THE VALIDITY OF THE ASSESSED VALUE AS AN INDICATOR OF PHYSICAL URBAN DETERIORATION

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ABSTRACT

THE VALIDITY OF THE ASSESSED VALUE AS AN INDICATOR
OF PHYSICAL URBAN DETERIORATION

By

Richard Alan Anderson

This thesis explores the use of assessment data in measuring and predicting physical urban deterioration in single-family residential structures.

An examination of current "yardsticks" or measuring instruments for evaluating and comparing relative housing conditions within different sub-areas of the city indicates that such tools are (1) costly and cumbersome to apply, (2) have little or no way of determining "levels" or degrees of physical deterioration, and (3) have no capacity for generating predictive statements regarding the development of future physical deterioration.

The purpose of this study then was to develop new techniques for studying physical deterioration in single-family residences to take care of some of these shortcomings.

Five objectives were set forth for accomplishment in this research effort. They can be stated as follows:

1. To examine the assessed value of single-family residential buildings to determine those variables or housing characteristics that influence it most strongly and directly,
2. To demonstrate the degree of correlation between the behavior of the assessed value of improvements and levels of physical deterioration,
3. To demonstrate a method using assessment data to quantify the extent of relative physical deterioration of single-family buildings within various sub-areas of the city,
4. To identify or retrodict the critical stage in the deterioration process in those areas of the city that are physically deteriorated, and
5. To demonstrate a method for predicting possible future physical deterioration in those areas of the city that evidence some of the early characteristics of physical deterioration.

The study explored each of these objectives in detail and produced the following conclusions:

1. The major variables or housing characteristics influencing the behavior of the assessed value of single-family structures are (1) building class, (2) age, (3) number of stories, and (4) tenure of occupancy,

2. Depreciating rates of assessed valuation correlate very strongly with levels of physical deterioration in single-family residential structures,
3. Differences in slope in percent change in mean square foot assessed value in single-family residences can be used to measure levels or relative degrees of physical deterioration in various sub-areas of the city,
4. Differences in slope in percent change in mean square foot assessed value when examined over time can be used to identify the critical stage in the deterioration process of single family structures in those areas of the city that are physically deteriorated, and
5. Differences in slope in percent change in mean square foot assessed value can be used as a leading surrogate for predicting possible future physical deterioration in those areas of the city that evidence early characteristics of physical deterioration.

For the most part the technique of time-series analysis was utilized to analyze the data and to demonstrate the "behavior" or percent change in mean square foot assessed value in the single-family buildings examined in the study.

Richard Alan Anderson

The laboratory community selected for developing the study was the city of Ann Arbor, Michigan.

The major contributions of the study to the field of urban planning were (1) the exploration of a body of public data, namely the assessed value, to determine its worth and utility in solving urban planning problems, (2) the development of a technique for determining indices of deterioration amongst single-family residential areas throughout the city, and (3) the fashioning of a practical tool for improving local decision-making in regards to the selection of possible urban renewal areas within the city.

THE VALIDITY OF THE ASSESSED VALUE AS AN INDICATOR OF PHYSICAL URBAN DETERIORATION

By

Richard Alan Anderson

A THESIS

Submitted to
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This thesis is dedicated to the
memory of

Reginald Grant Anderson, Jr.

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was in progress.

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INTRODUCTION

In becoming this giant "Nation of Cities" in an
bly short span of time, the United States has in-
and developed some of the gravest urban problems
befall any country.[1] Pollution, congestion, ob-
nce and deterioration, and large-scale social
e such as that manifested in organized crime and
riots constitute collectively, perhaps, the malaise
entury.[2] And, to these general urban crises must
added other emerging ills such as increasing rates
l illness and rising welfare expenditures.[3] Solu-
these gargantuan problems are indeed neither easy
ver nor to effect, for not only do they require
ant amounts of time and money, but they also demand
ous personal commitment of human resources from
public and private sector.

ime, however, seems to be the one resource that
rtest supply.[4] The growing awareness of the in-
in many of our social systems by the lower classes
eneral urban poor has placed new demands on both
iticians and administrators to resolve the prob-
he city now. While long-term solutions will be
effect permanent, stable conditions of social

are, many short-term ones are now needed to remove the
tic edge from the present situation.

In an effort to understand and resolve some of
urban crises that have worked their way into recent
nence, social scientists and other interested urbanists
endeavored to fashion a broad array of analytical tools
nvestigative techniques.[5] One of these methods in
cular has centered on the use of social indicators to
re and measure the quality of urban life.[6] An exam-
on of the behavior of relevant indicators allows the
igator to achieve considerable insight into a socio-
l problem before it emerges into a full blown catas-
without the encumbrance and expenditure of costly,
y research.

This particular endeavor focuses on the specific
m of residential blight or physical deterioration
tempts to explore the utility of using the assessed
(for local property tax purposes) of improvements as
l indicator for understanding and analyzing it.
l deterioration or the slum has long been a center
n research interest.[7] However, an examination of
erature of blight indicates that very little in the
systematic research has been accomplished to date.[8]

The general aim of this study is first to determine
or not the assessed value constitutes a valid
of investment in property (i.e. that there are

.ations between assessed values and levels of private .ment); secondly, to ascertain whether or not there rrelations between levels of investment and physical oration, and thirdly, to explore subsequent ways in they might be utilized to analyze and differentiate ı various levels of deterioration within the city.[9]

There are several reasons for wanting to undertake of this nature. The first is to develop a frame of .ce for an explicit discussion of deterioration--e.g. t easily lends itself to quantification allowing the her to speak of blight in specific terms.

The second is that, as Meier has pointed out, one en delimit parameters of behavior for anticipating social activity if he can "tap" certain primary ion flows that are contained in many of our on- ocial systems.[10] Thus, a study of economic activity cted in changes of assessed values might provide t clues to future urban conditions.

The third, and perhaps most important reason, is eriorated or blighted areas usually provide the ers" in which many adverse social conditions occur ommunity; hence, any effort to study them or to ways of studying them is in itself an important ion towards the general solution of urban
11

~~R~~esearch Task

A considerable amount of research has been focused
veloping adequate criteria and/or measuring instru-
for evaluating building and environmental conditions
n our cities.[12] In regards to specific research ef-
in urban blight, or, more precisely, physical urban
ioration, this has had a strong effect in supporting
eneral notion that "blight" is essentially a patholog-
ondition of either a building or an area of a city.
r, we all know that many areas of cities, and indeed
cities (ghost towns, etc.) are "blighted" long
they ever manifest any of the physical characteris-
f deterioration.

How then might one investigate this "lag period" in
here exists a potential for blight to occur prior to
sequent development of an actual state of physical
ration? What can we use as a predictor of blight?
terms of some of the current sociological research
ng conducted, what might be a suitable "leading"
te or proxy for physical deterioration, and how
t be utilized?

The specific charge of this research task is to
ate how assessment data for buildings (for tax
) might be used as a "leading" surrogate for phys-
erioration. There are five principal objectives
research hopes to accomplish. These are listed as

To examine a sample of assessment data of single-family residential buildings to ascertain the extent to which particular housing characteristics influence assessed values,

To demonstrate the degree of correlation between the behavior of the assessed value of improvements and levels of physical deterioration according to current standards of physical deterioration,

To demonstrate a method using assessment data to quantify the extent of relative physical deterioration of single-family residential buildings within various sub-areas of the city,

To identify or retrodict the critical stage in the deterioration process in those areas of the city that are "classified" as being physically deteriorated, and

To demonstrate a method in which the assessed value might be used as a leading surrogate for predicting possible future physical deterioration.

