 78 per cent of the decrease resulted from more relocation-from than relocation-to the CBD, it might be concluded that all CBD commercial classes were shifting and the CBD decentralizing in general. However, inspection of specific types of uses shows that a major portion of the decrease of just the convenience uses was due to an excess of abandonments while the losses experienced by the shopping uses were equally split between the different types of change. The reason the general character of the CBD commercial use change is predominantly one of shifting uses is because of the change in service uses. The large number of service use relocations from the CBD influenced the total change picture for the entire CBD. It is evident, then, that the CBD focal point is composed of many different commercial uses acting and reacting to the stresses of change in different ways and only by analyzing each focal point in detail, will some of the basic causes for commercial use changes be revealed.

C H A P T E R IV

SUMMARY, CONCLUSIONS, AND PLANNING IMPLICATIONS

CHAPTER IV

SUMMARY, CONCLUSIONS, AND PLANNING IMPLICATIONS

Summary and conclusions

In the main, this study has consisted of an analysis of commercial land use changes in the urban pattern. By utilizing the grid system technique, major focal points of commercial use concentration were pointed out and discussed in relation to the commercial use changes which had occurred. The focal points were described as either a focal square (if a high degree of commercial use concentration was limited to one square), a focal cluster (which contained three or more focal squares), or a focal line (which contained four or more focal squares located side by side).

Chapter II described the 1952 commercial use pattern revealing that a major portion of the commercial uses was confined to four focal points which were primarily oriented to the street system. The four focal points were the central business area which was found to be the dominant focal point, a focal cluster to the north of the central area at the intersection of Washington Avenue and West Grand River Avenue, the focal line of East Michigan Avenue, and the focal line

extending south from the central business area along Washington Avenue. Since almost 62 per cent of the commercial uses in 1952 were located in these few focal points, it was concluded that the commercial uses were of a confined nature in this pattern with their distribution being primarily oriented to the major streets.

Chapter III described the types of change commercial uses experienced during the time period, and then presented an analysis of how the changes affected the distribution of commercial uses existing in the 1952 pattern. There were found to be primarily three types of commercial use change: new commercial uses added to the pattern, uses which shifted to other locations in the pattern, and uses which had ceased operation or had moved outside the study area. It was reported that service uses, because they had a great tendency to shift locations and to add new uses, were found to be very dynamic and affected the overall change pattern considerably. Convenience uses were found to have changed very little. Shopping uses demonstrated a great tendency to either add new uses or abandon operation with only a small tendency to shift location. The characteristics of shopping uses were particularly evident in the formation of the two new shopping centers with a majority of the commercial uses established in the centers being new shopping uses.

The commercial use change analysis showed that a tendency existed for commercial uses to leave the high degree concentrations with many commercial uses becoming established in a greater portion of the urban area. Indications pointed to a definite dispersal trend of commercial uses from former locations on a few of the major highways

and in the central business area, to all highways and all parts of the area. This trend is primarily influenced by the great amount of service uses apparently attempting to establish near their service populations.

Chapter IV showed the specific details involved concerning the commercial use changes experienced by two of the major focal points. The East Michigan Avenue focal line showed a loss of convenience uses with shopping and service uses showing a slight gain. Analyzed in detail, East Michigan Avenue showed definite changes in both the number and types of commercial uses accommodated during the time period. Convenience uses declined while shopping and service uses increased, which demonstrates a definite change in character that will probably be reflected by a change of service area and service population to that focal point. The main grid squares of commercial use concentration were described resulting in the indication that points of commercial use emphasis occur at frequent and regular intervals in a focal line usually dependent and oriented to major intersecting streets. The dispersal of commercial uses was dramatically evidenced with the finding that the half of the avenue furthest away from the central business area showed the most tendency to add uses during the time period, with the other half showing a definite decrease in numbers of commercial uses accommodated.

The Central Business District analysis found that there was a large decrease in the number of commercial uses accommodated there during the time period. It was found that much of the decrease was attributed to the shifting out of service uses. This finding compliments the observation above that service uses were establishing in all parts

of the urban pattern. It was shown that abandonments also had an affect on the change in that many convenience uses once located in the central business area had stopped operation there probably for a variety of reasons such as obsolete facilities, too much competition from the population-oriented facilities, and high rental payments.

