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Land use changes through time: Mapping the hard core of Omaha, Nebraska's CBD, 1940-1980

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LAND USE CHANGES THROUGH TIME: MAPPING THE HARD CORE OF OMAHA, NEBRASKA'S CBD, 1940-1980

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ABSTRACT

LAND USE CHANGES THROUGH TIME: MAPPING THE HARD CORE OF OMAHA, NEBRASKA'S CBD, 1940-1980

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This study addresses and follows the changing nature and character of Omaha, Nebraska's hard core between 1940 and 1980 by mapping its extent and examining its land use content for each year studied: 1940, 1951, 1961, 1970, and 1980. In order to map Omaha's hard core, a methodology based upon earlier studies was devised which allowed the area in question to be delimited through time using land use as a base. In addition to the hard core movements, the positions of the peak land value intersection and the arithmetic mean center were included for each time increment, demonstrating spatial change over time. Land use was also used in showing the changing functional character of Omaha's hard core during the period studied. The land use categories with which this study was concerned were CBD and non-CBD, the former being divided further into retail business and service, finance, and office uses. A synthesis of the delimitation and land use data can be found in the final chapter which outlines the results of this study, including trends which were noted and future predictions for the hard core, as well as how the changes which occurred over time in Omaha compare with the changes in other cities in the United States.

THESIS ACCEPTANCE

Acceptance for the faculty of the Graduate College, University of Nebraska, in partial fulfillment of the requirements for the degree Master of Arts, University of Nebraska at Omaha.

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CHAPTER I

INTRODUCTION

Persons living in and around cities are aware that changes occur within the urban sphere. Normally, the public's understanding of spatial and functional change is simplistic and is based primarily upon daily interaction and familiarity with streets, buildings, or shops. Yet, both the geographer and the public have something in common: the realization, whether conscious or not, that land use in cities is not static. On the other hand, the geographer seeks to understand and explain the spatial and functional changes which occur. The urban geographer's understanding of cities has been accomplished by finding out what has changed and how, then drawing conclusions about urban change based upon the data gathered. By understanding cities in the past and present, future predictions or planning recommendations can be made with perspectives and thus greater accuracy. One such study of specific change based on data gathered about cities was put forth by Murphy and Vance, who in 1954 gave geographers and planners a base in understanding the central business district (CBD) of a city by first delimiting the CBD.[1] Then in 1955, by examining the internal structure and zonal changes of the CBD, Murphy, Vance, and Epstein extended the body of knowledge dealing with downtowns by suggesting spatial and functional land use composites based on their previous studies. These composites were zonal in character.[2] In 1960, Davies took the topic of the central

business zone one step further by delimiting the hard core in his study of Cape Town, South Africa. (Davies used Murphy and Vance as a foundation.)[3] Several years later, Vance argued that to really understand functional and spatial changes in the business core of a city, it is necessary to follow the core through the city's history.[4] This study provides the addition of an historic element to an urban hard core study by focusing on a single city. Omaha, Nebraska, was chosen because of its proximity to the researcher and the availability of data (Fig. 1). As a consequence of the above traditions, the question to be addressed in this thesis is, "From 1940 to 1980, have there been spatial and functional changes in the land use in the hard core of Omaha's CBD area, and if so, what is the nature and character of such changes?"

To complete an historical urban study successfully, several objectives had to be established. First, as the problem suggests, the hard core of the CBD must be delimited and mapped based on land use for the incremental years: 1940, 1951, 1961, 1970, and 1980. These benchmark years were chosen because of data availability as well as for the future possibility of relating this study to decennial census (U.S.) information. The peak land value intersection (PLVI) and the geographic center (Amc) of the hard core need to be graphed and compared for each of the time periods noted. In addition, maps, indicating the average building height of the included blocks, drawn and examined as to their relationship with the location of the PLVI, are necessary as indicators of change. Land use changes established within the study area should be compared on a percentage basis using

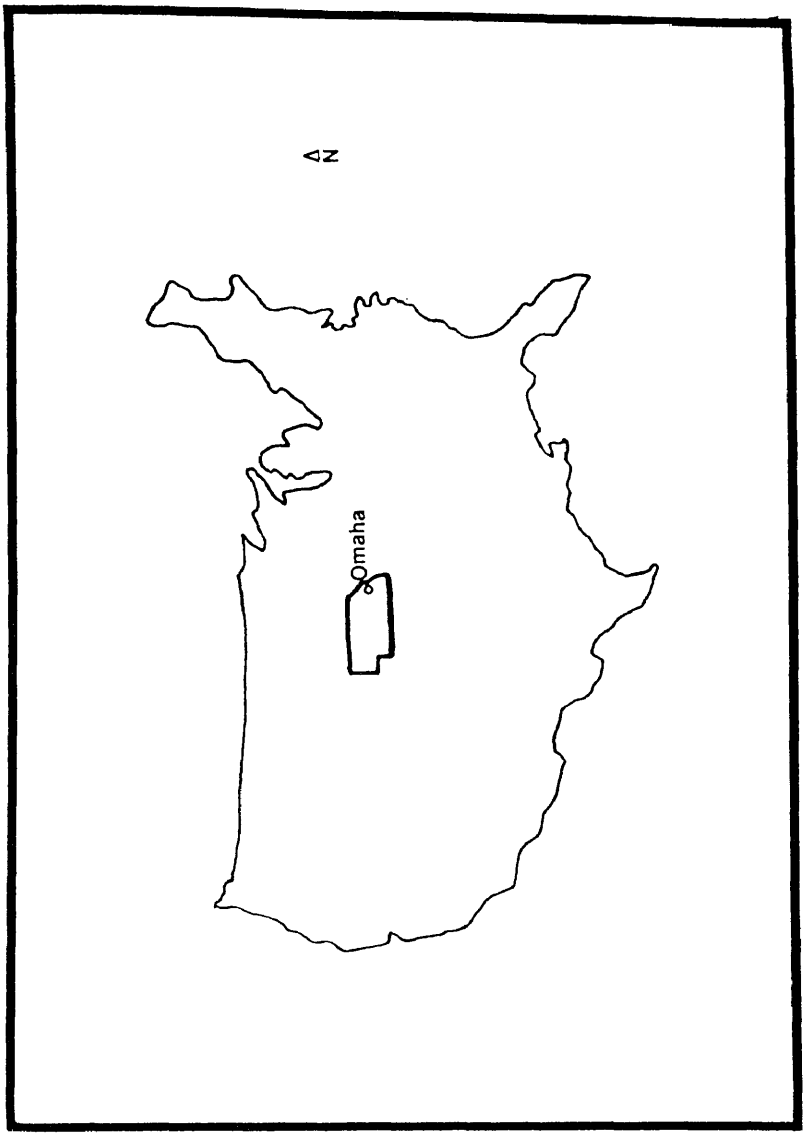

Fig. 1. Location of Omaha, Nebraska

the graphing technique demonstrated in Murphy, Vance, and Epstein's "Internal Structure of the CBD."[5] Likewise, each moment in time must be studied in relation to the others and the changes, if any, noted. Finally, with the conclusions developed from the comparisons made and coupled with the study results, predictions of possible trends developed on Omaha's CBD from 1940 to 1980 are suggested.

The CBD and the Hard Core: Characteristics and Change

The central business district of a city ". . . is thought of as an area of urban concentration that has been in existence since the beginning of the city and will last as long as the city endures."[6] The CBD has been defined as a region by Bowden, with boundaries, even if transitory, and exhibits definitive qualities.[7] There are several characteristics which are used to define the CBD and to identify its location. In the downtown area there is a high concentration of office and retail use. The CBD also contains the highest land values in the city and this is reflected in the area's concentration of the city's tallest buildings (vertical expansion is more economic in a high rent district). This downtown area also carries the major auto and pedestrian traffic because of the intensive office land use. Government and municipal buildings are also found concentrated in the area because of a CBD's centrality.

The central business district of North American cities is a zone containing three areal parts: the hard or inner core, the outer core, and the periphery or fringe. The three fundamentally differ in their intensity of the above described characteristics. However, the

hard core and the outer core differ only in degree. The hard core displays the highest quality of land use.[8] The PLVI is found in this section. The outer core, in contrast, has slightly lower rents and land use quality as well as less of a vertical expansion. The periphery is transitory in nature and includes both a zone of discard and one of assimilation. These zones tend to show a lower quality of occupancy as well as having lower rents. Distinct boundaries are difficult, if not impossible, to identify because of the transitional character of the downtown and the transitory nature of the CBD's land use.

The downtown zone is thus not static and changes have indeed been occurring in the CBD during the last fifty years. The most noticeable structural difference is the change from a predominantly retail emphasis to one of service, financial, and office uses. Proudfoot, in 1937, described the downtown as the "retail heart" of each city.[9] But is such a statement still true? Beginning in the 1950s, the retail businesses began an exodus out of the downtown as suburban shopping centers proved their profitability.[10] In addition to the functional change, spatial studies have shown that the CBD is capable of changing its location through assimilation and discard. Boundary changes are caused by many factors, including the building of major projects on less expensive peripheral properties, revitalization plans, and urban decay.

Omaha's Suitability as a Study Site

The city of Omaha, Nebraska, serves as a suitable subject for an historical study involving the CBD because of several factors. First, Omaha has been economically important to the upper and central Great Plains region based upon its roles as a gateway city and as a major distribution center, as well as its continued importance to the state of Nebraska as the state's largest city and metropolitan area. Second, there is sufficient background information available to suggest that the CBD of the city has shifted between the date of Omaha's founding and 1940, when this study begins. Third, changes have occurred since 1940, including a change in the functional classification of Omaha, spatial changes as retailers moved out to the suburbs in the 50s and 60s, and are still taking place and will continue to do so in the future because of Omaha's long-term commitment and concern with revitalizing the downtown.

Omaha's Early Importance

Omaha's importance to Nebraska as well as to the Great Plains region began soon after its founding in 1854, when three years later the territorial capitol was awarded to the city. Omaha soon developed as a major outfitting center for westward-bound settlers (1860). Business boomed as a consequence of the Colorado gold rush of 1858. The city's location on the Missouri River aided Omaha's growth as a transportation center and as a transfer point, as stage and freight lines developed for the goods and people moving west. During the early history of the city steamboats were active in bringing supplies and

settlers into Omaha (Fig. 2). During the 1860s, Omaha was granted the eastern terminus of the Union Pacific railroad and became the site for the trans-Missouri bridge. The Union Pacific depot and shops secured the city's position as a transportation center and gateway city, and helped Omaha to become a wholesale and industrial center, serving the Great Plains (Fig. 3). Because of the resultant diversification and economic growth, Omaha withstood the relocation of the capitol to Lincoln as the territory attained statehood in 1867.[11] Omaha emphasized its locational benefits and by 1891 was the headquarters for over 200 wholesale firms of diverse natures. Several of those firms had dealings as far away as the West Coast.[12] Railroads were still busy in Omaha during the 1920s, making the city the fourth largest rail center in the country, and providing the goods which made it fifteenth in the United States in wholesale business volume handled by 1930. Wholesaling was hurt by the Depression, however, and had thus reached its peak during this time,[13] never to be regained.

New Areas of Growth

In the first two decades of the twentieth century, Omaha experienced new growth in two areas: insurance and finance. In 1909, an insurance company, known today as Mutual of Omaha, was founded in Omaha.[14] Three years later, the Woodmen of the World, another insurance firm, built an 18-story building which was touted as the tallest structure between Chicago and the West Coast.[15] By 1971, Omaha was the fourth largest insurance center in the nation, led by Mutual

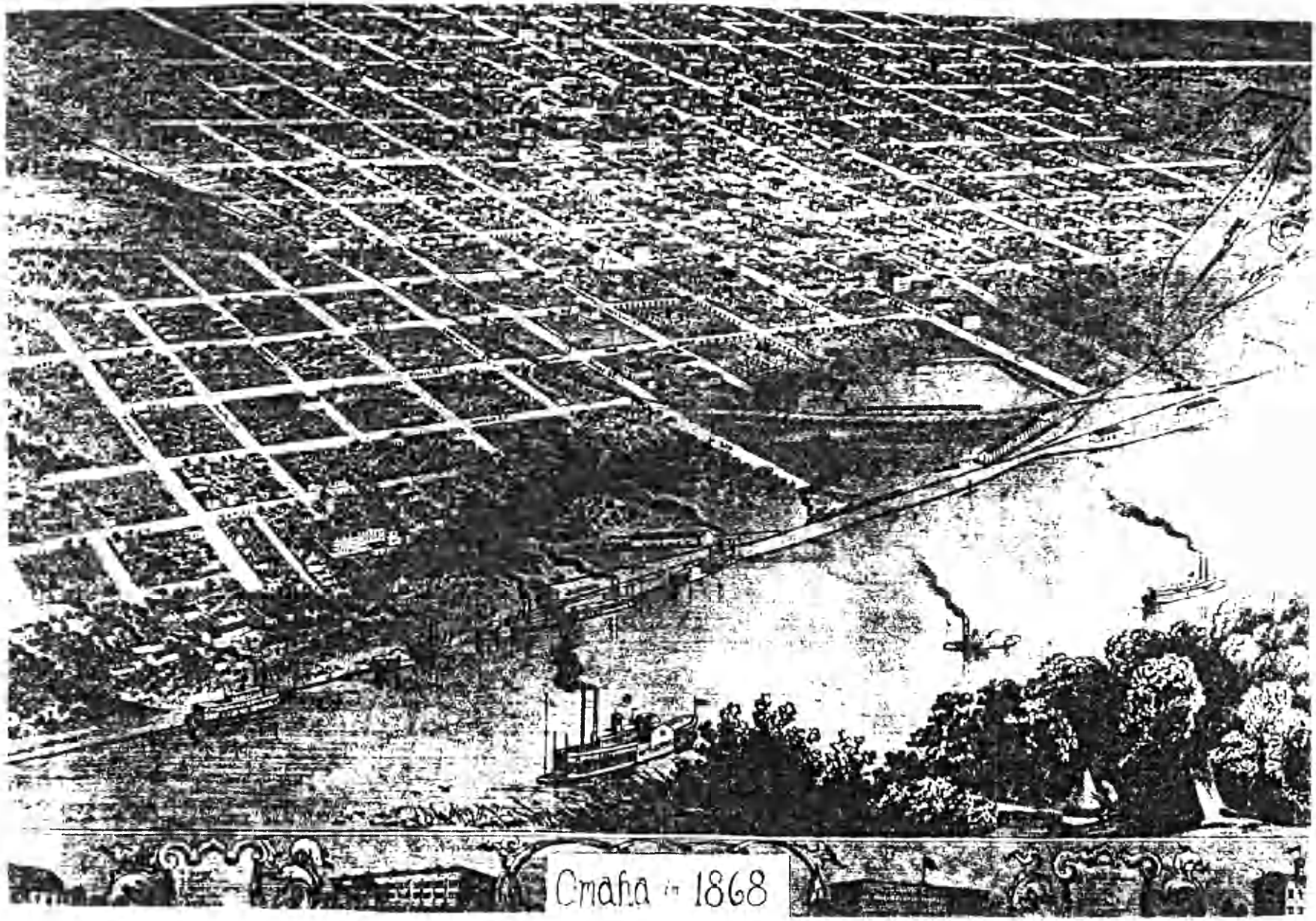

Fig. 7. Omaha in 1868. (Source: Dr. Harold J. Retallick)

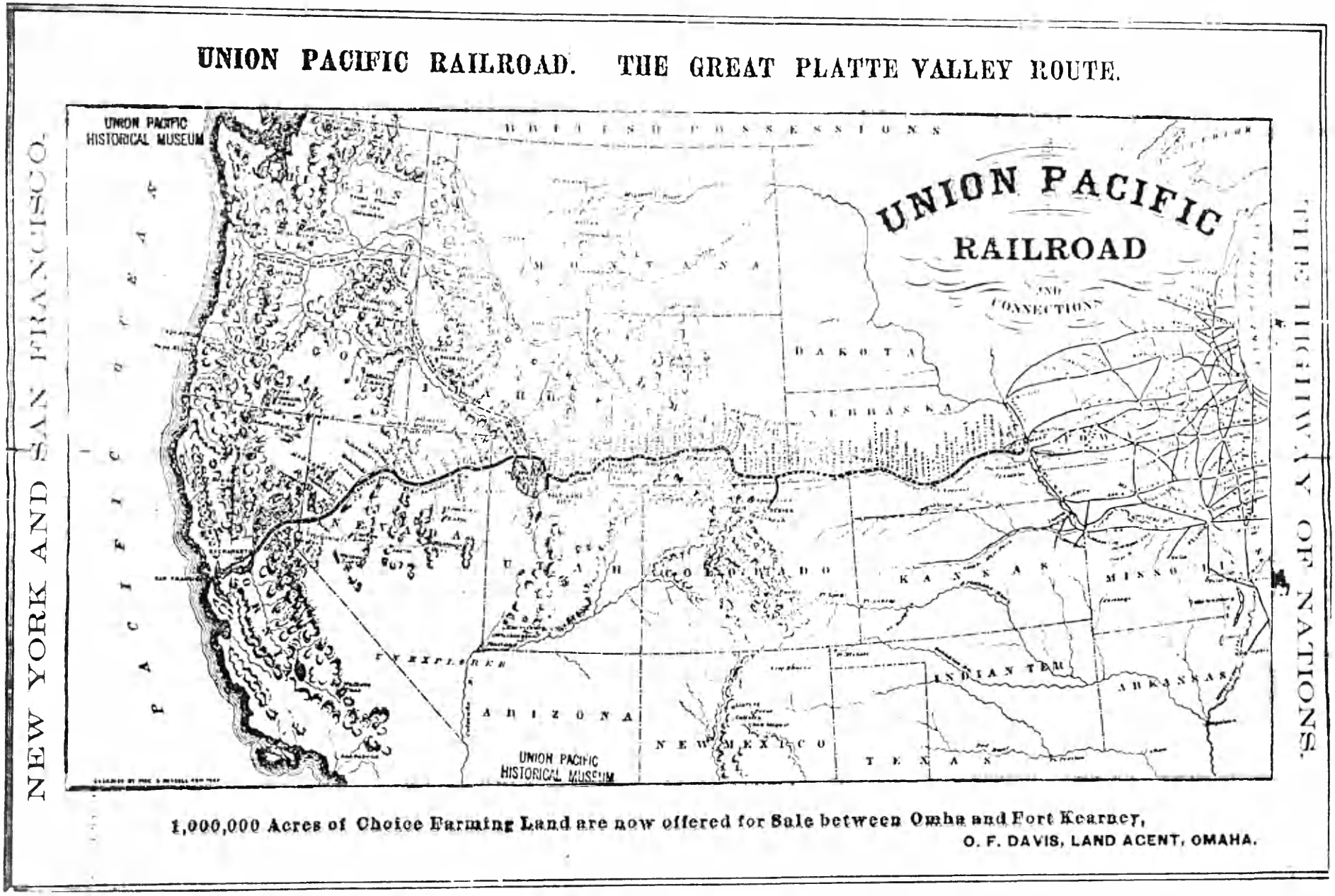

Fig. 3. The Trans-continental Railroad Route. (Source: Dr. Harold J. Retallick)

of Omaha and the Woodmen of the World Fraternal Order.[16] The financial sector of the city was bolstered when, in 1917, Omaha was chosen as the site for a Federal Reserve Bank branch which was chartered to serve Nebraska and Wyoming. Eight years later, the bank moved to another, move spacious building within the downtown central zone.[17] Currently, the Federal Reserve Bank has constructed a new facility in the downtown area, having outgrown their previous quarters. The city, at present, has nine banks or savings and loan institutions within the selected 30-block study area.[18]

Omaha continues to influence the state of Nebraska because of its distinction as the largest city in the state. It currently has a population of 340,000 within the city limits (1985),[19] which is approximately one-fifth of the state's total population, and almost 600,000 people in the urbanized metropolitan area (see Table I).