In general the research problem will be developed stages or phases. The first concerns the develop- random sample for selecting a number of single- sidential buildings and the subsequent examination values to determine the extent to which particular bles (i.e. age, building class, construction type, luence them.

The second phase of the study will be to demon-
te the degree of correlation between the behavior of
assessed value over time and levels of physical deteri-
ion as measured by current standards and yardsticks of
ical deterioration. At this point, the study will also
avor to show how assessment data can be utilized to
ire levels of physical deterioration in any sub-area of
ity.

The final portion of the research will confront the
em of identifying the critical stage in the deteriora-
process in those areas of the city already designated
ing physically deteriorated (census definitions of
oration and dilapidation, etc.) and will also try to
ow future physical deterioration might possibly be
ted in those parts of the city that have some of the
"earmarks" of blight.

f Review of the Current
ture of Urban Blight

A review of the literature of urban blight indi-
hat very little to date had been done in the way of
ng or quantifying physical deterioration. To verify
ther substantiate this initial observation, letters
about research efforts in the field of urban blight
nt to several leading people in the field of housing
.[14] The letters not only inquired about past or

t studies for measuring (quantifying) physical deteri-
n, but also asked about research efforts that were
ed or focused upon blight prediction.

The only major bit of research uncovered in this was that of Dr. Frederick Case of UCLA in his studies thern California and Baltimore, Maryland.[15] In his ch of general residential blight Case measured deteri- as the total impact that various factors (housing teristics given in the U.S. census data) had on indi- census tracts.

A second, and somewhat related effort, was that of nislaw Czamanski of the University of Pennsylvania. study of Baltimore, Maryland, Dr. Czamanski attempted stigate the effect of public investment on urban lues.[16] As Case had attempted to isolate the major es affecting social and building conditions, i tried to determine the principal variables affect- n land values.

A third important attempt at investigating urban ation that should be mentioned is that of the San Community Renewal Program study conducted by . Little and associates.[17] In their investigation , deterioration was measured as the extent to ticular sub-areas of the city did or did not hold al for investment.[18] Thus, those areas having no potential for investment were ranked as being blighted.

One early effort (circa 1946) of quantifying phys- deterioration in commercial and industrial areas was conducted by Harland Bartholomew and Associates in ,ouis, Missouri.[19] In this study a point-score system evaluating building conditions and their potential use established and each building was rated accordingly. was an important study in that many of the rating s explored by the Bartholomew technique were later ed over into the U.S. Public Health standards and such rating devices.

evelopment of the Research

This research effort hopes to complement some of using research that has been accomplished to date. uses on the assessed value of single-family residen- uildings in an effort to identify those variables or g characteristics that have the greatest impact on ed values. It then endeavors to demonstrate a tech- for utilizing these findings to measure physical oration.

In that assessed values are strongly related to investment (see Chapter I, Figures 1 through 6) in parts of the city and that blight or deterioration conceived of as varying levels of investment poten- thin the city, this study hopes to provide a small

e between the research of Case and Czamanski in Los
: and Baltimore and that of Arthur D. Little in San
co.

The importance of this work however lies not in
tribution to the general fund of urban theory and
h, but rather in its utility as a tool for direct
formulation. As a technique for measuring blight
ntifying areas of future physical deterioration, it
d that it could eventually be utilized as a device
ecting specific urban renewal areas within a city.

FOOTNOTES

[1]Prospects for America, The Rockefeller Panel
ts, New York: Doubleday and Co., 1961. See also
r, Robert C., "The Urban Frontier, The Problems before
in The Urban Complex, Garden City, New York: Anchor
, 1966.

[2]Weaver, Robert C., The Dilemmas of Urban America,
idge: Harvard University Press, 1965.

[3]Recent figures now indicate that approximately
alf of the total number of hospital beds in the country
ow occupied by mental health patients. For further
ration into the severity of the situation see Action
ental Health, edited by the Joint Commission on Mental
ss and Health, New York: Basic Books, Inc., 1961.

[4]Lowe, Jeanne L., Cities in a Race with Time, New
Random House, 1967. In addition to this work there
en a recent spate of literature on the subject.
Carson's The Silent Spring points to the dangers of
ants in the earth's atmosphere, Lewis Herber's Crisis
Cities addresses the full spectrum of urban dangers--
congestion, psychological stress, congestion, pollu-
etc., Peter Blake attacks the ugliness of the urban
nment in his harangue, God's Own Junkyard, and Paul
n focuses on the absurdities of urban living and the
n's complacency in going along with them. (Growing
urd.)

[5]The systems analysis approach to the solution of
and metropolitan planning problems has ushered in a
ariety of techniques and analytical tools. For a
examination of some of them see Wheaton, William L. C.,
tions Research for Metropolitan Planning," Journal of
erican Institute of Planners, Nov. 1963, Goldschalk,
., and William E. Mills, "A Collaborative Approach
ning through Urban Activities," Journal of the Amer-
stitute of Planners, March 1966, Meier, Richard L.
hard D. Duke, "Gaming Simulation for Urban Planning,"
of the American Institute of Planners, Jan. 1966,
ers, Andrei, "Matrix Methods of Population Analysis,"
of the American Institute of Planners, Jan. 1966.
ct, the list is endless. Considerable numbers of
s have appeared in the Proceedings of the Regional
Association, the Annals of the Association of Amer-
ographers, and other such publications.

[6]Bauer, Raymond A., Social Indicators, Cambridge: M.I.T. Press, 1966. See also Maisel, Sherman, "Housing . Obtained from Sampling Public Records," Land Econom- Vol. 31, August 1955, and Hearle, Edward F., and nond J. Mason, A Data Processing System for State and l Government, Englewood Cliffs, N. J.: Prentice-Hall, .

[7]Early interest in the slum or blighted areas was t evidenced in the literature in the works of Charles ens--e.g. Oliver Twist, 1838, Hard Times, 1843, etc. he United States, Jane Addams was one of the earliest orers of the lot of the urban poor, being primarily erested in the European immigrants who were endeavoring cculturate themselves in the cultural atmosphere of the t American cities. See Addams, Jane, The Hull House and Papers (New York: T. Y. Crewell, 1895), and ty Years at Hull House (New York: The Macmillan Co.,). Jacob Riis, an early American sociologist also ished a considerable amount of literature--e.g. How Other Half Lives (New York: Charles Scribner & Sons,), and The Battle with the Slum (New York: The Mac- an Co., 1892). In the interest of city planning, ezer Howard published a very persuasive book on the ition of the London industrial environment and the lot he working man which subsequently led to the develop- of an actual garden city, Letchworth, England. See rd, Ebenezer, Garden Cities of Tomorrow (London: on Univ. Press, 1898).

[8]McGuire, Joseph W., "Measuring Change in Real te Values," The Appraisal Journal, Volume 23, July . See also Ratcliff, Richard U., "Housing Standards," rban Housing edited by William L. C. Wheaton, Grace rim, and Margy Meyerson, New York: The Free Press, , and Twitchell, Allan A., "An Appraisal Method for uring the Quality of Housing," also in Urban Housing.