Shopping uses were shown to have split their change activities during the time period evenly between the three types of change - adding few uses, abandoning few uses, and relocating few uses. This finding tends to indicate that the two shopping centers which started operation during the time period had little affect upon the type of change experienced by the shopping uses in the Central Business District. The previous statement must be immediately qualified, however, by the question: had the new shopping centers not established, would all the new shopping uses which located there, have established in the CBD? There are many factors involved here in the relationship between the CBD and the new shopping centers, most of which are outside the limits of this study.

Planning implications

It is recognized that the activities of the various urban functions as they operate within an urban pattern, are of primary concern to the urban planner. This study has presented an analysis of the changes experienced by one urban function - the exchanging of goods and services, or commercial land uses. A basic aim of this study was to relate focal points of commercial uses to each other and try to discover some of the affects commercial use changes have on the relationship between the focal points. This aim has been satisfied; however,

the value of the results should be scrutinized regarding the practical application of this study to the field of urban planning.

It is felt that the analysis techniques, as used in this study, have broad application for use by the urban planner. Probably of greatest value to the planner is the utilization of the grid system to analyze, recognize, and relate the relative importance of the various parts of a function as those parts are distributed throughout an urban area during different time periods. By giving each functional part a value, the relationships between the parts, as they operate and change within a pattern, are evident. This technique also presents an opportunity for evolving a standard which might be found to be consistant regarding the change nature of a function. Then the standards, used in conjunction with other data, could be projected to derive an indication as to a possible future occurrance. Any urban function could be analyzed in this manner. The grid system is also valuable to the planner because it relates phenomena to units of equal area so that comparisons can be made without the distorting effects of varying areas.

Data derived from this study shows that significant insight into the change activities of commercial uses is possible. Major and minor points of emphasis of a function in a pattern are immediately apparent upon inspection of a grid map. Also obvious, is the shifting of focal points when two pattern maps of different time periods are compared.

Of great value to the planner is the nature of change experienced by any focal point. The study showed some focal points decreasing in the number of certain commercial uses accommodated which implies

that those uses which decreased could not be supported at that location in the pattern. In some focal points, there was found to be a decrease in one commercial use class and an increase of another class, demonstrating a definite change in the composition of commercial uses at that focal point. A change in composition of a focal point means a complimenting change in the service area and service population of the commercial uses accommodated. Changes such as the above are the immediate concern of the planner as it is he who must study, analyze, and attempt to solve many of the problems which result.

It is apparent from the study that correlations with the other urban functions could be easily made resulting in a comprehensize outlook as to the relationships which exist in any urban pattern. Correlations of this type have been done successfully in the planning field using data processing machines. The possibilities of detailed correlations both within and between functions seems unlimited, and after research perfects techniques, the planner will be able to obtain a much clearer insight into many of the inter-relationships which now are little understood.

There is also the possibility of developing the actions of commercial use types into indicators of other functional activities. Commercial uses are related to their service areas and, as evident in this study, some use types change dynamically over time while others remain stable. More specific investigation as to the basic reasons for the activities of certain of the use types might result in a list of factors which consistently seemed to cause the use type to change. It would then be possible by analyzing the one use type, to determine generally

the activities of the affecting factors.

Of definite value to the urban planner is the ability of this study analysis to designate those areas in an urban pattern in which the commercial use character is changing. New growing areas of commercial use attraction are spotted as are areas which are declining in importance as points of commercial use focus. In understanding the types of change causing either an increase or a decrease in an area, the urban planner can offer alternative solutions regarding future occuruences in the affected areas. Also, when a trend regarding commercial use changes is found to exist, means could be developed to either encourage or discourage the change based upon what is deemed to be in the best interest of the community as a whole.

The study shows that an analysis of individual use types is of value in understanding the changes of commercial uses in general. Most locations, where many commercial uses exist together, vary in composition regarding types and classes with each commercial use operating in a little different manner and with each serving a little different segment of the population. The finding concerning the dynamic nature of some of the service uses, showed the great influence the activities of individual use types have as they affect an overall class change.