TABLE I

POPULATION WITHIN OMAHA'S STANDARD METROPOLITAN STATISTICAL AREA, 1940-1980

Year	Population
1940	325,153
1950	362,203
1960	457,873
1970	556,000
1980	585,000

Source: Statistical Abstract of the United States, 1951, 1961, 1980, and 1981.

Early Central Business District Moves

When dealing with a problem which assumes change over time, it is necessary to illustrate major significant historical changes in order to justify examination of the current problem. But because historical data rarely meet the total needs for a particular study, most of the changes in CBD location must be implied from such data. Important pieces of historical information include locations of paved streets, the busiest thoroughfares, the movement of prominent businesses in the CBD, and the locations of "less intensive" land use. Below is historical information which leads to the conclusion of westward movement for Omaha's downtown from its inception up to 1940, when this study begins. (Use Fig. 4 for reference.)

In 1856, the settlement of Omaha centered around Harney Street, the main thoroughfare, with residences on Douglas, Farnam, and Harney Streets extending to Fourteenth Street.[20] Ten years later, the city's wealthy population moved a few blocks west to the bluffs to build their homes in an area bounded by Eighteenth, Twentieth, Harney, and Capitol Streets.[21] By 1880, only Farnam was paved in this boom town, and it had to repaved the following year with crushed granite because of the heavy traffic. In 1882, Douglas Street was asphalted from Fourteenth to Sixteenth Street.[22] Sixteenth Street surfacing followed a year later. The early paving of some streets was a major factor in the location of businesses in the downtown. More businesses located on either Farnam or Sixteenth during the 1880s than any other streets. The wholesale district was located

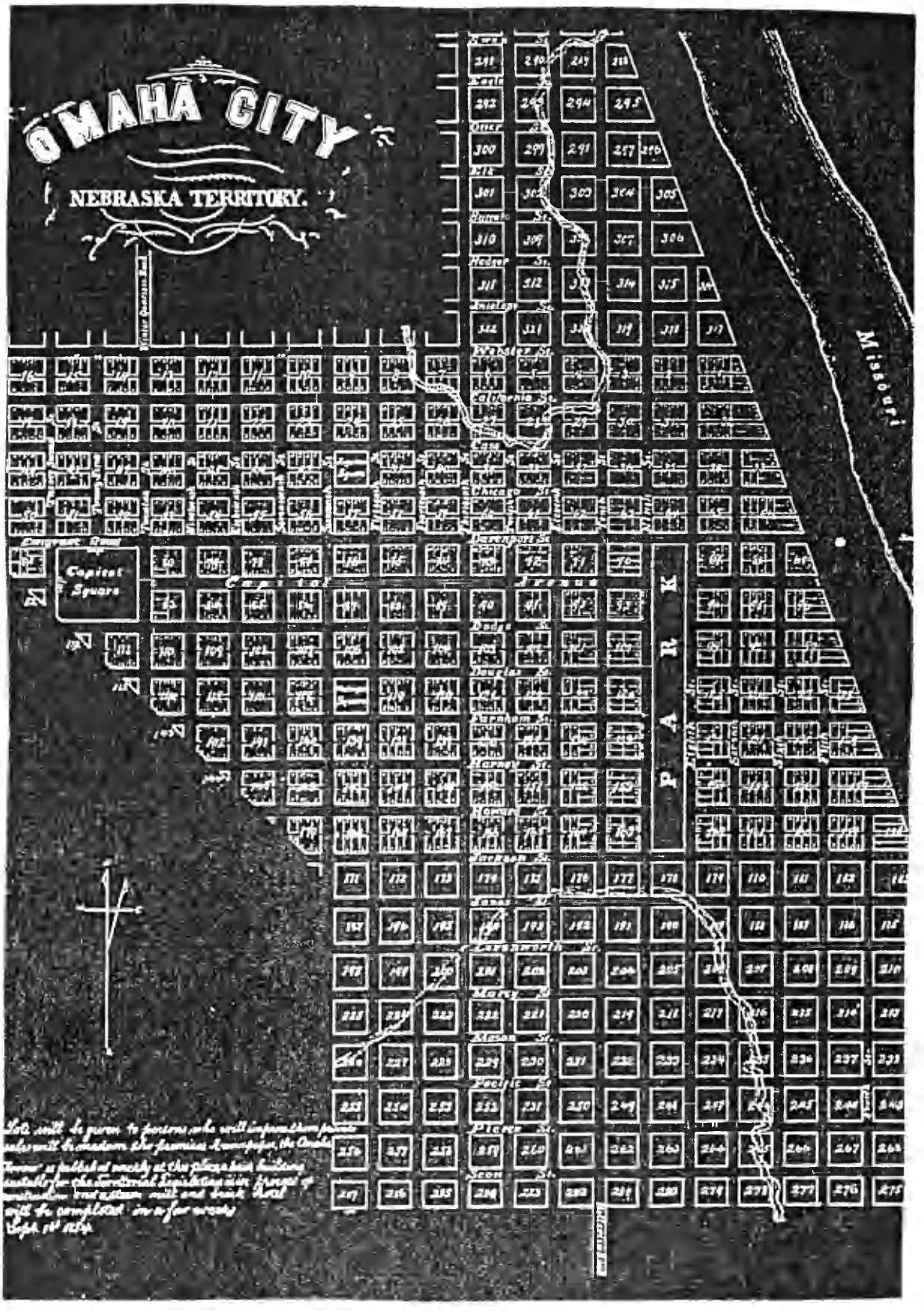

Fig. 4. Early Plat Map of Omaha, Circa 1854. (Source: Omaha City Planning Department)

around Harney and Twelfth Streets at this time, and Ninth and Tenth Streets were the leading retail arteries in 1881. Just two years later, however, retailers began moving west to Thirteenth Street. Even the retailers which were ensconced in the Ninth-Tenth Street strip, like J. L. Brandeis, moved west again. In 1881, the Brandeis store was at Thirteenth and Howard, but only seven years later the retail store was moved again to its permanent downtown location at Sixteenth and Douglas Streets.[23]

The first two decades of the twentieth century showed a flurry of activity in the downtown area. The old Ninth Street retail area was converting to warehouses. (The territorial capitol had stood there in 1855.) Likewise, several churches relocated from the immediate downtown central business zone into surrounding, less intensively used land. The result was that many new buildings went up in the now vacant land, especially along Farnam and Sixteenth Streets.[24] By 1934, Sixteenth and Farnam was recognized as the core of the retail and financial district,[25] a position maintained for years to come.

Additional Changes

Besides movement within the CBD, Omaha has undergone other changes in the past sixty years which enhance the suitability of the city as a study site. Omaha, in the first half of the twentieth century, was recognized as a wholesale and transportation city. This classification was reiterated by Harris in 1943, when he stated that Omaha, Nebraska was a wholesale city concerned with distribution to a large surrounding area.[26] In contrast to Harris' statement,

Nelson, in 1955, classified Omaha as a Finance, Insurance, Real Estate/ Wholesale city (F3W).[27] In only twelve years, the functional classification of the city had undergone a major change. Today, Omaha would continue to be classified as a Finance, Insurance, Real Estate center,[28] in light of such factors as Mutual of Omaha being the city's largest single employer and the city's continued influence over the rest of the state in the financial sphere.[29]

Another change that occurred in Omaha was in the attitude toward the downtown area caused by a spatial movement. During the late 1950s and 1960s, retailers started a large-scale outmigration from the downtown central zone into lower cost suburban sites, such as Southroads or Westroads, which were closer to residential populations. Shoppers were drawn to the new centers, enticed by the variety of stores found in one area and the promise of free and convenient parking. As a result, this suburban retail trend hurt the retail economy of the downtown CBD area. By 1971, only one out of five Omahans shopped downtown regularly, and fifty-two percent of the population rarely or not at all.[30]

During the period of retail relocation, Omahans became aware of the deterioration that was occurring in the CBD. Alarmed at the CBD's apparent future, the city implemented a plan in 1966 which called for $280 million in private/public funds to be spent by 1980 for the revitalization of the area. Between 1966 and 1971, twenty-five new buildings or additions were constructed, adding twenty-five acres of office space.[31] By 1981, the city's plan of luring private funds by investing public money had worked. For each dollar of public money

spent, $4.12 was invested in the downtown by private concerns in building or renovating, for a total of $631.9 million since 1965.[32]

Because office rather than retail is the major land use in the downtown today, retail focus has changed from the traditional CBD types to more specialized forms. Retailers are returning to the central zone, but they are settling into mini-malls such as the renovated Braiker-Brandeis building at Sixteenth and Douglas Streets. Their retail focus is not then to serve the entire city as it had been in the past, but rather the office workers and professionals who are employed in the downtown area or apartment residents living in large renovated buildings. Although Omaha's renovation plan is not yet complete,[33] implemented changes will continue to alter the spatial and functional character of Omaha's CBD in the future.

Because the nature of the downtown of Omaha, Nebraska, has changed in the past, and is currently evolving, the question of the nature and character of the hard core changes which occurred from 1940 to 1980 is deemed a viable geographic problem.

Procedure

This chapter has served as an introduction to the concept of the CBD and its ability to change in terms of spatial and functional characteristics. The problem with which this thesis is concerned has been introduced, and the objectives outlined. A brief section dealing with critical Omaha history has been included to provide the reader with a sense of place, and to identify pertinent facts concerning the CBD which will be important in the following chapters.

Chapter II, Methodology, contains a literature review as well as the methodology used. By placing the review in this chapter, the reader might better understand the reasoning behind the modifications made to previous studies and the procedures which were subsequently developed for a time study. Also included are details on the collection of data, the quantification techniques used, and how the data were mapped or graphed. The locations of useable information are disclosed as well as comments on its availability to the general public. Explanations as to how land uses were classified from city directories, how county assessment records were used to arrive at average block heights and the PLVI for each period, and how the areal mean center (Amc) was found statistically are included.

In the third chapter, Spatial and Functional Changes in the Delimited Hard Core, 1940-1980, maps and graphs used in demonstrating spatial and functional changes which have occurred in Omaha's CBD during the forty-year period are introduced. The maps establish the delimitation of the hard core, the relationship of the PLVI and the Amc through time based on the use of standard distance deviation, and each hard core block's average height. Building height maps are used in determining the relationship between the highest buildings and the PLVI. In the same vein, functional changes which occurred in the area were analyzed using categorized CBD and non-CBD land use-based graphs. The information presented by the graphs was based on the total number of first-floor land uses in the hard core for each year observed. (The graphs were based on percentages and then directly compared.)

Chapter IV ties the observations made in the previous chapter about the nature and character of changes which have occurred in Omaha's CBD over the time period studied. General trends are thus identified and explained in terms of what was happening in Omaha at that particular time. Possible uses of this study and its type are examined and suggestions made as to where future studies of this kind might lead.

CHAPTER I ENDNOTES

1. Raymond E. Murphy and James E. Vance, "Delimiting the CBD," Economic Geography 30 (1954): 189-222.

2. Raymond E. Murphy, James E. Vance, and Bart Epstein, "Internal Structure of the CBD," Economic Geography 31 (1955): 21-46.

3. Hywel D. Davies, "The Hard Core of Cape Town's Central Business District: An Attempt at Delimitation," Economic Geography, 36 (1960): 53-69.

4. James E. Vance, This Scene of Man (New York: Harper & Row, 1977), p. 369.

5. Murphy, Vance, and Epstein, p. 27. Graph columns are based on time periods rather than zones.

6. Murphy and Vance, p. 301.

7. Martyn Bowden, "Downtown Through Time: Delimitation, Expansion and Growth," Economic Geography 47 (1971): 121.

8. Davies, p. 54.

9. Malcolm J. Proudfoot, "City Retail Structure," Economic Geography 13 (1937): 424.

10. This movement can be dated using city directories to pinpoint the years that major retailers, such as J.C. Penney's, moved out of the downtown area and relocated to the suburbs.

11. Omaha City Planning Department, A Comprehensive Program for Historic Preservation in Omaha (Omaha: Klopp Printing Company, 1980), pp. 12-17, 21.

12. Ibid., p. 31.

13. Ibid., pp. 65-66.

14. Ibid., p. 65.

15. Ibid., pp. 47-48.

16. Omaha World-Herald, Omaha: Profile of a Prosperous Market, 27th Annual Consumer Analysis, 1971 (Omaha: World Publishing Company, 1971), p. 11.

17. Omaha City Planning Department, p. 64.

18. Northwestern Bell, The White and Yellow Pages (U.S. West Direct, 1985). This reference was taken from the Yellow Pages using street addresses.

19. "Omaha Population," Omaha World-Herald, 8 August 1985, Sec. S., p. 1.

20. Omaha City Planning Department, p. 16.

21. Ibid., p. 24.

22. Ibid., p. 25.

23. Ibid., p. 31

24. Ibid., pp. 47-48.

25. Ibid., p. 64.

26. Chauncy D. Harris, "A Functional Classification of Cities in the United States," Geographical Review 33 (1943): 93.

27. Howard J. Nelson, "A Service Classification of American Cities," Economic Geography 31 (1955): 203, 207.

28. In student projects completed in the Geography Department at the University of Nebraska-Omaha, using 1970 census data, the city of Omaha was classified as F2WR.

29. Harold J. Retallick, Charles R. Gildersleeve, and Donald W. Lea, Omaha Trade Area Study No. 5, Omaha Spheres of Influence (Omaha: Urban Studies Center, University of Nebraska-Omaha, September 1968), pp. 4, 5.

30. Omaha World-Herald, pp. 22-23.

31. Ibid., p. 25.

32. "Downtown Tally Is $631.9 Million," Omaha World-Herald, 10 September 1981, pp. 1, 4.

33. Omaha has plans to continue renovation and building in the downtown area, including a water front marina complex.

CHAPTER II

METHODOLOGY

Literature Review

Urban geography is a dynamic field because there is always some type of change occurring within the discipline and its ideas. By reviewing past literature, it becomes apparent that ideas and methodology concerning the CBD have evolved. The sources mentioned in the literature review begin with very general studies concerning the CBD, and go on to more specific ones from which the methodology used in this thesis was synthesized. While perusing the background literature, three types of studies were noted. First, there are general CBD studies which explain the concept of a central business district and define its common characteristics. Second, there are studies which delimit the area occupied by the CBD and its hard core. The third type of study deals with historic studies which are related to understanding the downtown area.

General Studies

The concept of a central business district is not a new idea in urban geography, yet the CBD is still a current part of today's cities. The concept has been around for many years and has been the subject of, or at least mentioned by geographers, in many urban articles. In 1937, Proudfoot described the CBD, and pointed out two important characteristics: the use of multi-storied buildings in

the area, and the auto-pedestrian traffic congestion which occurs during the weekdays, especially at the rush hours.[1] These, and the characteristics already mentioned in Chapter I, are the generally accepted indicators common to the area.

Several studies concerning urban models recognized the CBD as an actual physical area within the urban sphere. Harris and Ullman, in "The Nature of Cities," gave an overview of three urban models dealing with growth and internal structure (concentric zone, sectors, and multiple nuclei).[2] Two of the models, the concentric zone and the multiple nuclei, make specific references to the CBD and its position within a city. These models described the zones surrounding the CBD and functions characteristic of them, but did not delimit the area inhabited by the central business district. Horwood and Boyce also described the position of the CBD and its surrounding zones using the core-frame concept. In the core-frame idea, the core is the CBD which is the zone of homogeneous land use. The frame, on the other hand, is an area of mixed land use and surrounds the central business district.[3] (Mayer and Hayes, in Land Uses in American Cities, agreed with this general idea.[4]) The frame is also geared toward less intensive land uses such as wholesaling, warehouses, and lower quality housing, and while geared to auto traffic, it does not experience the congestion that the core does. The core, however, is the focus of mass transit and freeways and experiences the highest daytime density as a pedestrian area. The core also grows vertically, reflecting its higher values, while the frame expands horizontally.[5]

Still another model, developed by Hartman, employed geometric

shapes to show and explain the growth of the CBD in the city. Hartman suggested that the variations in shape that can occur in the CBD are the result of local conditions in each CBD. This article, unlike the previously mentioned ones, is concerned with only the central business district, narrowing the scope previously considered.[6] Such a narrowing of vision illustrated a change occurring in CBD studies from the general to the specific. More specific types of studies enable one to look directly at the CBD and its components in a more exact way, including delimiting the area and/or following the CBD through time.

Delimitation Studies

Single Moment in Time Studies

The benchmark studies of CBD delimitation are a trio of articles written by Murphy and Vance and Murphy, Vance, and Epstein in 1954 and 1955. In these studies, "Delimiting the CBD," "A Comparative Study of Nine Central Business Districts," and "Internal Structure of the CBD," a quantitative technique and land-use classification system was introduced. This technique was outlined in "Delimiting the CBD," and the rules which were used in delimitation are explained.[7] This new technique improved upon earlier geographic ideas of what was included in the CBD and where the CBD was located. The intent of Murphy and Vance was to provide a methodology that could be used in most cities leading to directly comparable results. They supported this by their study, "A Comparative Study of Nine Central Business Districts," and showed that direct comparisons could indeed be accurately made.[8]

By applying their delimitation technique to several CBDs, Murphy, Vance, and Epstein developed characteristics of the CBD and wrote about them in "Internal Structure of the CBD."[9] They asserted that the structure of the CBD is underlain by land values, and that land use (as reflected by the valuations) is the most practical base for studying the CBD. Murphy, Vance, and Epstein found that the downtown is divided into zones, radiating from the peak land value intersection (PLVI). The most important zone was the first 100 yards surrounding the PLVI, regarded by them as ". . . the quintessence of those characteristics that are associated with the District."[10] The authors also pointed out that the CBD is a dynamic area but "The picture of the CBD, however sharp and accurate it may be, is no more than a glimpse of the moment."[11] The movements which they described, such as the growth of the CBD along planes by assimilation and discard and the tendency of the PLVI to follow the direction of assimilation,[12] were only made for the moment in time that the cities were studied. These fluctations within the spatial extent of the CBD are commonly accepted as truth. What Murphy, Vance, and Epstein did was to introduce the study of CBDs to the quantitative era, and while not all of their technique is useable in an historical study, the basis of it is.

Another type of delimitation study is the "boundary" study. This study defines the area which surrounds the CBD, the transition zone between the CBD and the rest of the city. Both Preston and Davies[13] based their work on land use when they considered the transition zone. Each also adopted the land use classification developed by Murphy and Vance, but adapted it to meet the needs of the transition

zone; Davies went further and used the indices by the same. As could be expected, boundary studies showed a less intense land usage in the area of concern rather than what occurs in the CBD proper. The boundaries of the CBD, however, could still be delimited using this type of study. Comparison of CBD land use through time, on the other hand, would not be possible. Any comparisons would have to be done using the zone of transition rather than the object of interest in this thesis, the hard core of the CBD.