[9]Considerable interest has been demonstrated in general sphere of research; however, the specific oach undertaken in this study has not as yet been fol- . Sherman Maisel has explored the idea of obtaining ng data from public records (note footnote 6 above) orton Isler has examined the specific utility of var- kinds of data to be used in community renewal program- "Selecting Data for Community Renewal Programming," al of the American Institute of Planners, Vol. 33, 1967. Czmanski explored the effect of public invest- on land values in his study of Baltimore in 1964 which s focus is perhaps the counterpart to this research t. However, Czmanski was not concerned with examining te improvements or building values.

[10]Meier, Richard L., A Communications Theory of rban Growth, Cambridge: The Joint Center for Urban Stud-s, Harvard, M.I.T., 1965.

[11]Many urbanists have taken issue with this notion at the slums are major crime and delinquency centers in e city. See especially Jacobs, Jane, The Death and Life Great American Cities, New York: Vintage Books, 1961, rticularly the Introduction and Chapter 1. Also, see eicher, Peggy, "Some Sources of Residential Satisfaction an Urban Slum," Urban Renewal: People, Politics, and anning. Edited by Jewel Bellush and Murray Hausknecht, rden City, New York: Doubleday Anchor Books, 1967, and an, John P., "The Myths of Housing Reform," Urban Housing. ted by William L. C. Wheaton, Grace Milgraim, and Margy in Meyerson, New York: The Free Press, 1966.

[12]There has been a long standing interest in social icators, but most noticeably on the part of economists. e recent studies have examined the possibility of devel-ng a broad array of social indicators to cover a full ge of behavior. Such a development could be used for hioning feedback systems for monitoring our environment warning us of impending social crises of grave impor-ce and significance. See Bauer, Raymond A., Social icators, Cambridge: The M.I.T. Press, 1966 and The als of the American Academy of Political and Social ence, "Social Goals and Indicators for American Society, umes I and II," May and September 1967.

[13]For the most part, single-family residential ldings will be examined. However, there are some dwel-s within the sample that have rooms for rent or that ain small apartments. Single-family residential build-have been selected for two major reasons. The first hat their assessed values are determined by replacement methods which makes them independent of market condi-s and influences (see Chapter III, Figure 6). Other s of residential structures such as duplexes and apart-houses have their assessed values determined largely income capability and market value methods. Thus, incur many problems in isolating their "true worth" would extend beyong the scope of this research. The nd reason is that single-family residential buildings titute the greatest land use in any American city roximately 40 to 50%) and thus comprise a major segment e housing problem in the country.

[14]Letters were sent to
Warren Seyfreid, Dept. of Real Estate in the School of
ness Administration at the University of Washington,
Glenn H. Beyer, Director of the Center for Housing and
ronmental Studies at Cornell University, Dr. John W.
nan, Center for Urban Studies, University of California
keley), Dr. Frederick E. Case, Director of the Real
te Research Program, Graduate School of Business Admin-
ation, University of California at Los Angeles, and
Harold F. Wise, President, Harold F. Wise and Assoc-
s, Washington, D. C.

[15]Case, Frederick E., "Prediction of the Incidence
ban Residential Blight," <u>Papers and Proceedings of the
nal Science Association, 1962</u>.

[16]Czamanski, Stanislaw, "Effects of Public Invest-
on Urban Land Values," <u>Journal of the American Insti-
of Planners</u>, July 1966.

[17]Little, Arthur D. and Co., <u>Community Renewal
amming</u>, New York: Frederick Praeger, 1966.

[18]<u>Ibid</u>., Little.

[19]Bartholomew, Harland and Associates, <u>The Measure-
of Physical Deterioration in Commercial and Industrial
ngs in St. Louis, Missouri</u>, Published by Harland
lomew and Associates, St. Louis, 1946.

CHAPTER I

SURROGATES, SOCIAL INDICATORS,

AND URBAN DETERIORATION

As it was previously mentioned in the opening :ks of this study, there is an urgent need to fashion shortcut methods for examining the quality of the environment. Long-term research, although essential thorough understanding of social behavior, is not suited for generating the vital information that is d to confront the severe social problems that are ıtly emerging in many of our urban communities. Con- ıtly, those behaviorists that are action-oriented are ›nstrained to develop new techniques and measurements t the challenge of urban problems. Two prominent s of these new research developments have been the simulation models and the exploration of social tors and surrogates.[1]

As with a substantial number of other elusive constructs, surrogates are difficult to define. :, for purposes of this research endeavor, it is .ent to say that they are those indices that through ‌tion with other characteristics of behavior act as

ning devices for anticipating future social action.[2]
entially, they are proxies for monitoring social change.

Social indicators are measures of social welfare.
y are those indices that give behaviorists "readings"
arding the state of our society and social behavior.

Historically there has been a standing interest
ng many social scientists (notably economists) to devise
of measuring public welfare. Unfortunately though,
of this interest has centered on the <u>economic</u> well-
g of society and has concerned itself more with levels
quantities) of material goods (e.g. gross national
uct, per-capita income, etc.) than with the general
ity of life and the environment.[3] Thus, for some time
cost of living indices for levels of public consump-
have been considered as prime indicators for general
re.

The current interest of social scientists in devel-
many other social indicators in addition to economic
reflects an even greater interest on their part in
evelopment of future information or feedback systems
onitoring the environment.[4] This should not be mis-
rued as a utopian effort to effect a "big brother"
y for the close scrutiny of individual citizens, but
as a public warning network for impending social
. Thus, one could argue that if it is so important
ecast impending economic conditions--e.g. recessions,

t money, rising interest rates, etc., why isn't it also rtant to warn of other social dangers of comparable itude and significance?

The effectuation of a practical urban feedback em to detect and correct deficiencies and dangers in environment would not only require the Herculean task lling together many existing indicators, but also the oning of many additional ones to fill numerous infor- n gaps. For we often find that the probability of a social phenomenon being represented in some statis- data is usually a direct function of the articulate- and power of the groups who are affected by it.[5] In ore exact case of housing and the urban poor, this appears to be pretty well substantiated. We know ittle about the quality of life in slum areas and portance of adequate housing in the lives of slum rs.

Many difficulties of both a social and psychological seem to arise in the development of information s. Boulding points out that there is almost a con- effort on the part of the general public to guard from "information overload" which eventually con- s to the unfortunate resultant effect of such ad- ocial behavior as arms races, price wars, schisms, etc.[6] Dyckman also states that giant federal data ontaining millions of facts of a private and personal

ıre portend threatening situations to many people simply .use there has traditionally been a great lack of con- over the use and regulation of them.[7]

In utilizing leading surrogates and social indica- to achieve early insight into developing behavioral esses, there are many problems with which the researcher to contend.