Each commercial use is a part of the whole class but differs in many respects from the whole. Too often, urban planners consider only the commercial uses as a category and do not consider the individual classes or use types when determining future land use relationships. Findings in this study show that basing any conclusion upon the activity of grouped commercial uses, is indeed a gross conclusion and not a

true reflection of the actual activity. In other words, when the urban planner projects land uses by the gross category, he is generalizing to an extent that the projection means little with regard to what will actually occur. Today, it is the practice to implement gross category projections with land use controls and in zoning this usually means listing uses which are permitted in particular zones. Insight into use type activity such as is demonstrated in this study, would give the planner not only a better indication as to which parts of the gross category need projecting, but also act as a basis for determining which uses should be permitted. This type of analysis would either encourage or discourage commercial use trends with the intent of molding the trends to fit into the projected land use pattern. The study shows that an analysis of change can result in a more complete picture as to the evolution of a particular arrangement of functional parts. The detailed changes can be described thus providing a firm basis for deciding when the changes which have occurred over time are a trend.

If it was possible to redo this study, there are some things which would definitely be changed. In developing a method of analyzing commercial use changes, it was inevitable that techniques would be established in order to make the analysis more meaningful. The grid system, as used, has as its major limitation the generalization of data according to a particular areal unit. There would be a decided advantage in minimizing the size of the grid square in order to obtain a more detailed and thus a more meaningful analysis. However, the question arises whether or not the gain in detail would be worth the added work of dealing with so many more grid squares. This question can

be answered positively if the data is processed by machine, and negativly if the data is processed manually. A definite weakness of this study is that the data was not adapted to machine processing but was manipulated manually. There would not only have been a great savings in calculating time had machine processing been used, but also many more correlations and inter-relationships between focal points could have resulted making a much more comprehensive study.

A second change which would be made is that the amount of floor space would be used in conjunction with the number of uses. If floor area had been used, there would no doubt have been many modifications and changes in the findings of the study. A problem to be solved,however, is obtaining accurate floor area data for commercial uses which have been out of operation for a period of time or, have changed locations during any selected time period. In this sense, an important finding of this study is that a definite limitation exists for any study which attempts to analyze commercial use changes. That limitation is obtaining accurate and precise source data.

Recognizing the limitations of this study, it must be concluded that the overall approach used to analyze commercial use change, does have merit in that it describes measurable functional relationships within an urban pattern seldom exposed before. With the use of machine processing and the addition of accurate floor space data, the type of approach to the study of commercial land uses as used in this thesis would give to the planner an excellent measurable indication of commercial use trends in an urban pattern upon which projections for future commercial space, both as to amount and location, could be founded. It

is hoped that others may move on from the results and lessons of this study to refine the approach which was used obtaining a usable tool for better understanding and projection of commercial land use data.

A P P E N D I X

METHODOLOGY

After the initial search of the literature was complete, data sources were investigated. The Lansing Polk City Directory was found to be the most applicable. The scope of the study was then determined and an outline establishing an approach was formed. At this point, four major steps were used: data gathering, classification of data, mapping and analysis. The sqecifics of these steps are discussed below.

Data gathering

The primary sources of the data were the 1952 and the 1959 Polk City Directories. Commercial uses appearing in these two directories were compared. Those commercial uses which were in the 1959 directory but were not in the 1952 directory were categorized as new commercial uses. Those commercial uses which were in the 1952 directory, but not in the 1959 directory, were categorized as abandoned commercial uses. Those commercial uses which were in both directories but at different addresses were categorized as relocated commercial uses. Commercial uses which were in both directories at the same address were treated as stable uses. Many of the commercial uses which relocated after 1952 were found by comparing the new use category with the same commercial uses as they appeared in the 1955 City Directory.

Classification

Basic to the study was the manner in which the various commercial uses were to be grouped for analysis. Many classification systems were inspected and each carefully analyzed with an eye as to its appropriateness regarding the aims of the study. It was decided to classify the commercial uses according to the specific types of goods and services offered by the particular establishment. The classification system of wholesale, retail, and service, follows the classification system used by the U. S. Census of Business. However, it has been slightly modified for use in this study to enable the analysis to reflect the most meaning for the urban planner. The commercial uses have been grouped in the following manner.