The hard core was delimited by Davies in 1960,[14] five years after his boundary zone delimitation. Again, he based his methodology on Murphy and Vance, but adjusted it to better fit the hard core. In "The Hard Core of Cape Town's Central Business District: An Attempt at Delimitation," Davies argued that the hard core was the purest part of the CBD, the area containing the highest quality functions as well as the highest rents. The peak land value intersection (PLVI) was mentioned as the focus of the core, and the difference in its position relative to that of the geographic center (Amc) was noted as a point of interest. While Davies' study delimited the hard core, it, like the others, was concerned with only one moment in time. An historical perspective was needed before the current thesis problem could be solved.

Historical Studies and Delimitation

To understand the hard core of a city, it is necessary to delve into the city's past to see how the core area has changed in both spatial position and land use functions. Knowing that the city

is not static, Vance suggested:

> We must then distinguish between the initial location of activities in urban history and their subsequent shifts. The present occupation of the heart of the city by the central business district says mainly that given present conditions, the complex of activities found there today currently gains the most from such a location.[15]

Previously mentioned studies were only concerned with the city at the time each article was written. But urban sites change. The city, as well as its CBD, has evolved and will continue to do so, creating the need to study that change through time. Goheen, in "Interpreting the American City: Some Historical Perspectives," emphasizes the need by the discipline of geography to understand the city through time:

> If the geographical study of urban America is to respond to the challenge to consider the city as an expression of corporate and private values, an explicit discussion of the context in which these views were formed and held, and in which their influence diffuses, is required. Such a study will involve an understanding of the historical processes creating the fundamental reordering of relationships between persons and institutions that has characterized the city at least since the advent of industrialization. In such a light, the American city is a concept dependent on an historical understanding of the ideas and activities that collectively represent its vitality.[16]

In his article, "The Industrial Revolution and the Emergence of Boston's Central Business District," Ward used an historical approach to trace the early development of Boston's CBD.[17] Using historical data and documents, Ward found that the industrial revolution caused many spatial and functional changes during the period studied.

Another study conducted by Bohnert and Mattingly[18] also used an historical perspective to show the changes occurring in the CBD, but rather than depend upon historical documents, they quantified the data using a modified Murphy and Vance technique. Although they were successful in marking boundaries, Bohnert and Mattingly suggested further steps, one of which was the comparison of land-use changes within the CBD over time.

A synthesis of these two types of studies was finally done by Bowden in "Downtown Through Time: Delimitation, Expansion, and Internal Growth."[19] While delimiting San Francisco's CBD through time, Bowden made use of both historical documents and a modified Murphy and Vance technique to find the boundaries of the CBD and to note the changes that had occurred.

From the studies which have been noted in the review, two ideas keep recurring: that studies done through time add to the understanding of the nature and character of an area, and that techniques can be modified (within reason) to better fit the problem at hand. This thesis seeks to understand the hard core of Omaha, Nebraska, over time, but to do so, the methodology, based on the ideas of Murphy and Vance, will be modified to fit the problem. As Vance stated, understanding a city over time is a viable and important problem.

Methodology

The methodology used to solve Omaha's CBD time delimitation problem was synthesized from methodologies available in the cited literature. Major points in the development of the method were taken

from both delimitation and historical studies in order to synthesize an appropriate methodology, one which would make it possible to follow the hard core through time. The methodology included delimiting the actual hard core, locating the peak land value intersection (PLVI) and the areal mean center (Amc), noting building heights near the PLVI, and putting the information gained in a useable form for analysis in Chapter III.

Delimitation of the Hard Core

One of the most important ideas garnered from the background literature was the importance of land use in the delimitation process. Because of this, land use forms the base of hard core delimitation in this study. To delimit the hard core in 1940, 1951, 1961, 1970, and 1980, a technique that could be used over time was needed. As previously mentioned, Murphy and Vance designed a method for delimiting the CBD,[20] based on what they felt was the most important factor which would be common in cities: land use. Bohnert and Mattingly also gave reasons for choosing land use to follow the CBD through time.[21] First, it is available in most North American cities. Second, it is comparable from time period to time period and city to city. Third, land use makes a realistic single measure. So, to delimit the hard core, it was decided to use land use in the categories designed by Murphy and Vance (see Table II) as CBD and non-CBD.[22] The categories include the following:

TABLE II

LAND USE CATEGORIES

CBD Uses		Non-CBD
Retail Business	Service, Financial, Office	
Food: restaurant; supermarket; general food; food specialty; delicatessan; ice cream parlor; package store; bar (F)	Financial: bank; personal loan; insurance agencies and real estate offices; brokers, etc. (B)	Residential: permanent dwelling units (D)
Clothing: women's, men's, and family clothing; clothing specialty; general shoe store (C)	Service Trades: personal service; clothing service; household service; business service; newspaper publishing (T)	Public and Organizational: public building and ground space; organizational and charitable institutions (G)
Household: furniture; hardware and appliances; dry goods, rugs, curtains, etc.; coal, oil, ice, and heating sales; used furniture and antiques (H)	Headquarters Office: (O)	Industrial: (I)
Automotive: new and used motor vehicle sales; service station or garage; accessory, tire, and battery sales; auto rental (A)	General Office: (E)	Wholesale:* (W)
Variety: department store; "5" and "10" store; drug store; cigars and news (V)	Transportation: railroad uses; bus uses; air transport; trucking (R)	Vacancy: vacant building or store; vacant lot; commercial storage (X)
Miscellaneous: sport, photo, toy, hobby, etc.; jewelry and gift; florist shop; book store; office machines and furniture; office supply and stationary; pawn shop; amusement establishment (M)	Parking: customer parking; commercial parking (P)	*Murphy and Vance did not include wholesale offices which were separate from the wholesale establishment. In this thesis, jobbers are included in the wholesale category because they are necessary in moving the merchandise.
	Transient Residence: hotels and other transient lodging (L)	

Source: Raymond E. Murphy, James E. Vance, and Bart Epstein, "Internal Structure of the CBD," Economic Geography 31 (1955): 26.

CBD:
- Retail Business (RB)
  - Food (F)
  - Clothing (C)
  - Household (H)
  - Automotive (A)
  - Variety (V)
  - Miscellaneous (M)
- Service, Finance, Office (SFO)
  - Financial (B)
  - Service Trades (T)
  - Headquarters Office (O)
  - General Office (E)
  - Transportation (R)
  - Parking (P)
  - Transient Residence (L)

Non-CBD:
- Residential (D)
- Public and Organizational (G)
- Industrial (I)
- Wholesale (W)
- Vacancy (X)

Land uses in the study area were obtained from Omaha City Directories available in the Omaha Public Libraries and the UNO Library for the years 1940, 1951, 1961, 1970, and 1980. Only first-floor land uses were used since the hard core is a pedestrian area, and these uses would be closest to consumers downtown. The addresses in the study area were first listed by street, then categorized (above) into the land use to which the address belonged. Next, the addresses were divided according to city blocks. Blocks were used because of their familiarity to the public as land units in the downtown area. The number of land uses in each category per block was then counted. If the CBD uses accounted for 80 percent or more of the total ground floor land use (CBD + non-CBD) of a block, it was designated as a hard core block. For example if:

RB uses = 2	Non-CBD uses = 2	Total uses = CBD + non-CBD = 10
+ SFO uses = 6		
CBD uses = 8		

the block's percentage of CBD uses = 8/10 or 80 percent, and would be included in the hard core for that year. Davies justified the 80 percent rule by noting that the hard core is of a higher degree than the CBD, which Murphy and Vance delimited with a 50 percent index figure.[23]

In order to then map the hard core, rules of contiguity were applied to the delimited blocks (Table III). Such a rule was needed because in some time periods, there were hard core blocks which were isolated from the rest of the hard core, and were classified as anomalies for the study. After applying the contiguity rules, which were derived from Murphy and Vance,[24] these blocks were not included in the final maps appearing in Chapter III. Still another result of using these rules was the expansion of the study area (Fig. 5). All blocks which touched any hard core block also had to be delimited to ensure that all of the hard core was located.

After the delimitation was completed, the points which were of interest to the study, the PLVI, and the Amc, were located through time in order to show spatial changes within the hard core.

Location of the Peak Land Value Intersection

The second step in the methodology was to locate the peak land value intersection (PLVI) through time in the downtown area. This was done by using property assessment values available at the Douglas County Assessor's Office for 1940, 1951, 1961, 1970, and 1980.

TABLE III

RULES OF CONTIGUITY USED IN HARD CORE DELIMITATION

1. Blocks reaching the 80 percent criteria must be part of a set (two or more together) to be mapped as hard core blocks.

2. If a block touches another block at the corner, it is considered contiguous or part of a set.

3. If a block does not meet the 80 percent criteria, but is surrounded by hard core blocks, then the non-hard core block is included.

4. Whereas blocks devoted to governmental use can be included in the CBD, if they are contiguous with the CBD, they are not included in the hard core. The hard core contains uses of a higher quality and index percentage than CBD blocks.

Note: Murphy and Vance's rules were modified to better fit the needs of the hard core. The need for contiguity with the PLVI was thrown out since the hard core is such a small area, and only including these blocks would not have shown the pattern of the hard core and would have skewed the location of the areal mean center (Amc).

Source: R. E. Murphy and J. E. Vance, "Delimiting the CBD," Economic Geography 30 (1954): 219.

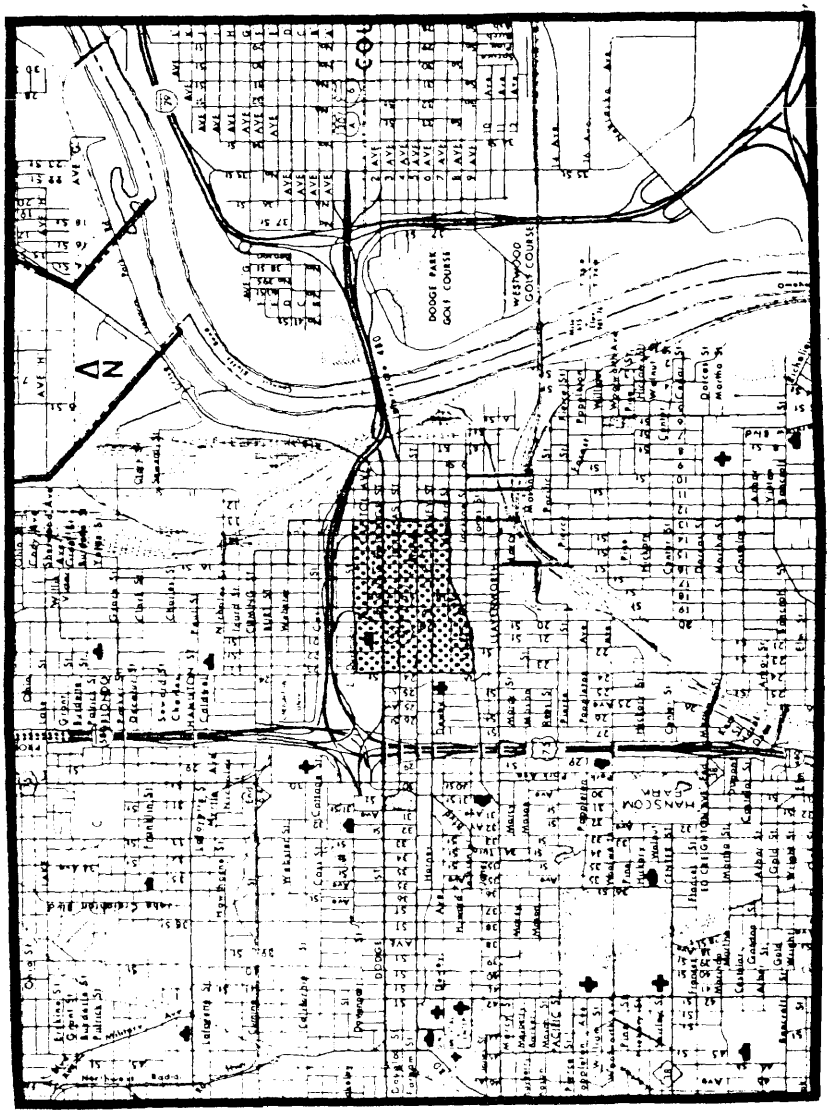

Fig. 5. The Expanded Study Area. Originally 12th to 20th Streets, Dodge to Harney, the area was enlarged to 12th to 24th Streets and Davenport to Howard. (Source: Omaha City Planning Department)

The values, also listed by address, were available by city blocks, the same unit used in delimitation of the hard core. The total value of each hard core block's properties (addresses) was summed, giving each block an overall value. (Again, this was done to any blocks which touched hard core blocks.) The PLVI was identified as the intersection that was surrounded by the highest accumulative values in the hard core study area. This point was then mapped on the hard core maps and a map showing building heights.

Building Heights and the PLVI

Building heights around the PLVI were included in this study to test the theory of the tallest buildings being located in the core near the PLVI. The tallest building on each hard core block during each time period was identified (in stories) and mapped. The PLVI was then added to these maps in an attempt to determine a relationship. The information on the building heights came from the Douglas County Assessor's Office, as did the information for the PLVI.

The Areal Mean Center of the Hard Core

The final part of the methodology was locating the areal mean center (Amc) for the years 1940, 1951, 1961, 1970, and 1980. The Amc is used in conjunction with the location of the PLVI in maps presented in Chapter III, to demonstrate a possible relationship in their movements over time. The areal mean center's location on a map can be used to summarize the distribution of the hard core blocks for each year, and over time.[25]

To find the Amc for a particular year, the hard core was graphed using twenty-point graph paper (to reduce the introduction of bias). Then a standard statistical formula was used to find the Amc of the hard core. This formula is based on the summation of rows and columns (x and y values) and of their products (row or column number X row or column value). Division of the products by the values then rendered the Amc coordinates. Below is the formula used:

$$\text{Amc} = \frac{\text{products } x}{\text{values } x} \; ; \quad \frac{\text{products } y}{\text{values } y} = \bar{x};\bar{y}$$

Simply put, the Amc can be found "by computing the arithmetic means for the coordinates of the observations on the two axes. The point of these two means, $\bar{x}$ and $\bar{y}$, defines the mean center."[26] The resulting coordinates were then plotted on the same maps as the PLVI. The maps and their analysis are presented in the following chapter.

The intention of this chapter was to present an overview of CBD literature and the methodology used in solving this thesis' problem. The literature review acts as an introduction to the methodology, as well as its basis, showing studies which deal with both delimitation and history. But this thesis is more than just a delimitation study; it is the testing of past models to see if they are adaptable to new types of problems. Is Omaha's hard core the same as it was in 1940, or do generalizations which surround the concept of the CBD need to be updated? The changes in the hard core of Omaha, both spatially and functionally, are presented in the following chapter. Granted, a new model or theory cannot be based on one study, but it

is a beginning. As Harris and Ullman stated, "Each city is unique in detail but resembles others in function and pattern. What is learned about one helps in studying another."[27]

CHAPTER II ENDNOTES

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3. Maurice Yeates and Barry Garner, The North American City (San Francisco: Harper & Row, 1980), pp. 335-336.

4. Harold M. Mayer and Charles R. Hayes, Land Uses in American Cities (Champaign, Illinois: Park Press, 1983), p. 85.

5. Yeates and Garner, pp. 335-336.

6. George W. Hartman, "The Central Business District: A Study in Urban Geography," Economic Geography 26 (1950): 237-239.

7. Raymond E. Murphy and James E. Vance, "Delimiting the CBD," Economic Geography 30 (1954): 189-220.

8. Raymond E. Murphy and James E. Vance, "A Comparative Study of Nine Central Business Districts," Economic Geography 30 (1954): 301-336.

9. Raymond E. Murphy, James E. Vance, and Bart Epstein, "Internal Structure of the CBD," Economic Geography 31 (1955): 21-46.

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11. Ibid., p. 42.

12. Ibid., pp. 42-44.

13. Richard E. Preston, "The Zone in Transition: A Study of Urban Land Use Patterns," Economic Geography 42 (1966): 236-260; D. Hywel Davies, "Boundary Study as a Tool in CBD Analysis: An Interpretation of Certain Aspects of the Boundary of Cape Town's Central Business District," Economic Geography 31 (1955): 322-345.

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16. Peter G. Goheen, "Interpreting the American City: Some Historical Perspectives," Geographical Review 64 (1974): 384.

17. David Ward, "The Industrial Revolution and the Emergence of Boston's Central Business District," Economic Geography 42 (1966): 152-171.

18. John E. Bohnert and Paul F. Mattingly, "Delimitation of the CBD through Time," Economic Geography 40 (1964): 337-347.

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21. Bohnert and Mattingly, p. 338.

22. Murphy and Vance, "A Comparative Study of Nine Central Business Districts," p. 26.

23. Davies, "The Hard Core of Cape Town's Central Business District," pp. 54-55.

24. Murphy and Vance, "Delimiting the CBD," p. 219.

25. Peter J. Taylor, Quantitative Methods in Geography (Prospect Heights, Illinois: Waveland Press, Inc., 1977), pp. 23-24.

26. Ibid., p. 23.

27. Harris and Ullman, p. 277.

CHAPTER III

SPATIAL AND FUNCTIONAL CHANGES IN THE DELIMITED HARD CORE, 1940-1980

Based on the groundwork laid in Chapters I and II, the purpose of Chapter III is to present an analysis of CBD delimitation, as well as spatial and functional changes in the hard core of Omaha's downtown zone from 1940 to 1980 (Fig. 6 and Table IV). Hard core changes are separated into two categories: spatial and land use (function). Spatial changes in the hard core include the actual block changes, such as the assimilation or discard of blocks, the location of the areal mean center (Amc) and the peak land value intersection (PLVI) for each year studied, and the possibility of a relationship among their movements. Spatial changes are represented in visual form by five maps which show the areal extent of the hard core and the placement of the Amc and the PLVI. (Another map visually presents the directional movements of the PLVI and the Amc.) Five final maps show the PLVI and tallest building per block in each year's hard core. Their purpose is to test the theory that the peak land value intersection and the tallest building(s) are found together.