Initially there is the selection of proper indices iitable yardsticks for investigating or measuring par- ar social phenomena. For example, if poverty is to be ed as a specific reading on a yardstick such as a par- ar ceiling or level of income, such an arbitrary index well include many families who are not actually suf- g the adverse effects of poverty and exclude many who

A second problem is the rudimentary matter of te data. In many instances, research has to be ted on very nebulous shreds of evidence simply be- there is nothing better to go on. Such research s are indeed not worthless or totally invalid, but limited in their scope and utility. Thus, in con- g any kind of social science research, the question not be, "Is the data accurate?," but rather, "For ses and levels of research are their accuracy suit- nd for which are they not?"[9]

A third difficulty that often plagues social scien-
.sts in applying surrogates and social indicators to their
search is the matter of conflicting indices. Quite often
ends which are seemingly indicated or revealed by one
rrogate are emphatically contradicted by those of another.
us, in studying trends in religious beliefs, one might be
sled into assuming that there is an increasing interest
religion simply because a possible indicator such as
urch attendance is increasing, for it might also be pos-
ble to find a second indicator to point out that concom-
int actions regarded as charitable or "religious" are
kedly decreasing.[10]

A final point of concern that warrants mentioning
that the utilization and interpretation of social indi-
ors is closely linked to personal values, tastes, pref-
nces, and the like.[11] Hence, what one investigator
it conclude to be of great significance in his partic-
investigation of some social behavior, another indeed
it not. A good example, of course, is the proliferation
he automobile and the mass media of communication.[12]
see them only as the wanton pursuit of crass material
es, while others view them as the largesse of technol-
or the bounty of the free enterprise system.

sible Surrogates and Indicators
Physical Deterioration

Before examining the use of the assessed value of rovements as an indicator and possible surrogate for ical urban deterioration in some detail, it would be to explore briefly the general field of social indi-rs. This would provide some rationale for the specific ction of assessment data and would give this portion of study some additional grounding in sociological litera- as well.

Presently social scientists are examining a wide ety of surrogates and social indicators in the hopes of ving their general knowledge of urban blight. Among ore prominent items on the general list of possible es that are currently being explored are trends in l health, distribution of welfare expenditures, levels come, education, and employment, and rates of crime elinquency. Historically it has been felt that there strong linkage between "location" or the physical s of the environment in which adverse social behavior lace and the actual deviancy or social pathology .[13] Recently this notion has been somewhat rein- by the spate of violent street riots that followed sassination of Martin Luther King, Jr. Most of the took place in those parts of the city where conges-nd unemployment rates were the highest, levels of

income, education, and occupational skills the lowest, and the quality of housing the poorest.

In examining the literature of social welfare and clinical psychology, a substantial amount of evidence appears to support the idea that there are fundamental linkages between various kinds of mental illness and particular geographical areas of the city. In their study of mental illness in the city of New Haven, Hollingshead and Redlich found that there were definite correlations between certain types of mental disorders and social class.[14] And, by locating the incidence of certain mental disorders on a map, they found that physically deteriorated areas proffered singularly high rates for some diseases. Faris and Dunham further noted that there were striking differences in rates of hospitalization for particular kinds of mental diseases among specific residential areas in Chicago.[15] As had Hollingshead and Redlich, they too found that certain diseases had higher correlations with "slums" or deteriorated areas than did others. Such findings give rather strong credence to utilizing rates of mental illness as a possible surrogate for physical urban deterioration.

As general indicators of urban deterioration, levels of income, education, and occupation have had a fair share of success.[16] For although the Horatio Alger myth does become a reality in a few singular instances in our society, it is more often fiction than fact. As a rule,

children of humble parentage do not make it to the top in our society.[17] Levels of education, income, and status seem to correlate very strongly with housing quality (those with higher incomes and levels of achievement live in better neighborhoods, etc.). A further important correlation regarding housing and personal achievement on the part of children is that not only do deprived individuals achieve less, but they have substantially less of an idea as to what success is or should be.[18] This fact is not only evidenced in the literature of housing and urban deterioration, but in the very intentions and actions of many of our present day federal programs. Among the more notable of these, of course, are Operation Headstart, The Job Corps, Federal Aid to Education (adult education, etc.), VISTA and Community Renewal.

Aid to Families with Dependent Children (AFDC) is also an important indicator for housing conditions and a possible surrogate as well. Since those individuals receiving financial assistance from this program have housing that is considerably below the national average in quality, AFDC is a good indicator for urban deterioration.[19] In examining the 1960 U. S. Census data, it can be seen that only 70% of the number of families receiving AFDC have housing with hot and cold running water as opposed to 87% of the total number of U. S. families. And in addition, only 72% of the total number of AFDC families have housing

which affords them the exclusive use of a flush toilet. Again, this figure compares to 87% for the total number of U. S. families.[20]

Other welfare expenditure programs such as Old Age Assistance, Aid to the Blind, General Assistance, etc., are also indicators and possible surrogates for urban deterioration. In almost all instances the assistance meted out to the low income families in these programs is considerably below that which they need to obtain adequate housing.[21] Thus, if one wished to have a quick overview of the poorer quality housing stock in almost any city, he would only have to glance at the distribution of welfare recipients within the city.

Crime and delinquency rates have historically been thought of as suitable indicators for measuring slums or deteriorated areas.[22] However, upon closer examination, the causal relationship between sub-standard housing conditions and crime and delinquency rates seems to be more myth than reality. Street riots and the like do take place in the slum, but they also take place on the college campus, in front of the White House, and in numerous other "socially approved" areas.

If there were any logic to the notion that slums bred criminals, the proponents of such theories would be hard pressed to explain why a very large number of families

g in such areas where there is substandard housing
t experience drug addiction, alcoholism, or general
nal behavior.

There indeed are many short-comings to almost all
cators, and certainly those that have just been men-
ed are no exception.

If one were to utilize the index of rates of mental
ess as a possible surrogate for urban deterioration, he
l have to temper his conclusions or prognoses consid-
y. For example, a glance at the records show that
s of mental illness have increased several hundred fold
e past few decades. Yet, even so this is certainly
dication that mental illness is approaching epidemic
rtions.[23]

A goodly amount of the patients now being treated
spitals as mental patients are old and consequently
uffering from senility and other geriatric diseases
ch as they are mental illness. Thus, by virtue of
increases in life expectancy, we should expect a sub-
ial increase in the number of mental patients. In
on, there are now considerably more facilities for
ng mental patients than there were in previous years.
ore, many people suffering from mental illness are
ceiving treatment on both an in-patient and out-
t basis (instead of merely staying home and being
hey were "odd"), and so have become "statistically"
e.

If one gives close scrutiny to the indicator of personal income as a possible surrogate for urban deterioration, it is quite evident that there are many related factors that must be weighed and considered.[24] On one hand many people are inclined to overstate their income simply to gain a false sense of economic status, while on the other, some are hesitant to quote too large a figure, and understate their earnings for fear of disqualigying themselves for receiving certain public benefits--i.e. food stamps, rent supplements, tax benefits, etc.

Also, many people now consider their income to be that amount of their earnings on which they pay taxes. Hence, with such things as non-taxable gifts and other "tax-free" sources of income, it is very difficult to develop an adequate measure for an individual's real income.