Wholesale - all wholesale uses were grouped together because of the inconsistent listing in the Polk Directory of these uses and the low quantity of wholesale uses found. The level at which analysis was to occur did not seem to require detailed wholesale use types.

Retail - retail uses which followed the census classification were grouped according to frequency of consumer visits which is of primary concern to the urban planner. It was decided that the convenience-shopping type grouping would be used for the general analysis in explaning retail, and the specific store types would be used to explain and clarify specific characteristics of the shopping and convenience groups.

Convenience uses - constitutes establishments which provide goods needed by the consumer on a daily or weekly frequency.

Convenience use types

Food stores
Eating and drinking places
Gasoline stations
Drug, proprietary stores
Building materials, hardware
Other convenience uses

Shopping uses - constitutes seasonal or lifetime consumer needs which are purchased on a monthly or annual frequency basis.

Shopping use types

Apparel stores
General merchandise
Furniture, home furnishings
Automotive group
Other shopping uses

Service uses - constitutes establishments which primarily serve persons or businesses. The raw data demonstrated that more than the selected services of the Census needed to be included in this study. The data was analyzed and four types of service groupings seemed logical: personal, business, repair, and professional service uses.

TABLE 38

THE CLASSIFICATION OF COMMERCIAL USES

Below are the definitions of the classification system which was used in this study and a listing of the individual establishments which were included under each classification.

Convenience uses - uses which provides goods needed by the consumer on a daily or weekly frequency.

Food stores
- meat market
- confectionery
- grocery store
- food market
- fruit market
- bakery, pastry
- farm products store
- fish company
- delicatessen
- beer sales
- dog food store

Eating and drinking places
- bar
- restaurant
- malted shop
- donut shop
- sandwich shop

Gasoline service stations

Drug stores

Building materials, hardware
- hardware
- building materials
- storm windows, doors
- pet store
- lumber company

"Other" convenience stores
- news stand
- roller rink
- theatre
- billards
- bowling alley
- hobby shop
- parking lot
- plumbing, heating co.
- stationery store
- cigar stand

TABLE 38 (continued)

Shopping uses - constitutes seasonal or lifetime consumer needs which are purchased on a monthly or annual basis.

Apparel stores
- mens clothing
- shoe store
- womens clothing
- clothing general
- millinery
- woolen sales outfit
- infants wear
- fur, furrier
- corsets
- used clothing

General merchandise
- department store
- general merchandise
- second hand store
- 5¢ to $1.00
- dry goods store
- variety store

Furniture, home furnishings
- furniture store
- wallpaper
- appliance
- paint company
- paints and wallpaper
- furnaces sales
- baby furniture shop
- electric company
- floor coverings, draperies

Automotive group
- auto dealer
- auto garage
- tire and rubber corp.
- automotive supply
- tire sales
- used car lot
- radiator shop
- trailer sales
- boats and motors
- motor scooter sales
- bike shop
- truck sales
- electric motor works

"Other" shopping stores
- jewelry store
- music store
- hotel, motel
- business machine dealer
- monument company
- vacuum cleaners
- glass works
- awning shop
- sport shop
- florist
- sewing center
- leather goods
- candy shop
- rug company
- gift shop
- office supply
- cigar, candy co.
- surgical equip.
- mail order sta.
- novelty store
- typewriter co.
- embroidery shop
- book store
- optical co.
- fuel co.