Land use changes indicate functional changes which have occured from 1940 to 1980. The data dealing with the land use are presented in two tables and one figure (Tables IV and V and Fig. 18). The figure showing each year's land use as a percentage of the total for that year is represented as a graph patterned after the Murphy-Vance studies of land use variations in CBDs. Table V shows the

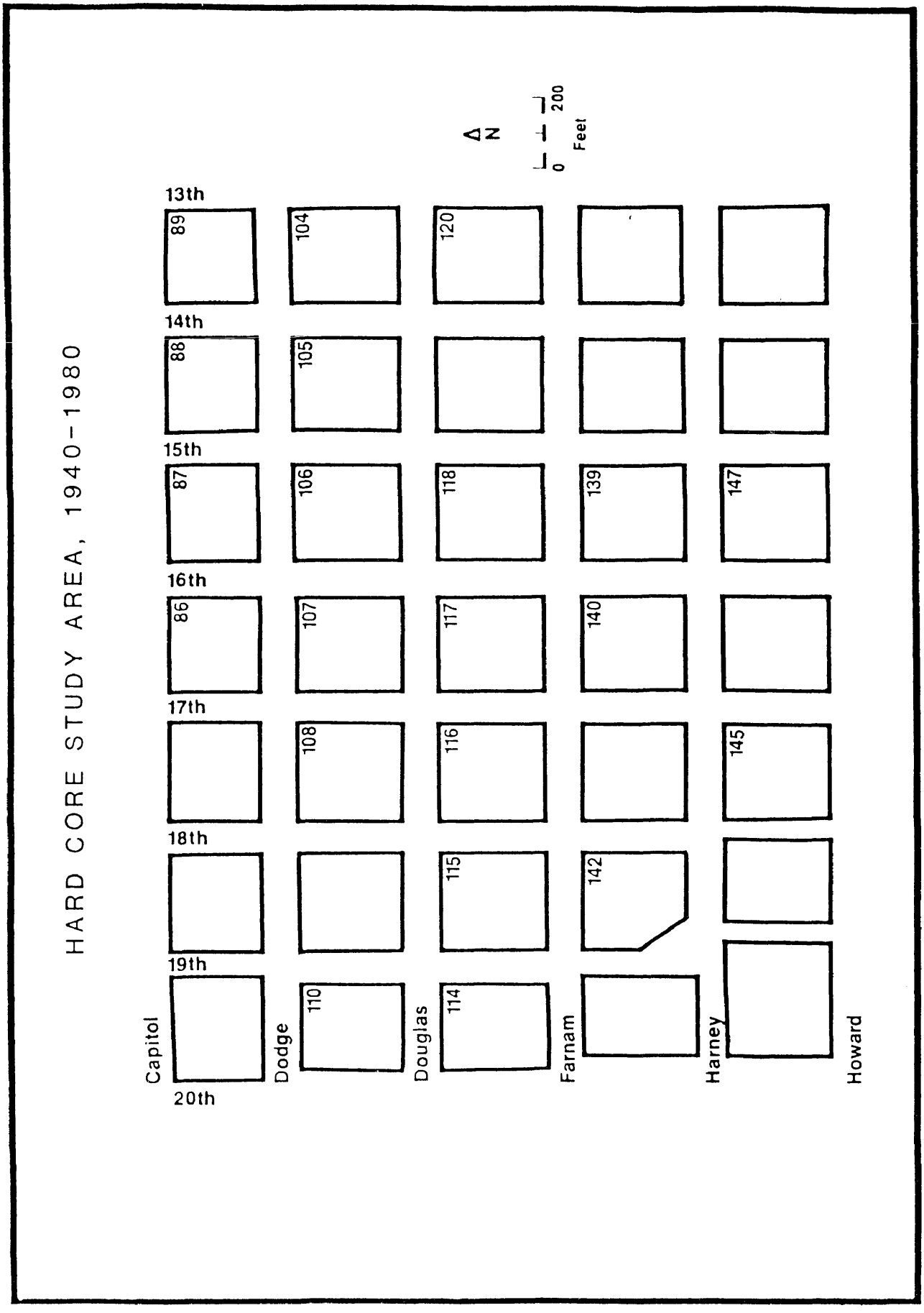

Fig. 6. Hard Core Study Area, 1940-1980.

TABLE IV

PERCENTAGE OF CBD LAND USE BY BLOCK IN OMAHA'S HARD CORE, 1940-1980

Block	1940	1951	1961	1970	1980
86	--	--	--	--*	100
87	--	--	--	--	--**
88	--	80	92	86	--
89	--	100	100	100	100***
104	--	--	92	100	--
105	--	82	--	82	--
106	89	--	--	--	--
107	--	--	--	83	--
108	--	--	--	81	--
114	--	92	--	82	87
115	--	83	--	82	94
116	--	--	--	80	100
117	100	100	100	89	--
118	90	96	95	96	--
120	--	--	86	83	--
139	88	94	85	87	--
140	84	--	--	--	--
142	--	83	83***	--	--
145	82	--	--	--	--
147	83	88	--	--	--

*Block under construction
**Blocks 86 and 87 were joined in 1971
***Blocks not contiguous and therefore not counted in the hard core

land use for each year by the total number of a type which occupied each category. In this chapter, then, conclusions and trends are not identified; such conclusions and trends are left for Chapter IV. Thus, Chapter III delimits the hard core and analyzes the changes which have occurred through the five base periods demonstrated by the maps, graph, and tables developed from the research for this key chapter in the thesis.

Spatial Changes

Areal Extent*

Changes occured in the areal extent of the hard core during each year studied. In 1940, the hard core consisted of seven blocks, delimiting a zone which occupied the area in between Fifteenth and Eighteenth, Dodge and Harney Streets. The pattern or shape demonstrated by the hard core in that year was a north-south linear one (Fig. 7). Six out of the seven blocks conformed to this pattern.

There was a large change, however, in 1951. In eleven years, the hard core had developed from a single unit to one which was split.[1] The area of interest contained eleven hard core blocks, an increase of four. Four of the blocks remained the same in 1951 as in 1940 (117, 118, 138, 147). The expansion of blocks included represents the directional growth which occurred toward the northeast and to the west in the hard core. The pattern in 1951, based on the majority

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*For reference in the discussion concerning areal extent, refer to Figs. 7 through 11 and Table IV.

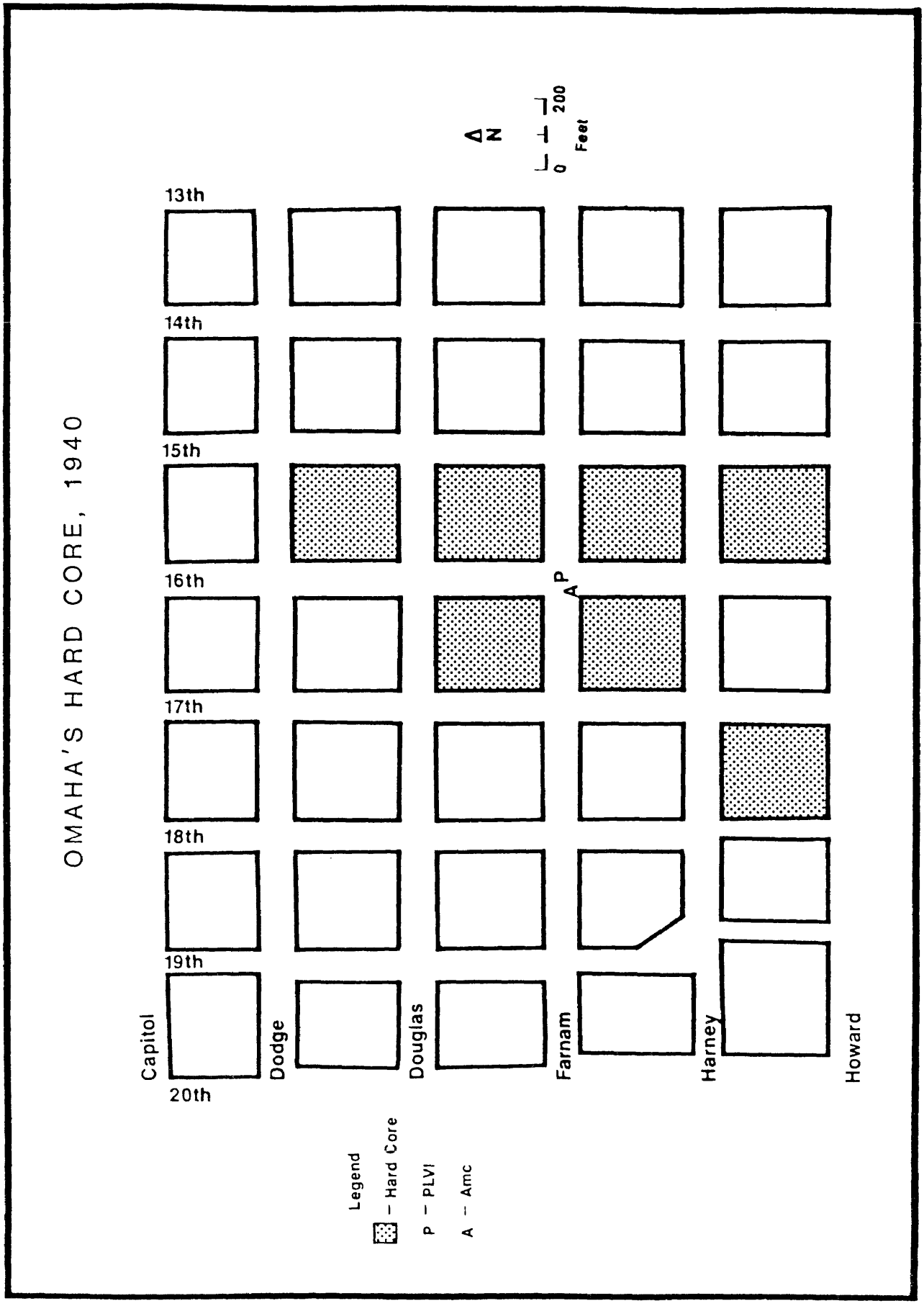

Fig. 7. Omaha's Hard Core, 1940.

of included blocks, continued to be a north-south linear one. There seemed to be, however, an indication of a new east-west pattern (Fig. 8).

The east-west pattern showed up more clearly in 1961, when the delimited hard core shrank back to but seven blocks. Three of the seven blocks were in common with the previous two study periods (117, 118, 139), showing a marked resistance to change. The hard core at this point seemed to be focused in the east, with the western four blocks of 1951 having been dropped. The pattern, as previously mentioned, is a bilinear one trending both east to west and north to south. The hard core of 1961, like its predecessor, also exhibited a split in the included blocks (Fig. 9).[2]

By 1970, several noticeable changes had occurred. Not only was the hard core once again unified, but a definite east-west and slightly north-south bilinear pattern had also developed (see Fig. 10). The areal extent of the hard core was the greatest of any of the years, and consisted of a total of thirteen blocks. Once again, blocks 117, 118, and 139 were included in the hard core, indicating a great stability and CBD persistence of those blocks, 1940 to 1980.

However, the three blocks did not appear in the hard core of 1980, ending the period of their resistance to change. The hard core was for a third time split, the dual sections appearing in the north and the west portions of the study area (Fig. 11). In addition, only five blocks were included in the 1980 delimitation, making the hard core's areal extent the smallest of any of the years studied. These five blocks formed still another linear pattern, with each of

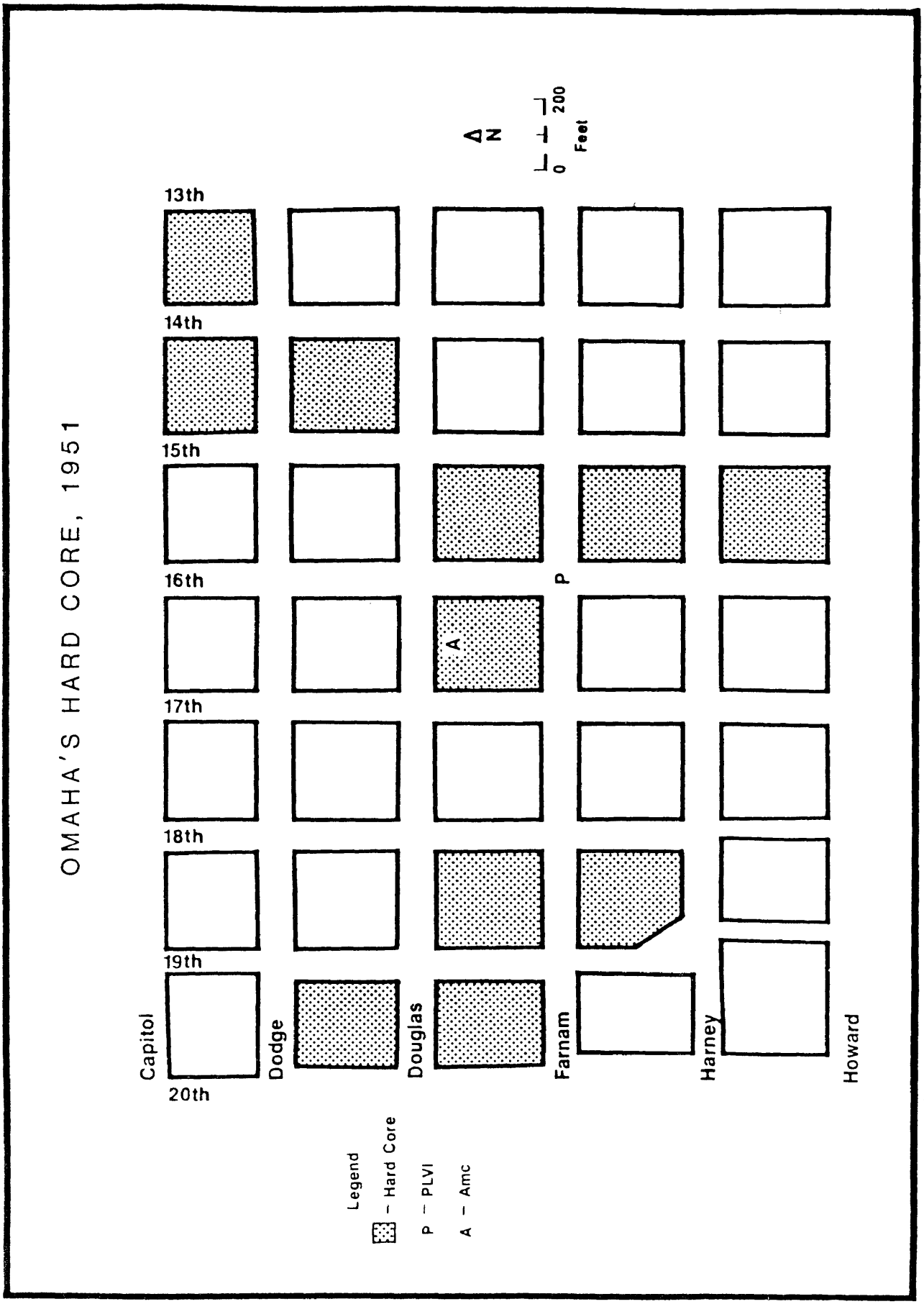

Fig. 8. Omaha's Hard Core, 1951.

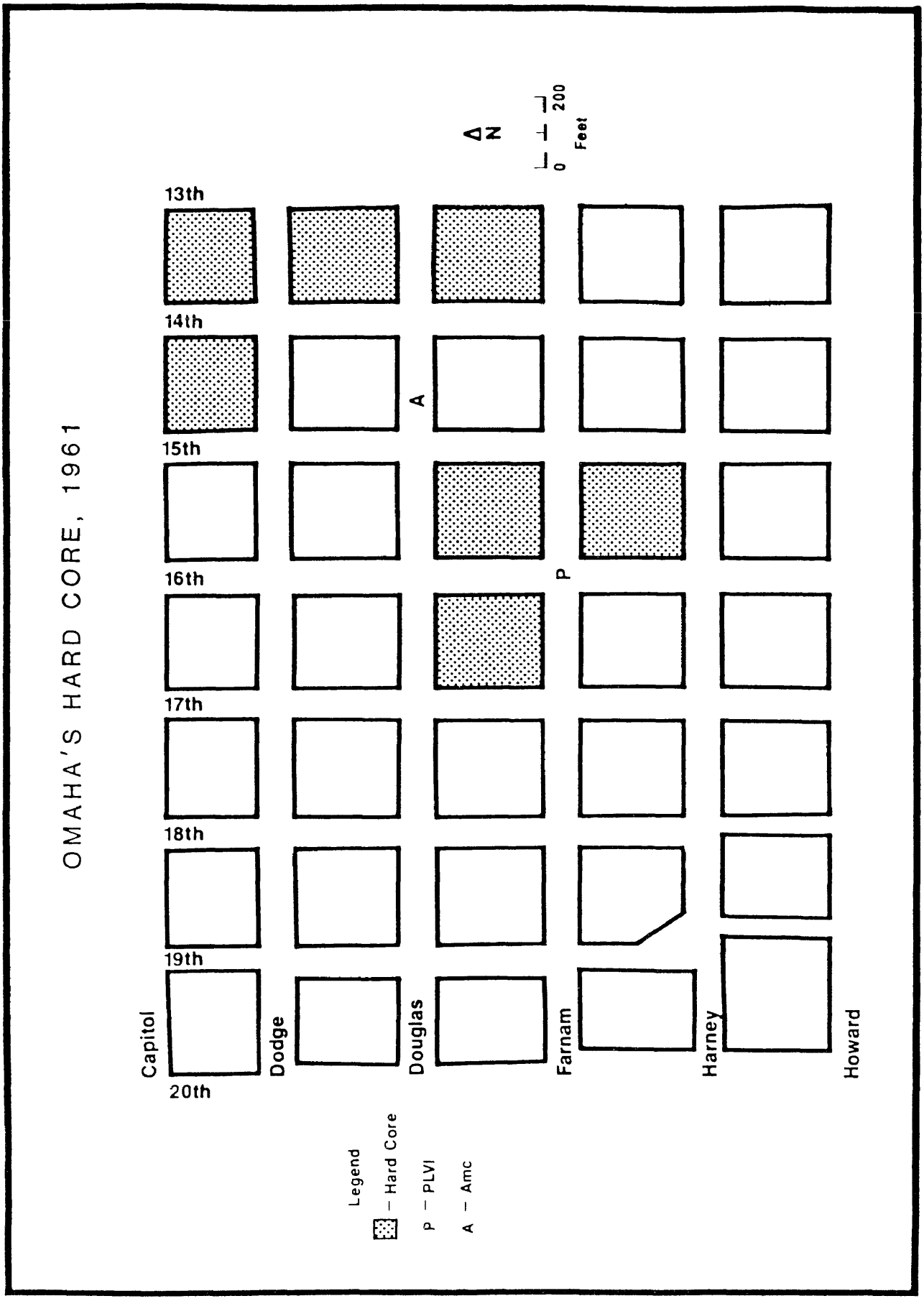

Fig. 9. Omaha's Hard Core, 1961.