Education is also becoming a difficult variable to assess in appraising its worth as a possible surrogate for urban deterioration. In previous years when education was measured principally as the number of years of formal education that an individual received, it was quite a simple matter to determine levels of education. And, very often those inhabitants in the "poorer" areas were the ones who had achieved the least amount of education in the city. However, with the recent spate of training programs that have been instigated by both industry and the military, levels of education and training for some individuals are now quite difficult to determine.[25]

In attempting to use an indicator such as the rate and distribution of welfare expenditures within a city as a surrogate for physical deterioration one would have some severe research problems to overcome.[26] The most prominent one would concern that of the data itself. In the densely overcrowded sections of the city where more than one family is occupying a single dwelling unit, only one is allowed to receive welfare benefits, and is therefore counted in the statistics. Thus, even though welfare recipients do occupy housing that is for the most part substandard, the difficulty of getting an accurate count of them almost precludes any utility that such an indicator might have.

Other difficulties that arise in interpreting welfare statistics, are the tendency for welfare recipients to shift addresses in the city and to "farm out" various members of their households to friends and relatives.[27] Also, in cases where there are large numbers of illegitimate children, it is difficult to determine parentage and family size.[28]

ardsticks for Measuring Housing eterioration

Aside from some of the current social indicators hat might be utilized as possible surrogates for physical rban deterioration, there are the actual housing standards r yardsticks that measure blight. They cover a wide range

building and environmental conditions and could well be ilized as indices of physical deterioration.

There are presently three principal methods employed urban researchers for measuring housing deterioration. it has already been stated these are (1) American Public alth standards, (2) Urban Renewal criteria, and (3) U. S. nsus definitions of deterioration and dilapidation.

Public Health standards examine housing from the oad point of view of health, safety, and welfare and are us concerned with sanitation and safety hazards as well structural deficiencies.[29] The standards are applied trained public health officers in accordance with an tablished point-score rating system against which various rts or functions of individual dwelling units are com- red and evaluated. The appraisal items are spread over ree general areas of investigation (facilities, mainten- e, and occupancy) and total 600 points.[30] Theoretically, inspected dwelling unit with no penalties would receive otal score of 600 points.

Public housing inspections are sometimes carried routinely, but more often they are instigated at some- 's request--i.e. the complaint of a neighbor, a tenant behalf of his landlord, or by a related agency carrying its own inspection (building department, assessor's ce, etc.).

Records of both housing code violations and compliances are maintained in the City Health Department's premise files. Aggregate data for the overall city is usually maintained by the County Health Officer and recorded by census tract.

Typical building deficiencies noted in public health inspections include items such as insufficient light and air (sleeping areas), inadequate cooking facilities (kitchens), inadequate toilet facilities, and improperly installed wiring and plumbing. Safety hazards often noted by inspectors are items such as broken windows, dangerous stairs, exposed wiring, and missing safety valves (gas lines and appliances).

Housing quality, as defined by Urban Renewal criteria, is much less rigorous than that specified by Public Health standards. For the most part only broad guidelines are presented in the Urban Renewal Manuals for defining substandard housing. In specifying criteria for an "eligible" urban renewal area, the manual states:

> . . . Specifically, at least 20% of the buildings in the area must contain one or more building deficiencies, and the area itself must contain at least two environmental deficiencies.[31]

t then goes on to list building deficiencies and gives the ollowing criteria:

(1) Defects to a point warranting clearance.

(2) Deteriorating condition because of a defect not correctable by normal maintenance.

(3) Extensive minor defects which, taken collectively, are causing the building to have a deteriorating effect on the surrounding area.

(4) Inadequate original construction or alterations.

(5) Inadequate or unsafe plumbing, heating, or electrical facilities.

(6) Other equally significant building deficiencies.[32]

In most instances where Urban Renewal criteria is utilized to determine the housing quality in a given area, the agency making the survey develops its own standards for deterioration within the spirit of the broader framework of the manual.

In making a housing quality survey, the building inspectors usually make most of their observations from the exterior.[33] Once a criteria for deterioration is developed, inspections are carried out in much the same way as Public Health surveys. A point-score system for particular deficiencies is constructed, and every building within the area is penalized a certain amount for each of its deficiencies. If it contains a sufficient number of them, it is labeled as deteriorated.

U. S. Census definitions for housing quality specify eterioration in accordance with strict criteria.[34] Houses dwelling units) are classified as either "sound," "deteriorated," or "dilapidated" on the basis of several items of valuation--i.e. building condition (major defects in walls, loors, roof, foundation, etc.), plumbing (adequacy of

toilet and kitchen facilities), and other such things as general appearance, painting, etc.

Although census enumerators are lay individuals, they are trained to make particular observations in regards to housing to minimize their errors in judgment.[35] They also record their data on standard forms that are designed to cover a wide range of building qualities and characteristics.

Most yardsticks for measuring housing quality or condition are rather cumbersome and costly to apply.[36] Not only do they require large expenditures of time and effort, but a considerable amount of organization and inter-agency coordination and cooperation as well.

An important point regarding such measuring instruments, is that their purpose is not to <u>predict</u> future levels of deterioration, but rather only to <u>assess present conditions</u> of housing quality. In this respect they can be used as indices or indicators of blight, but not as predictors. The real need then is to devise a measure for physical deterioration that can also be utilized as a leading surrogate.

FOOTNOTES

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[3] Gross, Bertram, "The State of the Nation," in Bauer, Raymond A., Social Indicators, p. 267.

[4] Op. cit., Bauer, p. 56.

[5] Likert, R., "The Dual Function of Statistics," Journal of the American Statistical Association, Volume 55, 1960.

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[9] Op. cit., Bauer, p. 82.

[10] Op. cit., Bauer, p. 84.

[11] Op. cit., Bauer, p. 85.

[12] Op. cit., Bauer, p. 86.

[13] See pamphlet entitled The Cost of Slums prepared by the Housing Authority of Newark, N. J. Edited by Dr. Jay Rumney and Sara Shuman, Newark, 1946 pp. 32-40. See also Mowrer, E. R., Disorganization: Social and Personal, Philadelphia, 1942, Faris, R. E. L. and H. W. Dunham, Mental Disorders in Urban Areas, Chicago, 1939, and Shaw, C. L. and Mackay, Juvenile Delinquency and Urban Areas, Chicago, 1942.

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[17]Ibid., Reynolds and Shuster.

[18]Ibid., Reynolds and Shuster.

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[20]Ibid., Schorr, p. 236.

[21]Ibid., Schorr, p. 239.

[22]Dean, John P., "The Myths of Housing Reform," in Urban Housing. Edited by William L. C. Wheaton, Grace Milgrim, and Margy Meyerson, New York: The Free Press, 1966. pp. 256-59.

[23]Action for Mental Health, edited by the Joint Commission on Mental Health and Illness, New York: Basic Books, Inc., 1961.

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[26]Orshansky, Mollie, "Who's Who Among the Poor," Social Security Bulletin, July 1965. See also Lynch, John M., "Trend in Number of AFOC Receipts--1961 to 1965," in Welfare in Review, May 1967.

[27]Op. cit., Schorr, p. 234.

[28]Schorr, Alvin L., Poor Kids, New York: The Macmillan Co., 1967.

[29]American Public Health Association, Committee on the Hygiene of Housing, An Appraisal Method for Measuring the Quality of Housing: A Yardstick for Health Officers, Housing Officials, and Planners, New York: American Public Health Association, 1946. pp. vii-viii.

[30]Ibid., American Public Health Association, p. 16.