Service uses - uses which primarily serve persons or businesses

Personal services
- beauty shop
- tailor
- barber shop
- laundry
- dressmaker
- photoshop
- cleaners
- funeral director
- auto wash
- mineral baths
- milliner
- corsetiere
- catering
- linen service

Repair services
- shoe repair
- general repair
- auto repair
- upholsterer
- contractors (companies)
- appliance parts and repair
- decorator
- mower company
- TV and radio repair
- watch repair
- jewelry repair
- music instrument repair

TABLE 38 (continued)

Business services

- loan corporation
- typesetting corporation
- bookkeeping service
- finance corporation
- supplies corporation
- sign shop
- credit union
- insurance company
- window cleaning co.
- roofing, insulating co.
- business serving
- exterminating
- real estate co.
- bank
- rent-it shop
- vet. supplies
- advertising sp.
- bookbinders
- painting co.
- stockbrokers
- rent-a-car service
- delivery service
- blacksmith

Professional services

- dentist
- lawyer
- architect
- accountant
- physician
- engineer
- chiropractor
- optometrist
- chiroprodist

Wholesale

- jewelry
- wholesale distributors
- dry cleaning equipment
- drug company
- electric supply company
- hardware company
- beer
- lumber
- groceries
- meats
- liquors
- bakeries
- food products
- produce
- paint
- auto parts
- poultry
- implements
- news company
- shoes
- beverage company
- heating equipment

TABLE 39

USES WHICH WERE EXCLUDED FROM THE STUDY

The following uses were excluded from the study because they did not seem to fit into any of the commercial use classifications above.

- manufacturing
- clubs and organizations
- contractors (just contracting companies and incorporated contractors of all types were included)
- convalescent homes and hospitals
- credit unions
- schools (any kind)
- engineers
- golf driving ranges, courses

TABLE 39 (continued)

insurance agents (just companies were included)
lithographers and printers
social agencies
utility companies
tourist homes
transportation lines (bus, truck, and terminals)
well drilling
real estate (just uses which had a company name)
trailer courts
driveaway companies
distributing companies
taxi companies

Mapping

All commercial use changes were noted on individual cards and were plotted at their appropriate street locations by specific use types on 1000 feet to the inch scale maps. A total of four maps were made, showing the location of abandoned commercial uses, the location of the new commercial uses, the 1952 wholesale and retail commercial uses, and the 1952 service uses. A larger scale map was used to plot the commercial uses in the Central Business District for the 1952 pattern.

Technique for Analysis

It was the general aim of this study to inspect commercial uses as they existed in an urban pattern and to analyze the changes which the uses underwent over a specified period of time. To satisfy this aim, an analysis technique had to be developed which would show commercial uses existing as a pattern of spatially-distributed uses operating within the confines of the overall urban pattern. Therefore, it was decided that analysis by means of a grid system would be best. The grid system abstracts the urban pattern into squares containing equal areas. The

grid squares could then be easily and readily related to each other by applying an appropriate comparable quantitative value to each square. This technique was primarily used to avoid involvement in a detailed level of commercial use analysis which would be both confusing and difficult to portray.

A grid system of one and one-half inch squares was super imposed upon the one thousand scale maps, oriented for simplicity so each square was equal to the square which included the one hundred and two hundred blocks on North and South Washington Avenue in the center of Lansing. Particular care was taken in the application of the grid system to the maps so that both sides of most major streets were included in one set of squares. A card was made for each grid square upon which was recorded, from the one thousand scale maps, those abandoned, new, or 1952 commercial uses by the number of uses and type of use. With the manual manipulation of these cards, three lists were produced: one which indicated the number and the designated location of commercial uses which existed in 1952; a second which indicated commercial uses which had abandoned locations from 1952 to 1959; and a third list of those commercial uses which were newly established between 1952 and 1959.