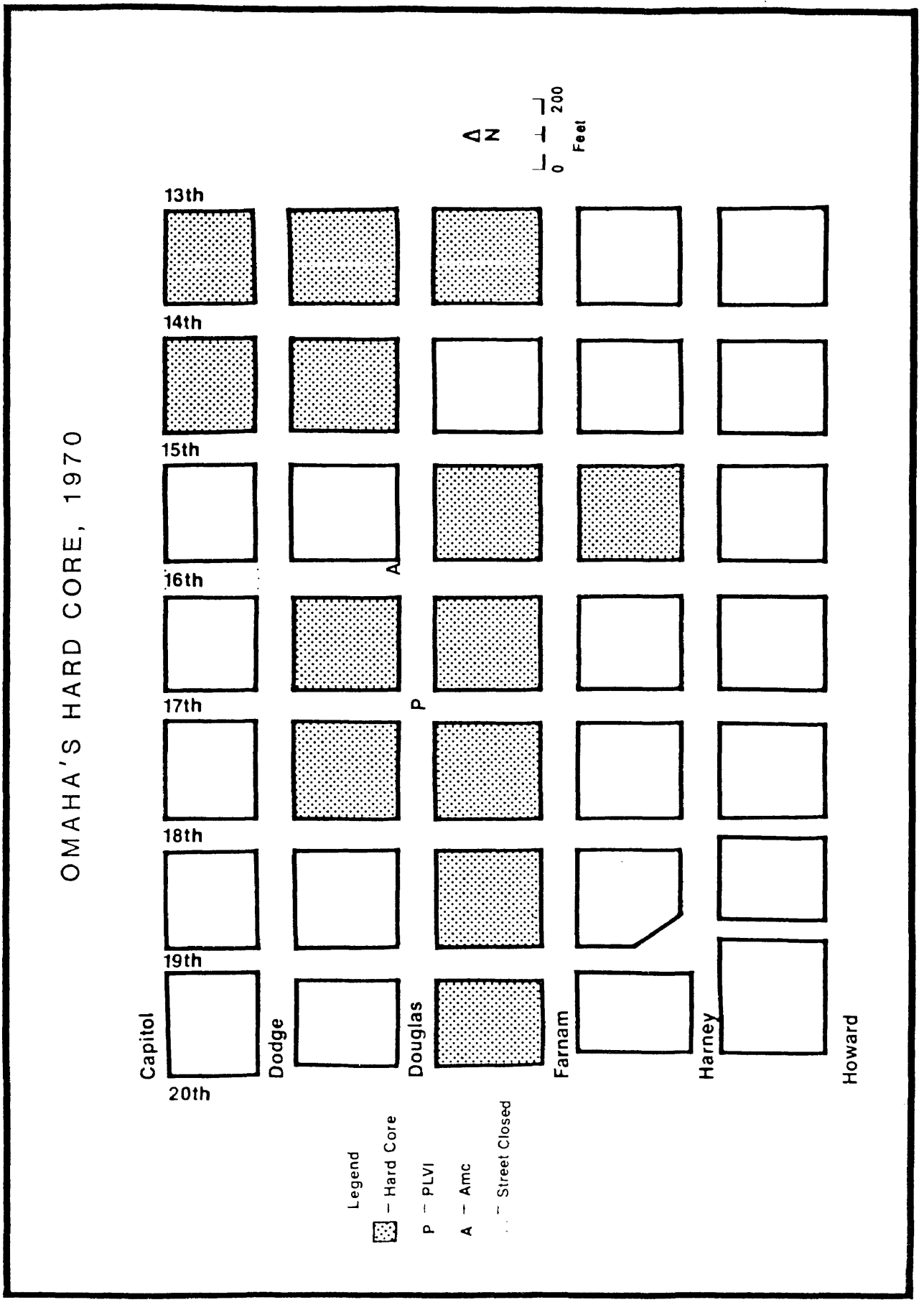

Fig. 10. Omaha's Hard Core, 1970.

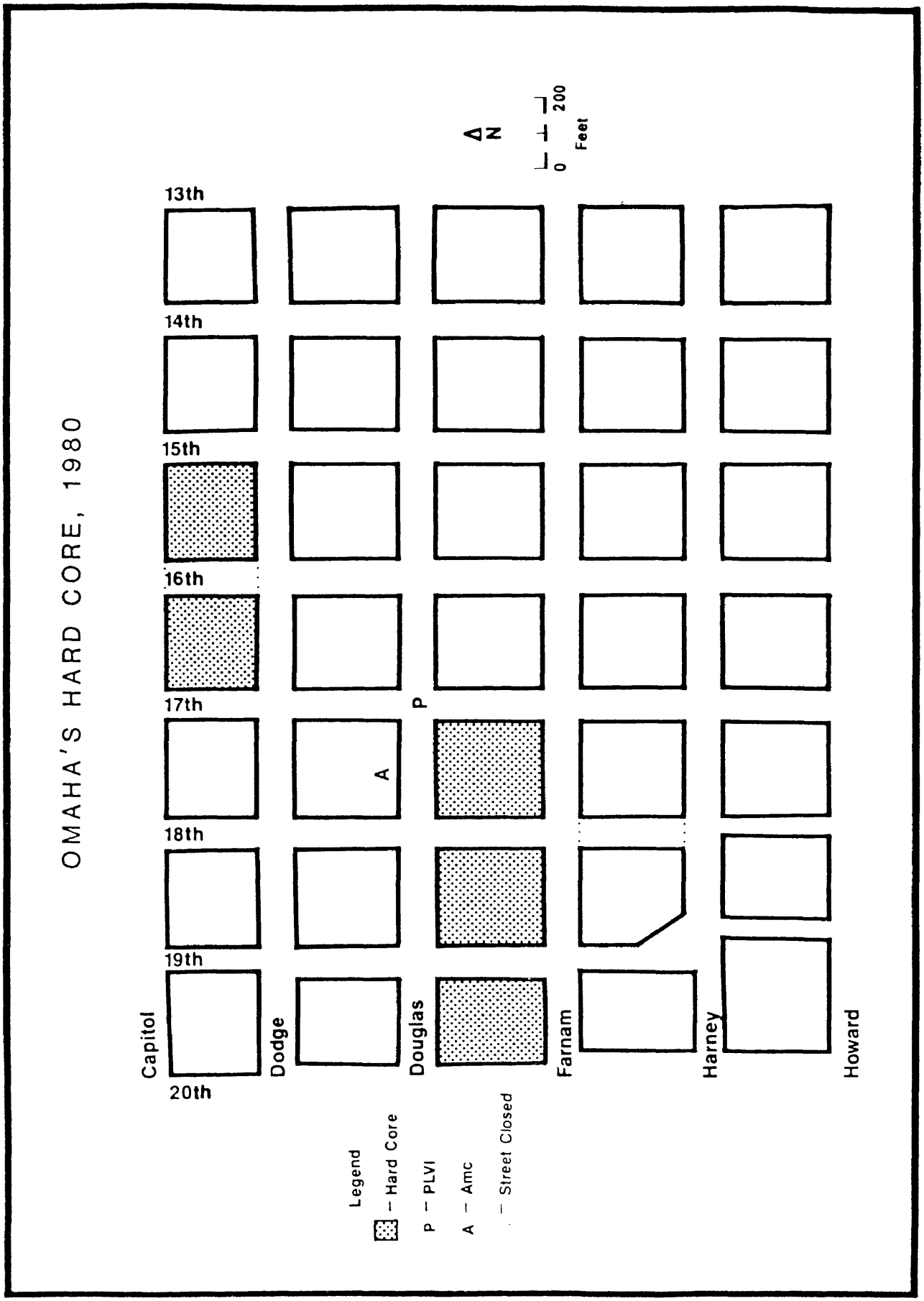

Fig. 11. Omaha's Hard Core, 1980.

the two sections being oriented in an east to west direction.

The spatial extent of the hard core changed over the time from 1940 to 1980 as shown by Figures 7 through 11. But what of spatial changes from within the hard core? By looking at changes in position of the peak land value intersection (PLVI) and the geographic or areal mean center (Amc), changes can be noted over time as well as directional movement occurring in the hard core as a whole.

The Areal Mean Center and the Peak Land Value Intersection

In addition to delimitation through time, one can also examine spatial movements within the hard core by noting, in tandem, the locational changes of the geographic or areal mean center (Amc) and the peak land value intersection (PLVI).[3] Figures 7 through 11 illustrate the locational changes of Omaha's CBD from 1940 to 1980 of the two points discussed here, while Fig. 12 suggests a relationship between the two.[4]

Located at Sixteenth and Farnam, the peak land value intersection in the hard core remained at the same position from 1940 to 1961. However, the geographic center moved twice during that time from its initial starting point. In 1940, both the Amc and the PLVI were found together, but in 1951, while the PLVI was stationary, the Amc moved to the northeast. Ten years later, the Amc repositioned itself, this time to the west. As previously mentioned, the PLVI remained at Sixteenth and Farnam Streets. The location of the peak land value intersection from 1940 to 1961 was also the site of the most stable blocks of the hard core (117, 118, 139).

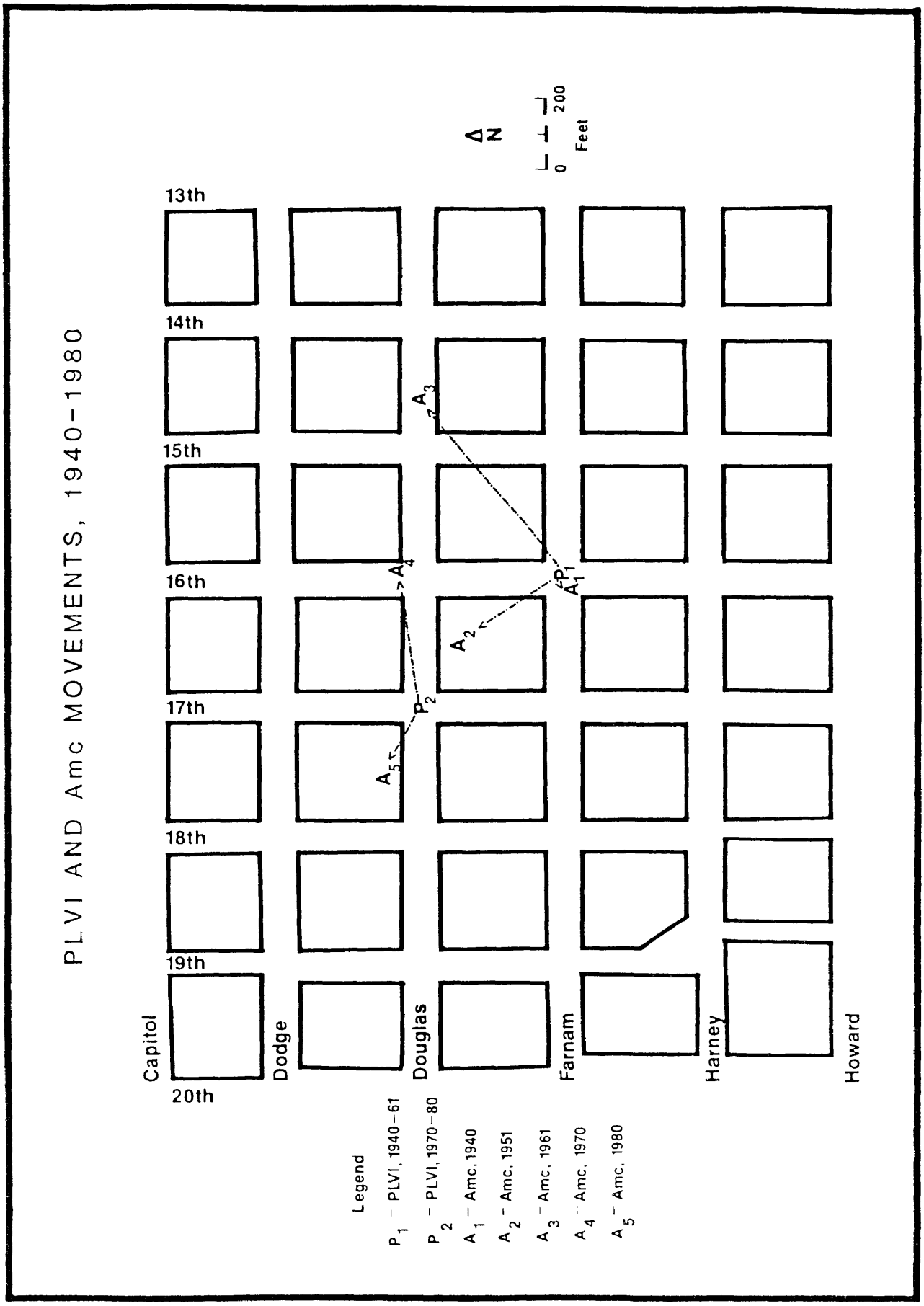

Fig. 12. PLVI and Amc Movements, 1940-1980.

The location of the PLVI from 1970 to 1980 was the intersection of Seventeenth and Douglas Streets. This second position marked a northwest directional change from the initial PLVI site. Again, while the PLVI remained at its second position, the Amc was located to the northeast in 1970, and again to the northwest in 1980.

By comparing the five maps showing the PLVI and the Amc for each year (Figs. 7-11), a significant spatial relationship develops. The two points were very close in 1940, separated slightly in 1951, and reached their greatest distance apart in 1961. After 1961, the Amc and the PLVI were again positioned closer to each other in 1970 and yet even nearer in 1980. This movement can be seen clearly in Fig. 12. The spatial adjustments of the areal mean center and the peak land value intersection have been in a general direction to the west and east. If it can be assumed that the PLVI lags behind the Amc, but that the latter influences the direction of movement of the former, then the northward migration makes sense. Even though the PLVI remained at Sixteenth and Farnam from 1940 to 1961, forces were clearly at work to move that point to the north (see directional arrows on Fig. 12). The westward PLVI movement may possibly be explained by the three out of five Amc positions, which indicates that forces were greater in that direction.

Building Heights and the Peak Land Value Intersection

Building heights and associated central business height indices have been used in the past as a general delimiting measure for the CBD, but are they accurate enough for understanding the hard core

through time?[5] Figures 13 through 17 show the location of the PLVI and the tallest building (per block, in stories) on each hard core block. From 1940 to 1961, the tallest building in the hard core was not adjacent to the PLVI. In fact, it was at least one block away. Only in 1970 and 1980 was the tallest building of the hard core adjacent to the PLVI. The heights of buildings may be useful in indicating the CBD, that area being somewhat larger than the hard core; however, heights do not seem to be a very accurate indicator for the core or the PLVI, seeing that several of the tallest buildings per block were only three stories tall. This is because new buildings today may not draw or follow the PLVI, they may not be taller than the surrounding ones, or the area may depend upon older buildings.[6] The latter is especially true if the economics of the area are not conducive to construction. Additionally, forces not in existence during earlier periods may be causing a change in the relationship between height and CBD central cores.

Changes in Land Uses

Land use change is crucial in the understanding of the CBD core through time because land use is always the factor reverted to in the analysis or delimitation of the CBD. Changes in the land uses in the hard core of Omaha occurred in every year studied. By examining changes which have happened, a determination can be made as to whether or not there has been a change in the overall function of the CBD core area. One of the major changes which occurred was the dramatic decline in the number of land uses occupying the hard core blocks for

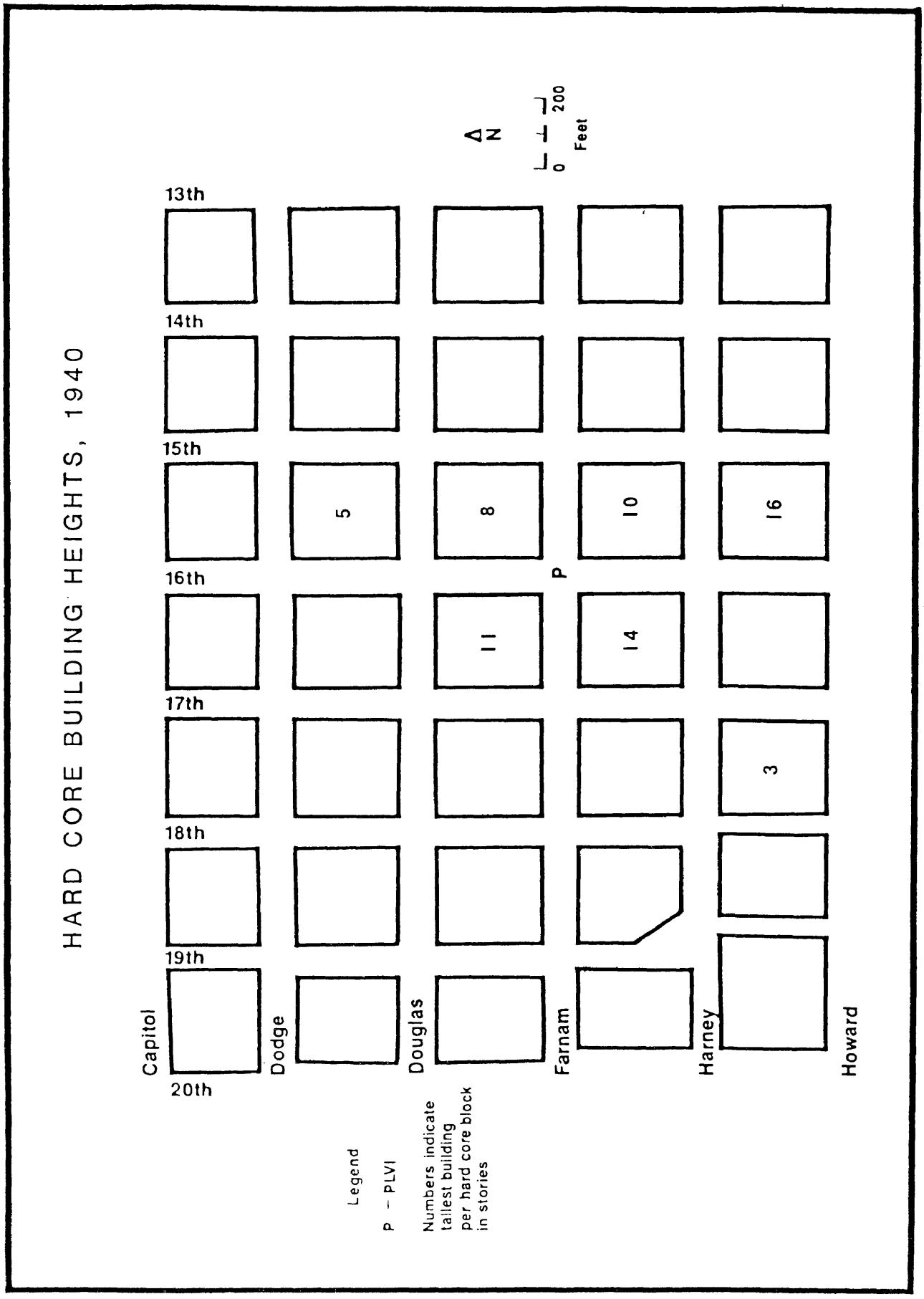

Fig. 13. Hard Core Building Heights, 1940.