[31]Housing and Home Finance Agency, Urban Renewal Manual, Washington: Department of Housing and Urban Development, 1965. "Eligibility and Delineation of Area," p. 3, Chapter I.

[32]Ibid., Housing and Home Finance Agency, p. 3.

[33]Ibid., Housing and Home Finance Agency, Chapter I, Survey and Planning. In the specific case of the proposed Urban Renewal Project for the City of Ann Arbor, Michigan (October 1956) the following criteria was used: (1) yard, (2) foundation, (3) structure, (4) roof--gutters and chimney, (5) walls and windows, (6) porch and stairs, and (7) paint and general appearance. All observations were made from the outside and a point-score method indicating that any five of the seven characteristics were negative rated the building as dilapidated or qualified for razing in the project. A score of three characteristics defective out of the seven qualified the building for rehabilitation.

[34]U. S. Census of Housing and Population, Ann Arbor, Michigan, 1960, p. X.

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CHAPTER II

AN APPROACH TO THE STUDY OF PHYSICAL DETERIORATION

Introduction

Proper research should always begin with a basic understanding of the nature and properties of the partic- ular subject under investigation.[1] However, a complex social phenomenon such as urban deterioration or blight poses severe limitations for the researcher in this respect since its definition and characteristic attributes appear to encompass a great range of theory and conjecture.[2] The task of study becomes even further complicated when one reflects on the extent of vagueness and ambiguity which has traditionally characterized the literature of residential deterioration.[3]

Traditional notions and theories of urban deterioration (at least from the viewpoint of city planning) have centered primarily on a general consideration of the physical environment--defective housing, conflicting (mixed) land use, traffic congestion, substandard utilities, etc.[4] Essentially, blighted properties were those that were visually identifiable as being either physically or functionally obsolete.[5]

With later research however (notably by Vernon, Hoyt, and others), these notions of physical deterioration were broadened to include the dynamic action of various socio-economic forces that were operative within the city causing it to decay. With the inclusion of these pathological influences into his concept of deterioration, Vernon fashioned his early (circa 1935) construct of the "gray area."[6] The central principle in this theory was that as the city began to expand at an increasing rate, and employment centers enlarged or moved in accordance with advancements in technology (mainly in transportation and industrial development--e.g. a slackening in the "tyranny of the site" or a reduction in the "friction of space") subsequent shifts in the housing market took place. This evidenced itself in a sudden migration of the industrial worker from the core area to the periphery or suburbs of the city. Such a movement drastically altered land use patterns and locational demands and simultaneously set the stage for large-scale deterioration to ensue.[7]

More recent theories of slum formation or incipient blight have proffered an even wider range of concepts and casual factors. Many of our recent federal programs for improving the quality of the urban environment have tacitly supported a notion of "blighted people" who, not too unlike Typhoid Mary, go from one part of the city to the other unwittingly spreading the "seeds" of blight and

deterioration.[8] Much of this viewpoint centers on the basic thought that a capacity for good stewardship or citizenship is predicated on having access to certain essential "urban skills" and desirable humanistic values, all of which is indeed not possible for all urban residents.

In noting some of the prime ecological considerations in some cities, many social scientists have pointed to the severe blighting effects that are caused by inadequately developed street and highway networks.[9] The central point of their arguments is that as circulation patterns are altered causing some residential areas to have less access than others to central land use functions, there are corresponding shifts in local housing demands. (Those areas with less access tend to evidence marked depreciation which subsequently results in ensuing deterioration and blight.)

Many land economists in focusing on major causes of blight and deterioration in the residential sector of the real estate market, have stressed the importance of sudden changes in public tastes and preferences.[10] This, they feel, has not only been reflected in demands for new designs in subdivision layouts and architectural styles, but in changes in life styles as well. The shortened working week that has evolved through increased technology and other "labor-saving" measures has generated considerable leisure time with a resultant demand in the residential market for

housing that offers not only larger lots and three-car garages, but extra rooms for entertainment and other activities as well. When such new demands take effect in the market, they quickly render older style homes and neighborhoods obsolete.

Arthur Sporn, a noted law professor and income tax specialist, presents the argument that the present structure of the federal income tax system has much to do with the perpetuation of residential blight.[11] Through its own system of rewards and penalties, the federal taxing structure leaves little incentive for property owners to maintain and improve their property.

Martin Anderson even maintains that the great panacea of residential deterioration, urban renewal, has had many counter effects and is indeed contributing to the further spread of urban blight.[12] This he states is not only evident in the large number of low-income families who are forced to move from their "substandard" housing to even shabbier surroundings, but also in the high mortality of small businesses that are forced to close and/or relocate and consequently suffer the loss of much of their good will and income. A more direct consequence and contribution to urban blight can be seen in the commercial sector of the urban real estate market. As new buildings are constructed in the urban renewal areas (where they receive the benefit of such externalities as additional parking, greater access,

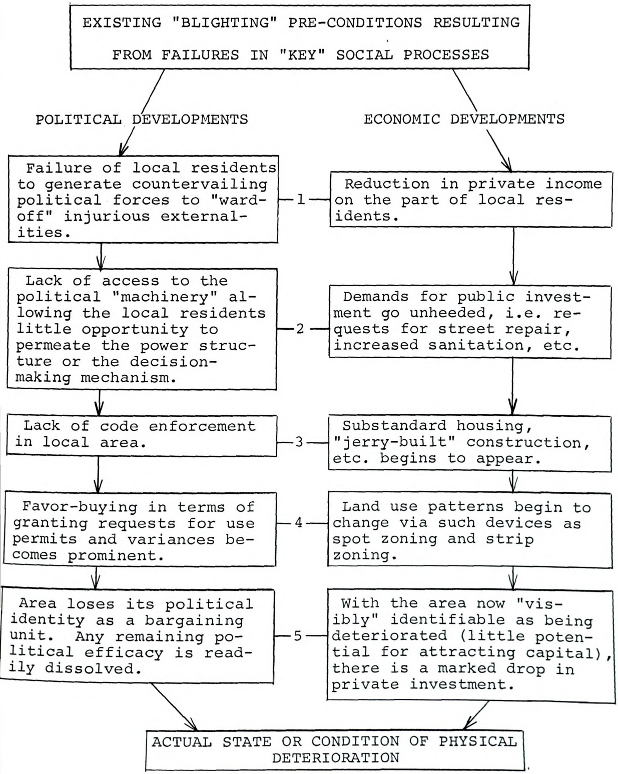
improved aesthetic surroundings, etc.) they attract occupants and businesses from the older downtown structures and cause severe increases in vacancy rates.[13]

Yet, even though this great diversity of theory and opinion exists, there do seem to be some commonalities regarding the nature and formation of urban residential deterioration.

The first is that blight appears to develop from negative forces in the environment or to be the result of certain breakdowns or failures in some key social systems. Examples of such negative effects might be (1) an out-migration of a particular segment of the population, (2) a loss of some critical factor of production, (3) a shift in markets, (4) an alteration of the transportation system, (5) a relocation of principal land use functions, (6) a change in urban values and public attitudes, (7) a lack of political influence, or (8) a myopic view of impending social dangers resulting from a failure of municipal leaders to "plan."