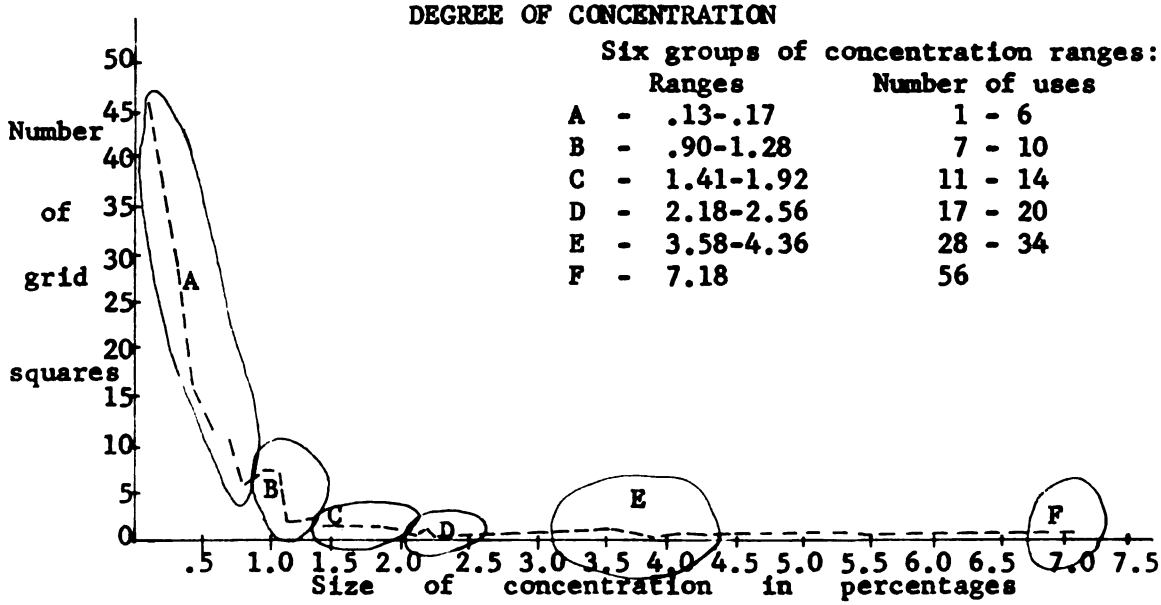
The relocation of the commercial uses was handled in a different manner. The relocations were noted on the appropriate grid square cards as either being a relocation-from or a relocation-to and from the cards, a list of the relocations was made. The various lists were then applied to the grid square maps in order that a quantitative comparison could be made. For example, the 1952 list showed how many convenience, shopping, service, wholesale, and total uses were in existence in 1952 by

individual grid squares. The absolute numbers were turned into percentages, grouped, and applied to the grid square maps. The grid square maps then became the basic tools for the comparative analysis.

Analysis of the various commercial use focal points was dependent upon the manner and degree in which the similarly classified commercial uses were grouped for presentation and application to the grid square maps. For each list of the classified commercial uses, a graph was drawn correlating the number of grid squares in which certain concentration degrees appeared, with the percentage degree of concentration which existed for that classification. Analysis of the graph produced concentration degree ranges which showed the ranges of any commercial use classification (see Graph 13). All of the similarly classified types of commercial uses were grouped to best show the varying degrees of focal points for these activities. This means that the groups for a given classification differ in range and that the ranges are different for the several classifications.

GRAPH 13

NUMBER OF GRID SQUARES CORRELATED WITH THE DEGREE OF CONCENTRATION



QUALIFICATIONS

There are two basic areas of this thesis which need qualifying remarks in order that the conclusions may be viewed in their proper perspective: the exact content and validity of the basic data, and an assessment of the technique used to analyze the basic commercial use pattern.

The basic data was obtained from Polk's Lansing City Directories as discussed earlier. What uses to include for this study from the various Polk categories was the initial problem encounted. It was decided to include all uses which could be easily accommodated within the limits of the selected classification system.

Limitations of the data

Using the City Directory as the primary source of data, certain limitations were noted in the data which should be presented.

Limitations:

1. The 1952 City Directory covered a smaller part of the Lansing area than did the 1959 directory. The area covered in the 1952 City Directory became the subject area, except where relocations moved from inside the subject area to outside locations but still within the limits of the plotting map.

2. If the ownership of a commercial use changed, but the same function was continued at the same site, it was considered a continuing use and not a commercial use change.

3. If uses changed locations within the same building, it was not considered a commercial use change.

4. It was assumed that commercial use relocations maintain approximately the same firm name during the time period.

5. There were a few discrepancies noted concerning the exact street number of some commercial uses.

6. The directory does not explain the exact function of the commercial use therefore a subjective judgement of each commercial use change formed the basis for classification.