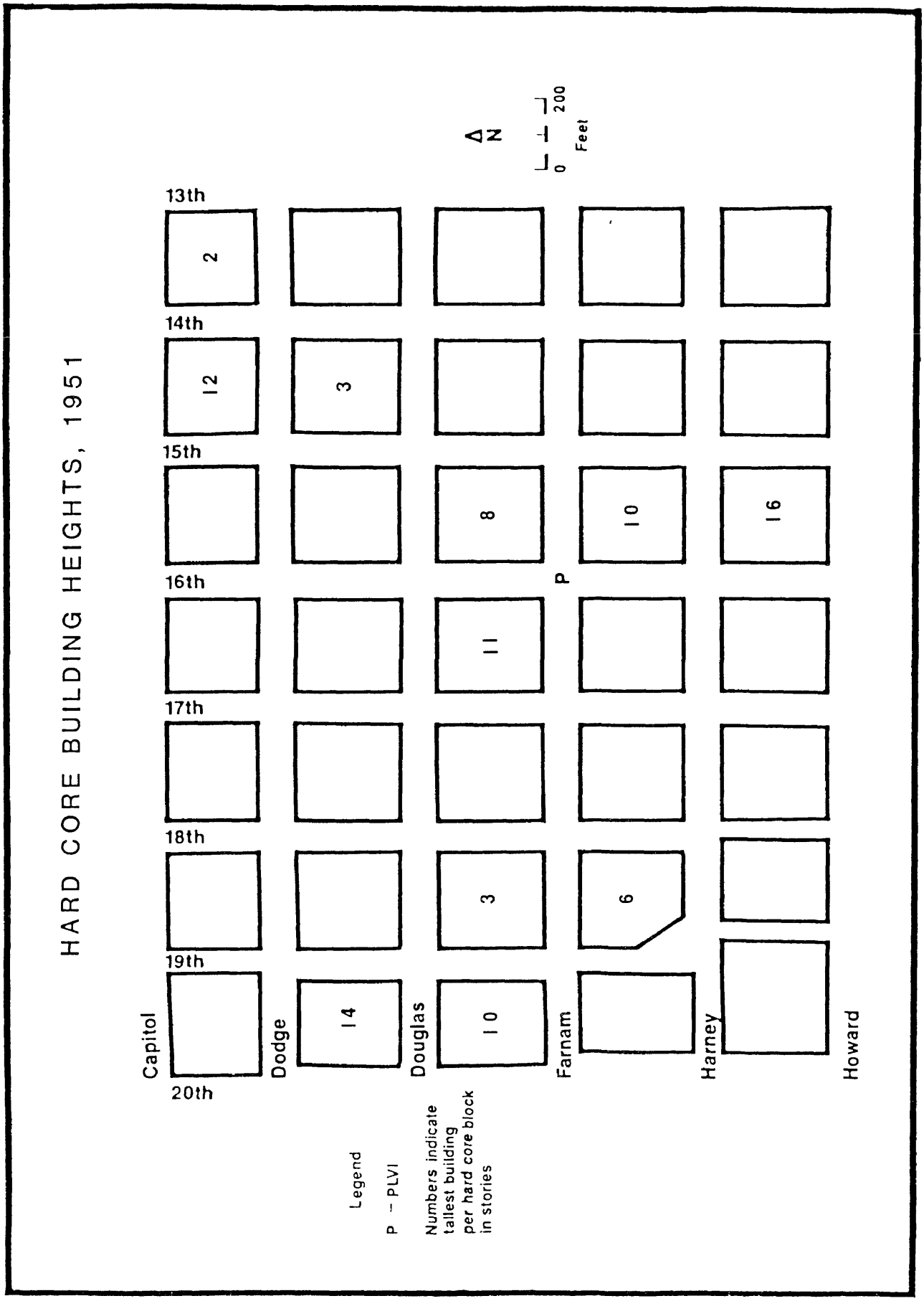

Fig. 14. Hard Core Building Heights, 1951.

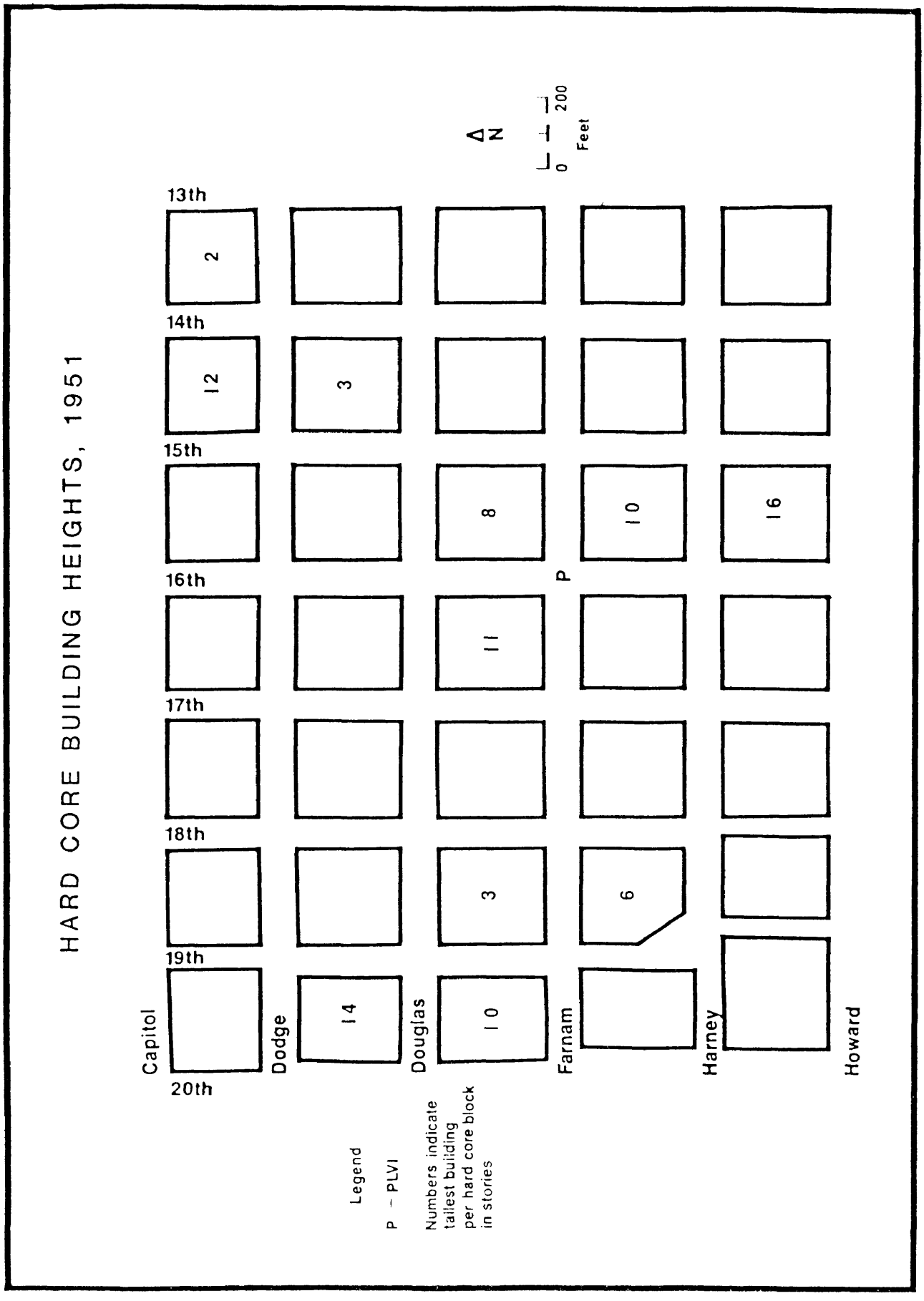

Fig. 14. Hard Core Building Heights, 1951.

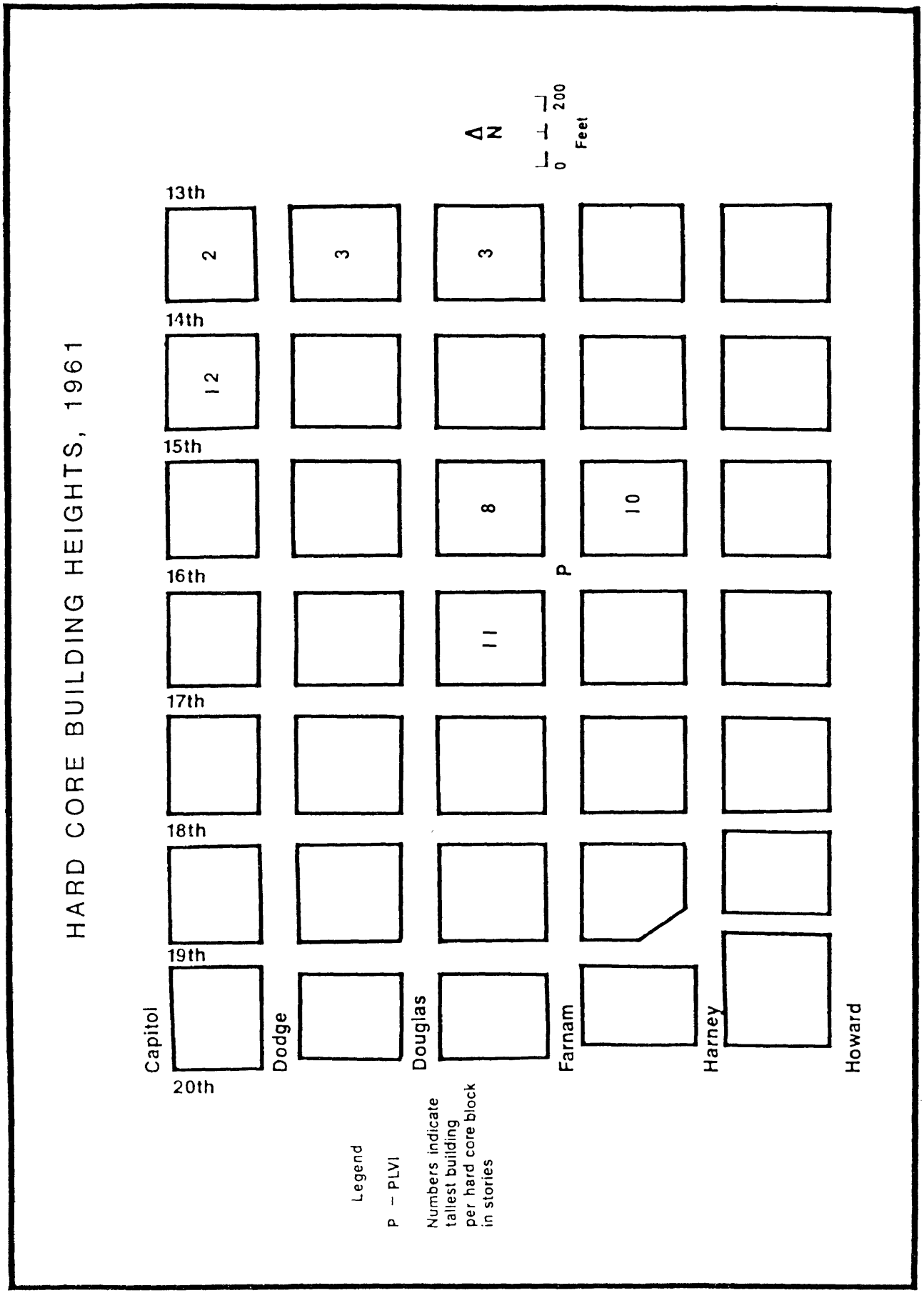

Fig. 15. Hard Core Building Heights, 1961.

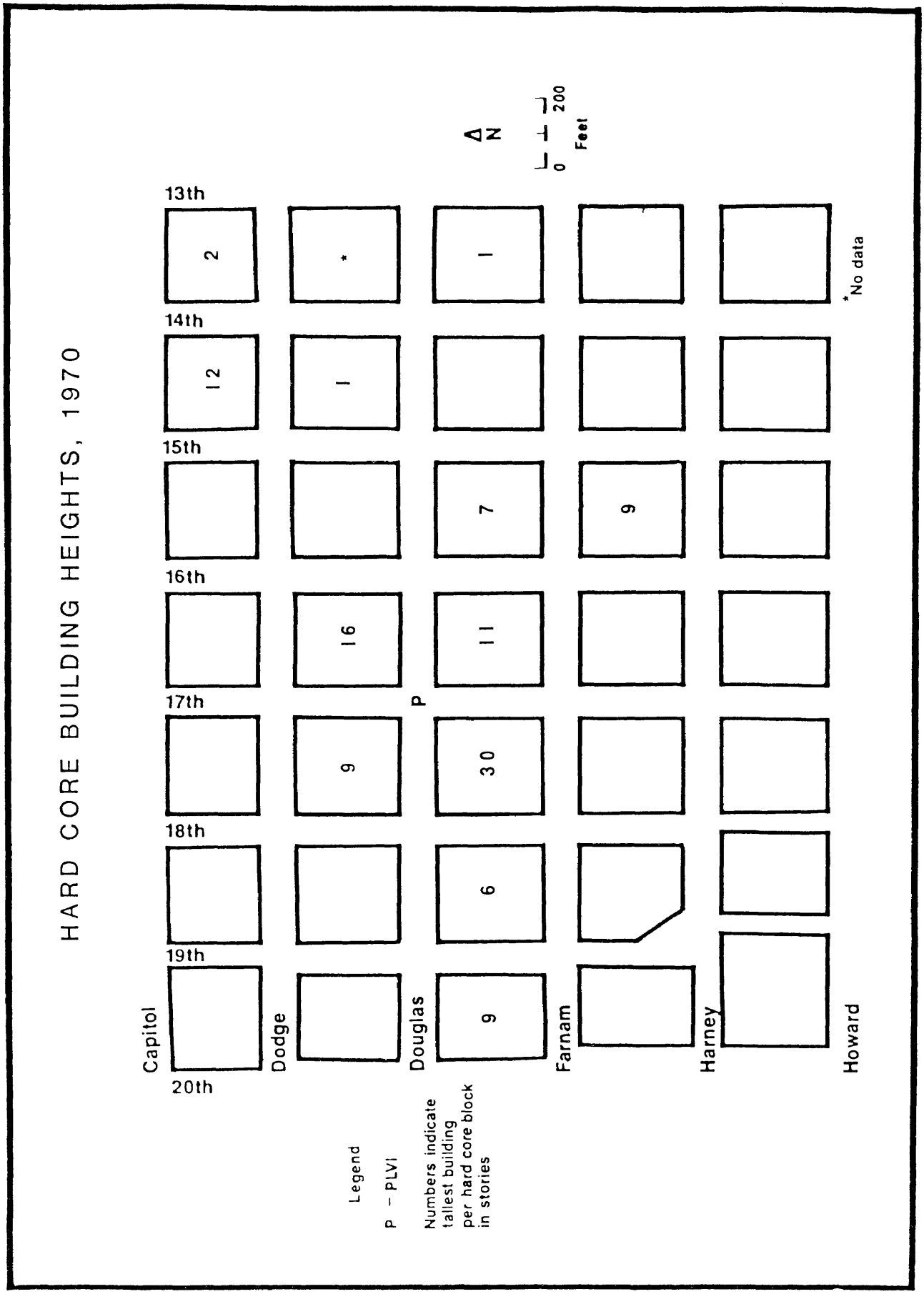

Fig. 16. Hard Core Building Heights, 1970.

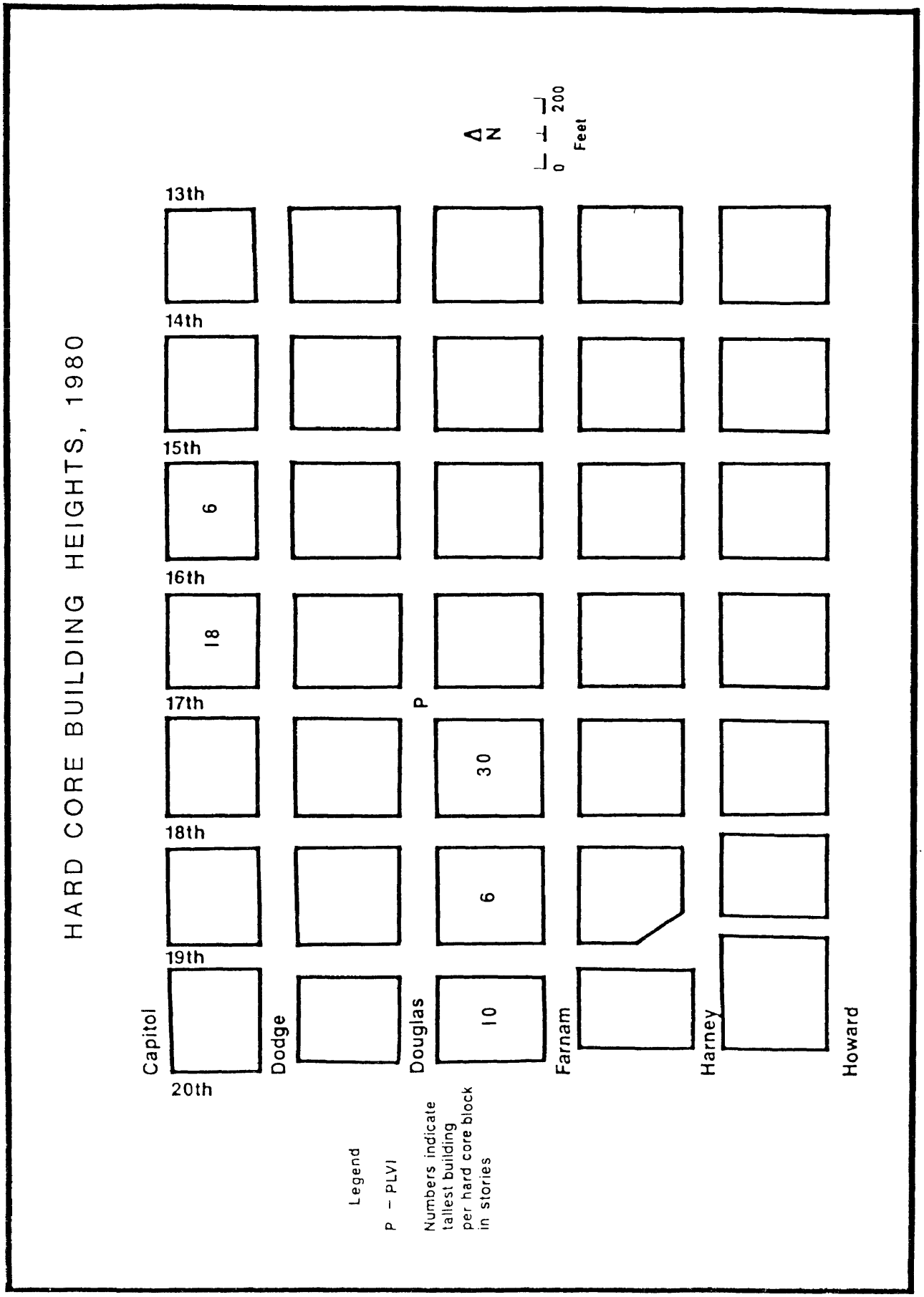

Fig. 17. Hard Core Building Heights, 1980.

each period (Table V). The ratio of land uses to blocks dropped from a high in 1940 of 40.0 to a low in 1980 of 10.6. There was no increase during the time studied. Other changes noted dealt with CBD versus non-CBD uses. The CBD uses which are mentioned fall into two categories: retail business and service, financial, and office. The remainder of this section examines the specific CBD uses through time. Again, the analytical device used by Murphy and Vance was employed to illustrate variations in land uses in the hard core.

Specific Central Business District Land Use Changes

Retail Business

Retail business (RB) as a whole declined from a total number of 131 ground floor uses in 1940 to only 19 in 1980 (see Table V). On the other hand, according to Table VI, the percentage of land uses which were classed as RB increased from 47.0 percent (1940) to 54.0 percent (1961) before dropping to its low of 36.0 percent in 1980. This and the following changes can be seen in Fig. 18.