The second common feature of physical deterioration n single-family residential buildings and areas is that in ost instances the process of deterioration is approximately he same.[14] Once certain pre-conditions have been estabished to set the stage for deterioration to develop, there ppears to be a sequence of related events that occurs in oth the political and economic spheres of the city.[15]

Figure 1.--A Schematic Diagram of the Deterioration Process.

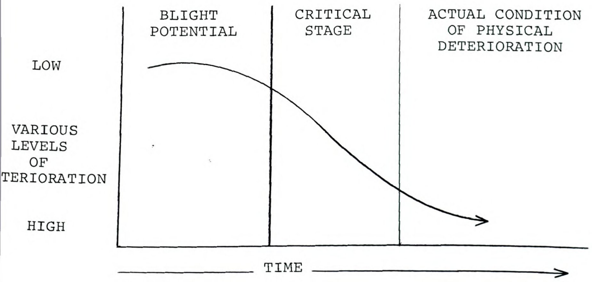


This pattern of events is illustrated in Figure 1 and is entitled "A Schematic Diagram of the Deterioration Process."

The third point is that within the general deteriorating process there is a particular phase of rapid pathological development which Breger has termed the critical stage of physical deterioration.[16] This is an important period of development because it is during this stage that the area changes from one of potential deterioration to one of actual deterioration.

In simple diagramatic form the general thrust of Breger's concept can be illustrated as follows:

Figure 2.--Breger's Concept of Physical Deterioration



This illustration of Breger's concept of the critical stage shows that the physical condition of the area passes from an initial stage of little or no deterioration (blight potential) to a stage of severe rapid deterioration (the critical stage) to an eventual stage of slower but more advanced deterioration (the actual state or condition of physical deterioration).

The Development of a Framework of Study

If one could accept these commonalities of urban deterioration or blight as actual postulates of urban development along with the notion that assessed values of single-family residential buildings correlate strongly with levels of private investment (as it will be illustrated in Chapter III), how might one examine the phenomenon of physical residential deterioration in an effort to measure and perhaps predict it?

In that levels of private investment are reflected in changes in assessed values of single-family buildings, one might expect that considerable insight into the actual physical condition of a building or a neighborhood could be gleaned from an examination of the local city assessor's records. It would follow that those buildings in better condition would be those having stronger records of investment, hence maintenance and improvement, while those in

oorer physical condition would be ones demonstrating oorer histories of investment.

The first task in the research then would be the election of an appropriate unit to reflect changes in nvestment. One that comes readily to mind would be the quare foot assessed value. As a standardized unit it ould be easily utilized in making comparisons of different evels of investment in various single-family residential reas throughout the city.

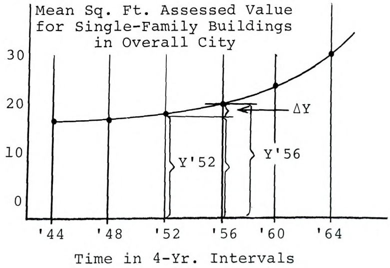
The next task would be the selection of a suitable athematical technique for measuring or illustrating changes n levels of investment, or, more precisely, for examining he behavior of the square foot assessed value. Such a echnique would not only have to show differences in iso-ated values at various points of time, but would also have o demonstrate rates of change or percent changes in assessed lues as well. The statistical method or technique of me-series analysis would be an appropriate device since lends itself very nicely to this problem of comparing d evaluating levels and rates of change.

Since an examination of the percent change in sessed values of single-family buildings at regular in-rvals through a time-series analysis would indicate the tent or rate of investment in them for a given period of ne, one could indicate or measure the relative condition a building or a neighborhood by demonstrating the extent

to which its percent change in assessed value differed from that of the overall city. Hence, a suitable and very practical measure for deterioration in the case of physically blighted areas might be one that demonstrates <u>differences in slope</u> in percent changes in assessed values.

To get a better grasp of this notion for measuring and comparing rates of investment or percent changes in mean square foot assessed values, the reader should note the following illustration, Figure 3, shown below.

Figure 3.--A Time-Series Analysis for Measuring Change in Investment



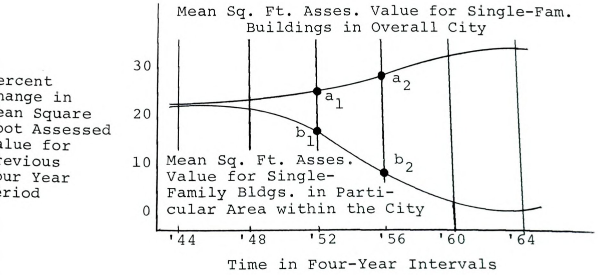
The percent change for the time period 1952-56

$$\text{equals } \frac{\Delta Y52 - Y56}{Y52} \text{ times } 100$$

$$\text{which equals } \frac{Y56 - Y52}{Y52} \text{ times } 100$$

To show comparisons for different percent changes in mean square foot assessed value and hence rates of investment in various parts of the city, one could determine the differences in slope between two curves at various points in time. As in the preceding example, Figure 3, one curve (the upper one) could represent the percent change in mean square foot assessed value or the norm for investment in single-family buildings in the overall city while the other (the lower one) could represent the percent change in mean square foot assessed value for a particular area or neighborhood within the city. A time-series analysis showing the juxtaposition of the two curves might appear as follows in Figure 4:

Figure 4.--A Time-Series Analysis for Measuring Change in Mean Square Foot Assessed Value



The difference in slope between the top and bottom urve for the interval (time-period) 1952 to 1956 would hen equal

$$(a_2 - a_1) - (b_2 - b_1)$$

Thus, the example shown in Figure 4 indicates that he rate of investment or the percent change in mean square oot assessed value for the given area is less than that or the overall city. Since this is the case, one could ay that the area is relatively physically deteriorated, nd the measure of this deterioration for the period 1952 o 1956 would be the difference in slope between the two urves or

$$(a_2 - a_1) - (b_2 - b_1)$$

It should also be pointed out that <u>any</u> area within e city demonstrating a curve or record of investment that ceeded that of the overall city would be one that was ceiving a larger share of private investment, hence main-nance and improvement, than the average for the city.

In attempting to utilize the technique of time-ries analysis and assessment data to predict future ysical deterioration, one would first have to demonstrate at the behavior of the mean square foot assessed value uld be used as a leading surrogate for physical blight. in, going back to Breger's concept, one can see that critical stage of the deterioration process always

always precedes the more developed stage of actual physical deterioration. Hence, the initial task for predicting future physical deterioration would be one of identifying and isolating this critical stage.

In the example shown in Figure 4 the difference in slope in the percent change in mean square foot assessed value is greatest from 1952 to 1956. This indicates that it was during this period of time that the rate of private investment in single-family homes, in terms of maintenance and improvement, was the lowest. This in turn further implies that it was also during this interval that the buildings deteriorated physically most rapidly. Thus, the period 1952 to 1956 represents the critical stage of the deterioration process for this particular example.

The possibility then of predicting physical deterioration through an examination of changes in assessed values centers on one being able to locate this critical stage. Therefore, any effort to substantiate Breger's theory of the critical stage would have to begin with the selection of a sub-area of the city that evidences some of the early characteristics of physical deterioration--i.e. those characteristics listed as blighting pre-conditions in the deterioration process, page 37.

peratiοnal Definitions

For purposes of this study it is necessary to perationalize many of the definitions and concepts that ill be used extensively in the study. The first is that f blight potential.