7. Not every commercial use that was listed in the directory was considered in this study as explained earlier.

Validity of the basic data was tested by comparing the total count for the various types of uses given in the Polk Directory with the totals for similar uses as given in the 1954 Census of Business. The 1952 totals were obtained after the information had been taken from the City Directory, classified, plotted on maps, and then recorded from the maps on cards by grid square. With the handling of the data, plus qualifications concerning the use of different classification systems, different years covered, different coverage of total area, and realizing many subjective classification judgements were made, and the results as seen in Table 40 comparing the two totals, seem remarkably close.

TABLE 40

1952 PATTERN COMPARED WITH THE 1954 CENSUS FIGURES

	1954 Census	1952 Pattern		Similarity
Food stores	208	258		80.6%
Eating, drinking places	197	181		91.9%
Gasoline service stations	135	160		84.4%
Drug stores	53	50		94.3%
Building matls, hardware	69	64		92.8%
Total convenience uses	662	713	[18]	92.8%
Apparel stores	104	88		84.6%
General merchandise	25	33		75.8%
Furniture, home furnishings	60	64		93.8%
Automotive group	62	98		63.3%
Total shopping uses	251	283	[18]	88.7%
Other commercial uses	181	208		87.0%
Wholesale establishments	231	41		17.7%
Services	267	685		39.0%
Totals	1592	1930		82.5%

[18] The reason this total does not agree with the totals used in the study is that 67 other convenience uses were included here with all "other" commercial uses.

The only serious discrepancies in Table 40 involve wholesale and service establishments. The reason for the wholesale discrepancy is the difference in classification schemes used by Polk and the Census. In this study, only those establishments which were clearly marked as being wholesale by the City Directory were placed in the wholesale classification. Any commercial uses which were found to be both wholesale and retail were classified under the appropriate retail or service category. A reason for the discrepancy in the services in the table is that, in this study, all services were included, whereas the Census only included selected services. Also, many of the wholesale establishments were regarded as business services in compiling the 1952 pattern for this study which would account for some of the wide marginal difference which the wholesale and service totals show.

Analysis technique

The technique used for the analysis has certain drawbacks which should be recognized. First, the use of a grid system to analyze data has the general handicap that it summarizes the data. The data is summarized, however, only to the degree that the size grid squares relate to the overall subject area. In this study, the total area covered is 14,162 acres or 22.1 square miles. Each grid square is 38.8 gross acres or approximately nine regular city blocks. Thus each grid square is about 0.3 per cent of the total study area. Considering the size of the total area covered and the distribution nature of the commercial uses in the Lansing area, it was felt that nine city blocks was an entirely appropriate size grid unit to use.

The mapping process involved plotting the entire 1952 commer-

cial use pattern, the new commercial uses, and the abandoned commercial uses, all according to their street address. The totals were then collected by using a grid square overlay and put on grid cards. There were many opportunities for error during this process even though extreme care was taken. For example, it was found that abandoned and relocated commercial uses were recorded for grid squares which contained no commercial uses in 1959. A possible explanation for this discrepancy is that the uses in question were probably plotted at slightly different locations on some of the basic maps so that when the grid overlay was applied to the maps, the uses did not fall under the same grid square for every map.

Because of the small number of the discrepancies, and because the major interest of this study is in the general commercial activity for the seven year period, it was felt that the omission of these uses in the derivation process would not alter the study findings to any serious degree. Even though there were only a few of these errors, it was felt that they should be presented in the study and recognized as study discrepancies in order that the final conclusions could be judged with the proper basis. These errors are shown in Table 41.

TABLE 41

A LISTING OF STUDY DISCREPANCIES

Type of use	Type of change	Grid square
Convenience	relocation-from	K-7
Convenience	abandonment	E-7
Shopping	relocation-from	I-17
Service	abandonment	S-8
Service	abandonment	W-13
Service	relocation-from	W-14
Service	abandonment	Y-13
Wholesale	relocation-from	P-7
Wholesale	abandonment	I-9
Wholesale	abandonment	R-8
Convenience*	due to human error	
Service*	due to human error	
Wholesale*	due to human error	
Wholesale*	due to human error	

*Other discrepancies existed which only could be attributed to human error practically unavoidable in the manipulation of so many sets of numbers. Also of note, are the compensating errors which were, in this study, almost impossible to locate.

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