Categories within retail business also changed during the time observed, the majority losing ground. Clothing (C) had actually increased ten percent from 1940 to 1961, to a total of 25.0 percent of the total hard core land use, yet was non-existent by 1980. Clothing suffered the largest drop. Two other categories had also disappeared from Omaha's hard core in 1980. However, neither household goods (H) or automative uses (A) had ever been very large, four being their greatest number at any one time. In contrast, variety (V) showed a far more dramatic decrease, dropping from 27 in 1940 to a

TABLE V

TOTAL NUMBER OF HARD CORE LAND USES, 1940-1980

Year	RB						Total RB	SFO							Total SFO	Non-CBD					Total Non-CBD
	F	C	H	A	V	M		B	O	E	T	R	L	P		G	D	W	I	X	
1940	28	42	8	2	27	24	131	37	0	36	29	7	3	0	112	9	0	4	12	12	37
1951	30	38	2	4	21	39	134	41	2	26	28	11	5	5	118	9	0	4	9	8	30
1961	13	29	1	1	8	10	62	8	1	10	8	4	4	6	41	3	0	1	6	1	11
1970	20	22	0	2	16	21	81	22	1	34	22	5	3	14	101	6	1	2	2	18	29
1980	8	0	0	0	3	8	19	15	0	6	5	1	1	3	31	0	0	0	0	3	3

Grand Totals of Land Use by Year:

1940 - 280
1951 - 282
1961 - 114
1970 - 211
1980 - 53

Ratio of Land Uses per Block by Year:

280/7 = 40.0
282/11 = 25.6
114/7 = 16.3
211/13 = 16.2
53/5 = 10.6

TABLE VI

BREAKDOWN OF LAND USE IN OMAHA'S HARD CORE, PERCENTAGE BY YEARS

Land Use	1940	1951	1961	1970	1980
RB:					
F	10	10	11	9	15
C	15	14	25	11	0
H	3	1	1	0	0
A	1	1	1	1	0
V	9	8	7	7	6
M	9	14	9	10	15
Total	47	48	54	38	36
SFO:					
B	13	14	7	10	28
O	0	1	1	1	0
E	13	9	8	17	11
T	10	10	7	10	9
R	3	4	4	2	2
L	1	2	4	1	2
P	0	2	5	7	6
Total	40	42	36	48	58
Non-CBD					
G	3	3	3	3	0
D	0	0	0	1	0
W	2	1	1	1	0
I	4	3	5	1	0
X	4	3	1	9	6
Total	13	10	10	15	6

Note: Some years totaled more than 100.0 percent due to rounding.

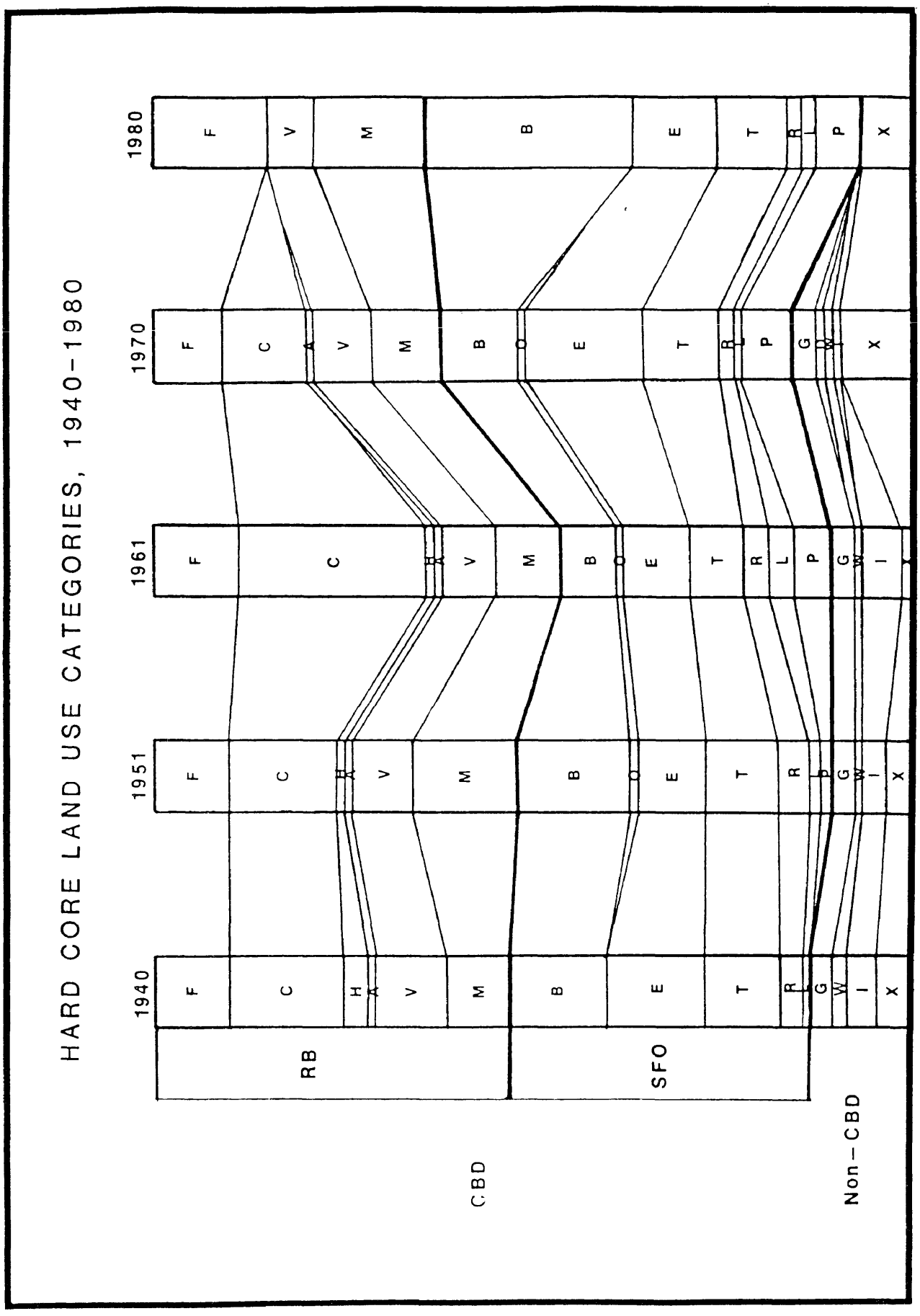

Figure 18. Hard Core Land Use Categories, 1940-1980.

total of three land uses in 1980. Although their actual numbers declined, the miscellaneous (M) and food (F) categories were the only retail business land uses that increased in percentage from 1940 and showed the greatest growth from 1970 to 1980 (F from 9.0 to 15.0 percent and M from 10.0 to 15.0 percent). In comparing the categories, a marked similarity between miscellaneous (M) and food (F) was noted; both decreased in number during the years studied before reaching their highest count in 1980 (see Figure 18).

Service, Financial, Office

Although SFO (service, financial, office) uses declined in frequency from 1940 (112) to 1980 (31), these uses increased in the percentage of total land use in the hard core, from 40.0 percent to 58.0 percent (see Tables V and VI). This change was the only increase of a major group (RB, SFO, non-CBD). Within the SFO category, financial (B), transient residence (L), and parking (P) increased in percentage of land use, but only parking increased in frequency from 1940 to 1980. Financial uses marked the largest gains, beginning at 13.0 percent in 1940 and ending in 1980 with 28.0 percent of the total number of land uses (Fig. 18). Service trades (E), transportation (R), headquarters office (O), and general office (T) all decreased. (O and R, like L, were never very large.) General office (T) was very steady, starting at 10.0 percent and ending at 9.0 percent, dropping only 3.0 percent in its lowest year (1961). The frequency of general office (T), however, went from 29 to just five. Service trades (E) reached a percentage high in 1970 (17.0 percent), almost attaining

its 1940 high of 36 uses. By 1980, both the number and percentage of E had decreased to 6 and 11 respectively.

Non-CBD Land Uses

Based on proportions, the non-CBD category lost ground between 1940 and 1980, declining from 13.0 percent of the total (keep in mind that the numbers and percentages will be less than CBD uses) to 6.0 percent. The only overall non-CBD gain occurred in 1970 (up to 15.0%). In terms of frequency of uses, the decrease was from 37 to only three in 1980. Every category except vacant (X) dropped in percentage (Fig. 18) and all declined in numbers. In fact, four of the five categories, public and organizational (G), residential (D), wholesale (W), and industrial (I), registered as non-existent in numbers and percentages in 1980 (refer to Tables V and VI). In 1940, only residential had been non-existent. On the other hand, vacant (X) uses actually increased from 4.0 to 6.0 percent, even though its frequency had decreased.

In summation, numbers of land uses as a whole declined approximately four-fifths from the 1951 high of 282 (1940 had 280) to a low of 53 in 1980. Likewise, land use diversity also droppped during this time. When examining a total of 18 land-use categories, eight of them registered as non-existent in 1980, marking this year as the least diversified. Non-CBD categories held their own until the last study year, when they dropped substantially. Overall, however, SFO showed the greatest diversification with only one category (headquarters office) containing no uses.

The analysis of data presented here resulted from the application of the methodology developed in Chapter II to the problem. Conclusions and trends are drawn and explained if possible in the following chapter. Also, changes of specific land uses in Omaha's hard core will be illustrated, using familiar examples in the downtown to give the reader a sense of place. Concluding the final chapter is a section on the practicality of this type of study, what can be done with it, and what it might lead to.

CHAPTER III ENDNOTES

1. If the hard core consisted of two separate sets of blocks (two or more in a set), it was defined as a split core. This occurred in 1951, 1961, and 1980.

2. Bilinear was used to describe hard core patterns that had two obvious orientations, these along perpendicular planes.

3. Although separated, the two points are never more than a few hundred feet apart; Raymond E. Murphy, James E. Vance, and Bart Epstein, "Internal Structure of the CBD," Economic Geography 31 (1955): 44.

4. The arrows indicate the direction of pull on the PLVI by the Amc. Whether the PLVI moves or not depends on the stability and investment in the surrounding blocks and their land uses. Any movement by the Amc will exert pull, being that as the hard core moves spatially, intensive land uses will show a tendency to move rather than be assimilated into the fringe (mixed land use) area. This movement, however, builds up over a period of time with the actual position change occurring as a leap-frog type jump to the new location; Murphy, Vance, and Epstein, pp. 43-44.

5. Raymond E. Murphy and James E. Vance, "Delimiting the CBD," Economic Geography 30 (1954): 209.

6. Many of the buildings in downtown Omaha were built between 1880 and 1930; Murphy, Vance, and Epstein, p. 44.

CHAPTER IV

OMAHA'S CBD CORE THROUGH TIME: SYNTHESIS AND A CHANGE IN ORIENTATION

> Analysis must always be the precursor of synthesis . . . .
>
> Carl Ritter (1836)

As the previous chapter demonstrated through a time adjusted paradigm, changes have occurred in Omaha's CBD hard core between 1940 and 1980. The most obvious changes were concentrated around the drop in total numbers and types of businesses occupying the core area. The orientation of Omaha's downtown land uses changed from one of retail in 1940 (RB--47.0%; SFO--40.0%) to one of service, finance, and office functions in 1980 (RB--36.0%; SFO--58.8%). As the closeness of the percentages in 1940 indicate, the process of retail business replacement probably began earlier, when in the first three decades of the twentieth century, suburbs were introduced. As retailers moved out to the suburbs, available space was left in the downtown. The large retailers like J.C. Penney's, however, were the last strongholds of the retail sector in the hard core. Yet in 1968, even Penney's branched out to the suburban shopping malls known as Westroads and Southroads. As this move might indicate, within five years the store's downtown location at Sixteen and Dodge was closed.[1] The out-migration of retailers during the 1960s and 1970s seems to have coincided with the office-space building boom which took place in Omaha during this period. According to a survey done in 1985, 10 out of 37 office buildings in the downtown were built or renovated in those

two decades, and 1,277,461 square feet of space was added, accounting for 42.0 percent of the total current office space (Table VII). During this office construction phase, additions to the downtown Omaha skyline included the tallest building in the city, the 30-story Woodmen Tower, the Red Lion Inn (formerly the Omaha Hilton), the Union Pacific East Addition, and a new public downtown library (Figs. 19 through 22).[2] Much of the building of this period came about because of Omaha's concern in the 1960s with the "dying" downtown. As has been mentioned in Chapter I, private and public funds have been funneled into the core area, the result being the building boom of the 60s and 70s and the renovation trend of the 80s. What Omaha is experiencing is 25 years of growth in office functions (SFO). The current renovation trend is actually a continuation of the building boom, but as new building costs escalate, renovations of older buildings into office space become more common, because it is often more economical. In addition, renovations taking place in the 80s also include more than just office space. The old Brandeis building (16th and Douglas) has been renovated into offices on the upper floors and small specialized retail shops on the lower floors. The Conant Hotel on Twentieth and Farman and Redick Tower at Fifteenth and Harney both include apartments as well as office space. These projects are indicative of a subtle character and functional change occurring in the downtown during the 80s. Specialized retailers are moving into the downtown to occupy renovated buildings such as the Braiker-Brandeis building (Galleria Mall) or the new Park Fair Mall (Figs. 23 and 24) to serve the large office population during lunch hours or after work. As retail land uses move back into

TABLE VII

DOWNTOWN OMAHA OFFICE SPACE SURVEY

Name of Building	Location	Total Building Square Feet	Available Square Feet for Leasing	% Vacant	Rent per Square Foot	Year Built
A.C. Nelson	1805 Harney	26,704	0	0.0	$ 4.00	1905
American Charter	1625 Farnam	48,733	0	0.0	12.50	1971
Braiker Brandeis	16th & Douglas	360,000	3,000	0.8	9.50-11.50	1904 (1982 Renovation)
Burlington Place	1004 Farnam	30,000	5,000	16.7	13.50	1983 Renovation
Capitol Plaza	1815 Capitol	83,796	0	0.0	N/A	1966
Central Park Plaza	222 S. 15th	419,138	10,000	2.4	16.58	1982
Continental Bldg.	209 S. 19th	55,432	410	0.7	14.07	1965
Empire State Building	300 S. 19th	30,000	0	0.0	11.50	1900 (1976 Remodeled)
Executive Building	1624 Douglas	48,000	7,500	16.0	9.00-9.25	1966
Farm Credit Building	206 S. 19th	120,000	0	0.0	9.00	1925-1934
Farnam Building	1613 Farnam	39,000	16,000	41.0	7.50	1900
First National Center	16th & Dodge	235,000	3,000	1.3	16.50	1972
Historic Ford Plaza (formerly Baron Bldg.)	20th & Harney	20,000	0	0.0	N/A	1910 (1984 Renovation)
Historic Omaha Library	18th & Harney	25,225	0	0.0	13.50	1982 Conver./Rehab.
Keeline Building	319 S. 17th	44,000	4,000	9.1	5.00-6.00	1898
LeDioyt Landmark	1001 Farnam	25,600	7,500	29.3	14.50	1983 Conver./Rehab.
Douglas Building (formerly Masonic Temple)	19th & Douglas	120,000	80,000	66.7	5.00-9.00	1917
New Aquila Court	1615 Howard	69,144	16,000	23.1	9.25-9.50	1929
Omaha Grain Exchange	1905 Harney	77,500	14,769	19.1	6.85	1916
Woolworth Building	120 South 16th	80,000	15,000	18.8	9.00	1976 Remodeled
Orient Graphic Arts (presently for sale)	400 S. 12th	22,000	0	0.0	N/A	1920
Professional Tower (formerly Medical Arts)	105 17th	125,000	20,000	16.0	9.25	1900 (1978 Renovation)

TABLE VII--Continued

Name of Building	Location	Total Building Square Feet	Available Square Feet for Leasing	% Vacant	Rent per Square Foot	Year Built
Securities Building	301 S. 16th	15,000	4,000	26.7	N/A	1900
Civic Center Commons (formerly Sec. Title)	314 S. 19th	11,000	11,000	100.0	N/A	1900
Service Life Building	19th & Farnam	41,054	1,500	3.7	7.75	1900
The Law Building	500 S. 18th	27,000	19,000	55.6	8.50	1922
Woodmen Tower	1700 Farnam	370,000	1,083	0.2	14.75	1969
W.F., Inc. (Wells Fargo Building)	18th & California	10,500	0	0.0	8.00	1975
The Yellow Building	1209 Harney	20,000	3,132	15.7	7.50	1879 (1980 Renovation)
Five Fourteen South 14th	514 S. 14th	5,000	0	0.0	10.00-13.00	1983 Renovation
Coffee Building	112 S. 11th	4,000	0	0.0	9.75	1983 Renovation
Redick Tower	1504 Harney	24,500	24,500	100.0	13.50	1984 Renovation underway
A.K. Riley Building	1016 Douglas	40,000	0	0.0	12.00	1981 Renovation
Flatiron Building	1722 St. Marys	21,750	5,075	23.3	12.50	1984 Conver./Rehab.
Barker Building	306 S. 15th	31,500	0	0.0	6.00-6.50	1929
First Natl Bank Bldg	1603 Farnam	99,700	59,641	60.0	12.00	1916 (1985 Renovation)
Union Pacific-East Addition	1416 Dodge	190,000	0	0.0	12.50	1972
Totals		3,015.276	327,110	10.8	$10.55	

Source: Review of Applied Urban Research 13 (1985): 5.

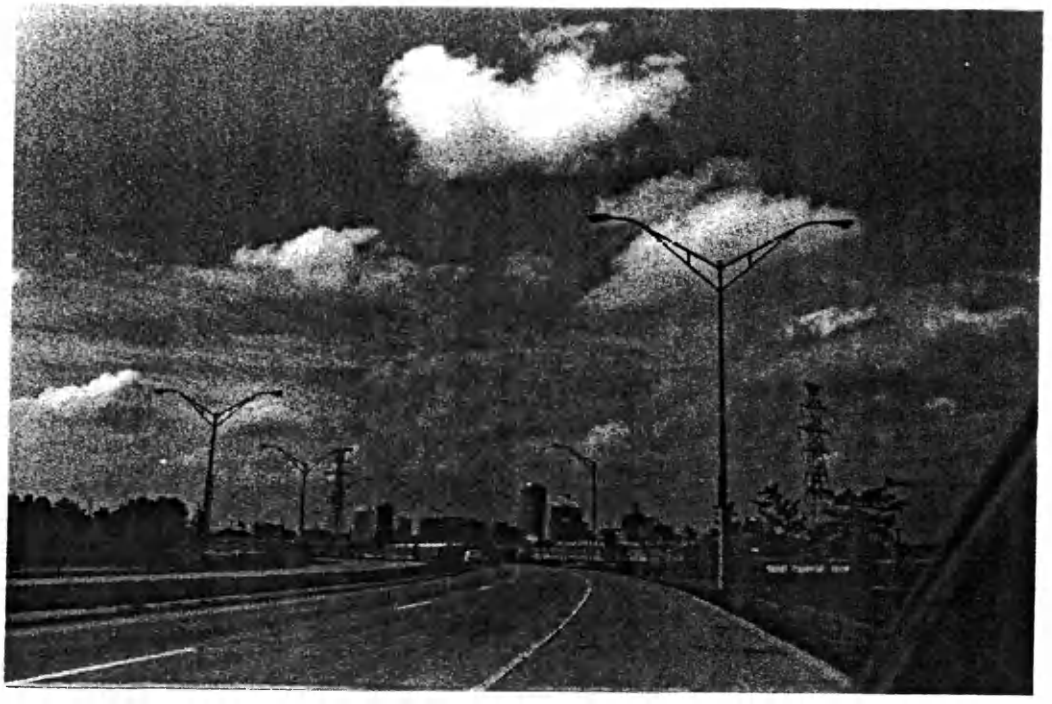

Fig. 19. The Omaha Skyline Seen from Iowa on I-480. View from the southwest.

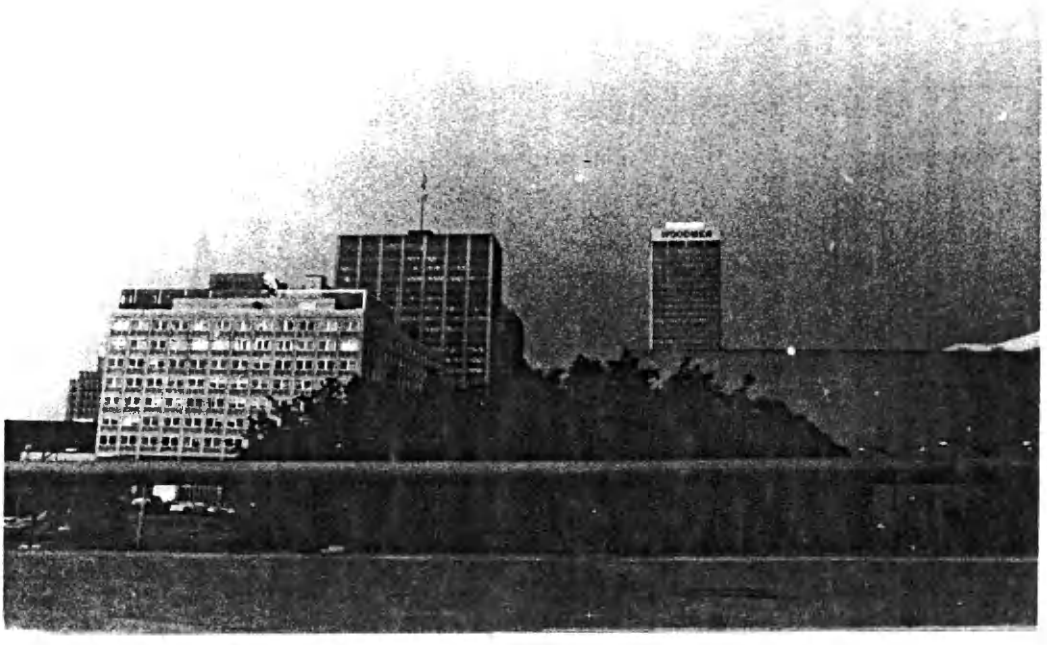

Fig. 20. The Woodmen Tower on the Right and the Red Lion Inn to the Left. View from the north.

Fig. 21. Looking North from 15th and Farnam. To the right is the new public library, on the left the Central Park Tower, and in the background the Union Pacific Building with the east addition on the right.

Fig. 22. Looking West from 13th and Dodge. A close-up of the V.P.--East Addition. In the foreground is the Omaha World-Herald newspaper building.

Fig. 23. The Renovated Brandeis Building at 16th and Douglas. The new Parkfair Mall is in the foreground.

Fig. 24. Looking North from 16th and Farnam. To the right is the new Parkfair Mall. This section of 16th Street has been "bricked in" and beautified. The Red Lion Inn is in the background, and the third building from the left is the Brandeis building.

the area, and the perceived quality of life is improved in the downtown through the influx of public (Central Park Mall) and private (Omaha Park One parking garage) funds,[3] (Figs. 25 and 26), the core becomes a viable living alternative for those who work in the area, saving commuting time and money and offering downtown nightlife (theater, concerts). Such a process is what seems to be going on in Omaha's downtown. The office emphasis has created satellite growth areas in retail (RB) and residential housing (non-CBD), and the hard core of Omaha is becoming increasingly multi-functional,[4] although keeping its emphasis in the service, finance, and office division of land use. This multi-function classification is the product of a continuing evolution of Omaha's hard core from its retail emphasis in 1940 to one of SFO in 1980, to current observations in the downtown. If the hard core is delimited in 1990, using the technique outlined in this study, this multi-functional use should be very evident in the results.

Spatial Changes in the Hard Core: A Synthesis

The early north-south linear patterns of 1940, 1951, and 1961, were replaced by east-west patterns in 1970 and 1980, possibly in response to the westward migration of the city's population. The split or dual areal delimitation patterns which occurred in 1951, 1961, and 1980, are judged to be of little significance because the connecting blocks were so close to the 80.0 percent CBD land-use criteria used in delimitation. In fact, a visual study of the downtown area in 1986 indicates that the core is once again unified and

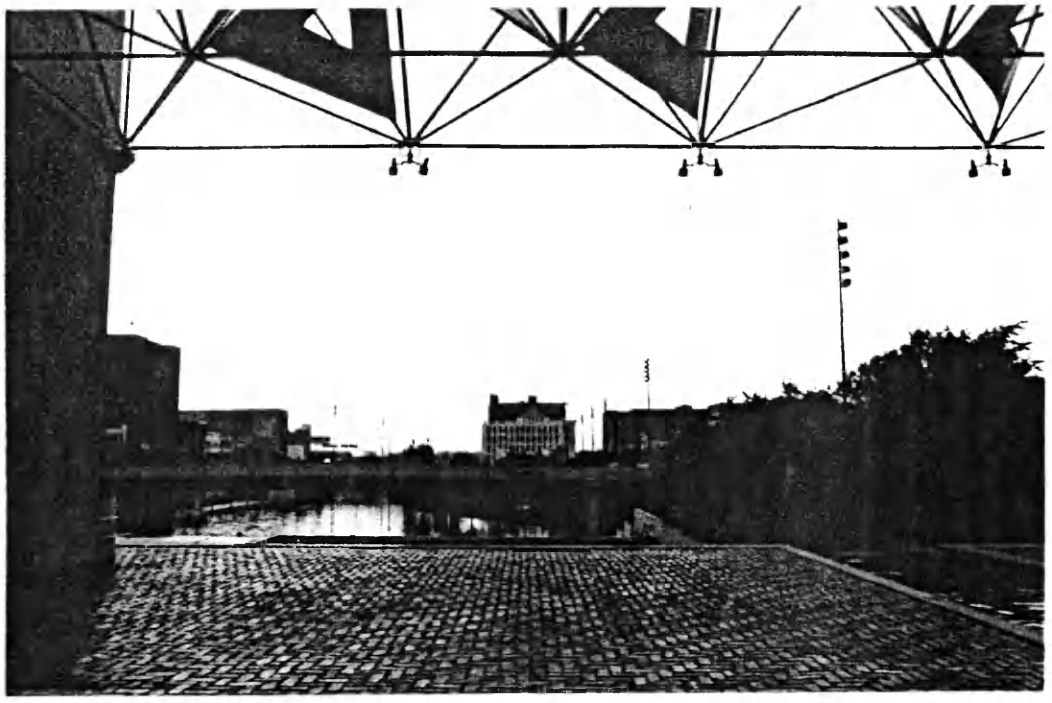

Fig. 25. View of the Central Park Mall Looking East from 14th Street between Douglas and Farnam.

Fig. 26. Looking East on Douglas. Omaha Park One parking garage is on the left, the public library on the right, and the Central Park Mall behind the library.

contains 11 blocks (Fig. 27) which is just two less than the hard core had in 1970, at its greatest extent. While the 1970 areal extent was probably the result of the 60s' building spurt in downtown Omaha, the 1986 expansion arises from the renovation of downtown buildings and several new projects from the late 70s and 80s (Table VII). The future hard core probably will not look much different than in 1986, and in fact might become even more compact. This conclusion can be deduced from the following:

1. In 1940, the hard core consisted of seven blocks.
2. By 1951, the core had grown to 11 blocks.
3. Ten years later, the core shrank back to seven blocks.
4. In 1970, the hard core was 13 blocks.
5. In 1980, the core shrank back to only five blocks.
6. Currently, in 1986, the hard core consists of 11 blocks.

The above information leads to still another conclusion that there continues to be an ebb and flow of the areal extent of the hard core. In Omaha's case, there seems to be a ten-year cycle with definite high and low extremes within the time spectrum.

The Areal Mean Center and the Peak Land Value Intersection

Any synthesis of this section is limited to conclusions and predictions about the Amc and the PLVI because both have already been described in detail in Chapter III (see Figure 12).

In the past, only two out of the five movements of the areal mean center (Amc) were in an easterly direction, but this will probably change. Because the Amc is affected by the addition or subtraction

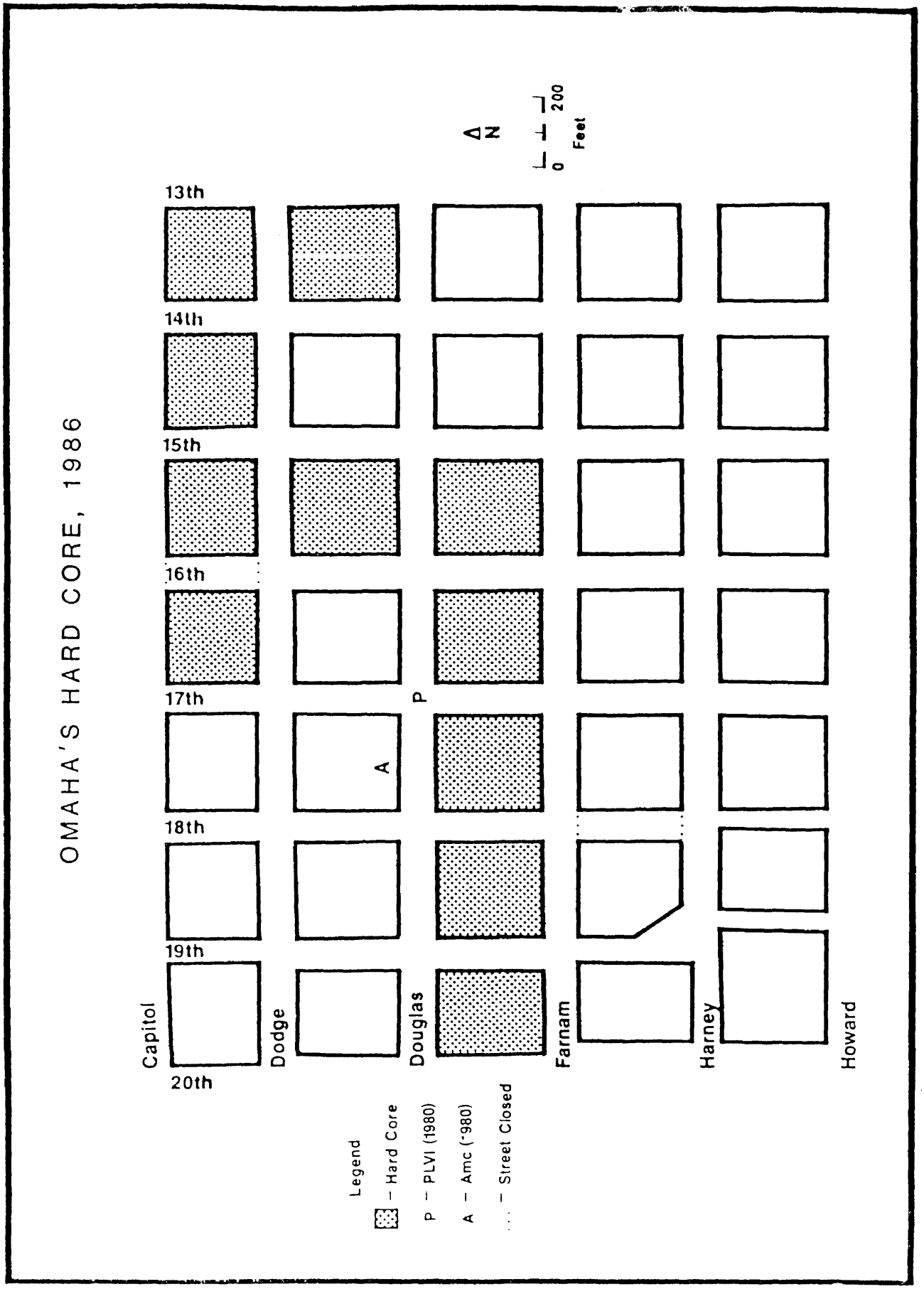

Fig. 27. Omaha's Hard Core, 1986.

of hard core blocks, the westward movement of 1980 would be stopped in the current year (1986) because of the core's eastward expansion (Fig. 27). Likewise, with the Central Park Mall and other additions to the east end of the downtown, the Amc should continue moving eastward at least through 1990.

The peak land value intersection, on the other hand, will probably remain fixed at least through 1990 for reasons already cited (see endnote 4, Chapter III) and due to the fact the building (Woodmen Tower) which anchors the PLVI's position at Seventeenth and Douglas is in an extremely stable economic condition.[5] After 1990, it is expected that the PLVI will jump east, following the predicted movement of the hard core and the Amc.

Omaha: A Part of the Whole?

American Cities in General

Is the situation with Omaha's hard core unique or does it follow a national trend observed in metropolitan areas across the United States? Beginning in the 1940s, the average CBD lost in the retail sector, initiating a decline in retail sales that seems to have continued to the present.[6] Why? One can only surmise, but the outward migration toward the suburbs which started after World War I was probably one of the factors. This outward movement intensified in the 40s, spurred on by federal housing and highways.[7] Yet as retailing has declined in the nation's metropolitan areas, service-oriented businesses have taken up the slack. With regard to the city's

change in function, Vance stated:

> Only in recent decades has that dealing in and fabrication of tangible goods lost dominance in the productive activities of mankind. Now, in most developed countries, fully half of the population may be engaged in "services," as exemplified by the 53 per cent of the United States population now so employed.[8]

Vance called this orientation change the "Service Revolution" and compared its magnitude to that of the Commerical or Industrial Revolutions.

The "Service Revolution" made itself felt and seen in American cities in the 1960s and 1970s. Manners described the movement's impact on the city as a ". . . burst of downtown office construction . . ." and implied that the resultant buildings were huge and impacted on the city's skyline.[9] Economics[10] during that time played an important role in the office building boom. The "boom" seems to have paralleled an expansion of white-collar jobs that was nationwide. In 1950, the share of the United States work force devoted to white-collar jobs was 36.3 percent. In ten years it had climbed to 42.2 percent, and to 48.0 percent in 1970.[11] From 1970 to 1977, the United States experienced a 21.9 percent increase in service production (jobs),[12] and according to Vance, by 1977, 53.0 percent of the population was involved in service-related jobs.[13] With this type of metropolitan emphasis shifting to the service sector, changes in the CBD of American cities from retail to service was inevitable. The result has been that (speaking of American cities), "in almost all cities, retailing has lost its ability to pull many people to the center; only the increase in nonretail activities gives vigor to the

core."[14] And although retailing has not been erased totally from the core, it now inhabits a role subservient to that of service, finance, and office (SFO) uses. Vance summarized the new orientation of the CBD and the relationship between SFO and retailing with the following statement:

> The central business district of American cities has come to be dominantly a central office district, with retail functions increasingly assuming a dependent role: dependent upon the captive market of the office workers or the daily or periodic visitors to the city core, and dependent in absolute importance.[15]

Parallels in Change

The changes which occurred in Omaha's hard core from 1940 to 1980, roughly parallel those which have occurred in cities nationwide. Both Omaha and the United States experienced the growth of suburbs and a marked decline in retailing in the downtown from 1940 to the present. The office construction "boom" of the 60s and 70s was also common to both, as is the continued dependency of retailing on the office population. (Omaha demonstrates this with its specialty shops and malls.) Still another trend which Omaha also parallels, albeit a few years late, is that of renovations. The movement may or may not be said to be nationwide in scope, but Omaha is taking advantage of programs which promote renovation and providing office, retail, and residential space in the downtown at the same time. (The latter two are satellite developments from the office expansion.) So, in looking back, the change in Omaha's hard core from retail to service, finance, and office emphases was not unique; on the contrary, Omaha has followed the national trend in terms of its hard core changes,

both the spatial and functional. CBDs are becoming multi-functional areas and Omaha is mirroring such.

What Does the Future Hold?

For the future of Omaha's hard core, who can really say? But walking in the downtown today and looking at the office buildings, or relaxing in the public Central Park Mall, or shopping at the specialty stores gives one a sense of aliveness: of knowing that the downtown is alive and well in Omaha. As for studies such as this, where do they fit?

As a tool useful in future planning. By identifying the changes in Omaha's hard core over time, it has been shown that this city parallels cities nationwide. This infers that planners in this city might be able to look at other cities to predict future problems or to find solutions to those we already have. Because the emphasis of the downtown has changed, so must the planning and expectations for that area be changed to complement the core's new role. The attempt by Omaha to keep the core alive through renovations and public works has been a good one, and in the visual survey (1986), it seems to have worked. This study should be done again in 1990. These results should tell the city planners whether or not the new additions to the core are keeping the area stable, or hopefully drawing the core further east. At the worst it might show a shrinking or westward moving core and, if so, the planners need to know that as well in order to counteract the action. If, in fact, the core proves to be stable (using delimitation, Amc, and PLVI), studies based on this one might

be helpful in directing more investments into the area. At the very least, this study has provided the city of Omaha with a delimitation of one very important section of itself.

As for this geographer, she is pleased to have come away from this with a better understanding of the changing nature and character of Omaha, and at the same time, to have made a contribution to the body of urban geographic knowledge.

CHAPTER IV ENDNOTES

1. Omaha City Directories, 1968, 1982, 1973.

2. Donald Nielson and Murray Frost, "The Omaha Office Space Market: 1980-1984," Review of Applied Urban Research 13 (1985): 5.

3. "Omaha's Central Business District," Review of Applied Urban Research 4 (1976): 2-3. This article indicates that one of the problems cited as a major drawback in the downtown was the lack of parking.

4. Charles M. Christian and Robert A. Harper, Modern Metropolitan Systems (Toronto: Charles E. Merrill Publishing Company, 1982), p. 200.

5. The Woodmen Tower (1968) can be said to have influenced the jump in 1960's PLVI location of 16th and Farnam to that of 17th and Douglas in 1970. Besides being the tallest building in the downtown, it has one of the largest amounts of office space and only has a vacancy rate of 0.2 percent (see Table VII).

6. Christian and Harper, p. 208.

7. Mary Costello, "Future of the City," Editorial Research Reports on the Future of the City (Washington, D.C.: Editorial Research Reports, 1974), p. 12. Highways have allowed people to live outside of the city and still maintain a link (work in the city) with it.

8. James Vance, This Scene of Man (New York: Harper's College Press, 1977), p. 365.

9. Gerald Manners, "The Office in Metropolis," Economic Geography 50 (1974): 93.

10. The placement of office buildings in the downtown also deals with the capacity for executive information exchanges and contacts. These are highly concentrated in the CBD.

11. Manners, p. 93.

12. Thomas A. Clark, "Regional and Structural Shifts in the American Economy Since 1960," The American Metropolitan System (New York: John Wiley and Sons, 1980), p. 14.

13. Vance, p. 365.

14. Ibid., p. 369.

15. Ibid., p. 369.

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