This term refers to a capacity for a building or ı area to become blighted. In essense, something is said ɔ have a potential for blight to occur once it is sub- ected to any or all of the forces illustrated in Figure 1, Schematic Diagram of the Deterioration Process."

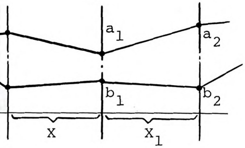
The second term is that of the critical stage of e general deterioration process. This concept, shown in gure 2, refers to that particular phase or stage of dden pathological development where either a building or area deteriorates most rapidly.

The third term is that of physical deterioration. is concept refers to the actual state or condition of terioration. For all practical purposes, physical deteri- ation is a pathological state of a building or an area at can be measured in accordance with various standards criteria for dilapidation and deterioration. In effect, s is the level of deterioration that is popularly re- rred to as blight.

A fourth term, difference in slope, refers to the nge in direction between two curves at different inter- s in the time-series analysis--e.g. Figure 4. Difference

slope can best be illustrated by the following example
igure 5):

gure 5.--Difference in Slope Defined



Difference in slope between the top and bottom curve for the interval "X_1" equals

$$(a_2 - a_1) - (b_2 - b_1)$$

Since all observations are made at 4-year intervals, all the intervals are equal.

A final term, <u>percent change</u>, refers to the extent
which the square foot assessed value differs from one
terval or observation to the next. It was computed by
viding the square foot assessed value for one interval
to the square foot assessed value of the next and multi-
ying the resulting quotient by 100. At each interval
e percent change has been added to the previous one so
effect the graphic illustration for each sub-area repre-
nts a cumulative curve.

FOOTNOTES

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[3]Case, Frederick E., "Prediction and the Incidence of Urban Residential Blight," Papers and Proceedings of the Regional Science Association, 1962. In his article Case states ". . . A major problem related to seeking to measure the incidence of urban blight is that the term 'blight' is used loosely and consistently to cover a multitude of unsatisfactory land use problems . . . Furthermore, the apparently widespread incidence of blight and the somewhat complex procedures involved in identifying it in connection with the majority of urban renewal programs argue for a definition of blight which can be universally applied to all urban areas in reasonably consistent quantitative terms. . . ." pp. 211-212.

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[8]An examination of almost any federally supported urban program, e.g. Urban Renewal, Community Renewal, Job Corps, Head Start, etc., will reveal that citizen education

a vital ingredient in the successful development of the ogram. The emphasis of the general "War on Poverty" is milarly a blatant example of this need to bring the urban or and the rural migrant (who will soon join the ranks) to middle class standards and values. See Rein, Martin, ocial Science and the Elimination of Poverty," Journal of e American Institute of Planners, May 1967. See also rloff, Harvey S., "New Directions in Social Planning," urnal of the American Institute of Planners, November, 65. For some historical perspective on this notion of ight transference see also Bauer, Catherine, Social Ques- ons in Housing and Planning, London: University of London ess, 1952.

[9]Firey, Walter, "Ecological Considerations in Plan- ng for Rurban Fringes," in Cities and Society. Edited by ul K. Hatt and Albert J. Reiss, Jr. See also Horwood, gar, Community Consequences of Highway Development, attle: University of Washington Press, 1965, and Duke, chard D., "The Effects of a Depressed Expressway--A troit Case Study," The Appraisal Journal, Vol. 26, tober 1958.

[10]Barlowe, Raleigh, Land Resource Economics, Engle- od Cliffs, N. J.: Prentice-Hall, 1958. See also Thomp- n, William R., A Preface to Urban Economics, Washington: sources for the Future, 1963.

[11]Sporn, Arthur D., "Some Contributions of the come Tax Law to the Growth and Prevalence of Urban Slums," lumbia Law Review, November 1959. For further discussion this issue, also see Blum, Walter J. and Allison Dunham, ncome Tax Law and Slums," Columbia Law Review, April 1960.

[12]Anderson, Martin, The Federal Bulldozer, Cambridge: e M.I.T. Press, 1964.

[13]There have been many notable examples of this rket displacement effect throughout the country. Partic- ar examples are the construction of the Pontchartrain tel in Detroit which drove several competing facilities to bankruptcy in the early 1960's, the IBM Building in attle in 1965 which drove office vacancy rates to an all- ne low, and the Standard Insurance Building in Portland, egon which caused similar repercussions in downtown Port- nd properties.

[14]Breger, G. E., "The Concepts and Causes of Urban ght," Land Economics, Vol. 43, Number 4, November 1967.

[15]Banfield, Edward C., Political Influence, A New eory of Urban Politics, New York: The Free Press, 1961. e also Dahl, Robert A., "The Analysis of Influence in cal Communities," in Main Street Politics. Edited by arles Press, East Lansing: Michigan State University ess, 1962.

[16]Breger, G. E., "The Concepts and Causes of Urban ight," Land Economics, Volume 43, No. 4, 1967.

CHAPTER III

THE ASSESSED VALUE AS A RECORD OF INVESTMENT

An extensive amount of literature has appeared in cent years to attest to the fact that there is considable correlation between the way people behave and the y in which they handle money.[1] Thus, it seems only fitng that municipal policies regarding changes or alteraons of urban development should be centered on the way which people actually behave in regards to personal exditures rather than the way in which they say they uld act. This is especially true in regards to the cess or failure of proposed urban renewal programs when ir funding is partially based on individual property essments. It is therefore quite important that local an renewal agencies have an adequate measure of citizen erest and stewardship within any area prior to embark- upon a proposed project for its rehabilitation or evelopment.

In the previous chapters it was demonstrated that regards to single-family houses there was a definite kage between levels of private investment and corresponding

ssessed values. In instances where buildings were improved
nd maintained, assessed values appreciated, and in in-
tances where buildings were neglected and not maintained,
ssessed values depreciated. In this respect assessed
lues form an important source of raw data for local muni-
pal authorities and other interested urbanists because
ey reflect how individual owners behave in regards to
intaining and improving their property.

As a record of investment, assessed values offer
me very good advantages for urban research purposes.
e first lies in the fact that they are public documents
d a matter of public record. In this sense, they are
adily accessible to anyone wishing to use or examine
em. The second point in regards to their utility is
at they extend over the entire history of the city.
erefore, they can provide assessment information for any
riod of the city's development. In short, they are a
g term record of private investment.

A final advantage centers on the fact that they
systematically determined in accordance with some
cific criteria. In this respect they are uniform data.

Determination of the
essed Value

In most of the United States, the assessed value
single-family structures is determined as the cost of

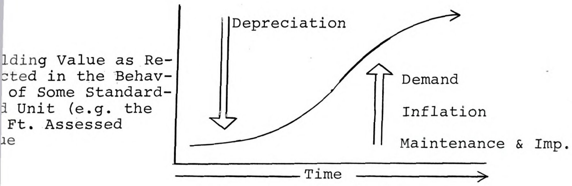
eplacing the structure (the cost of labor and materials or some specified base year) minus its depreciation.[2] hus, for all practical purposes, it is, by definition, a igure that is free of any biasing influences that might ossibly arise from market demands or fluctuations. The ssessed value then represents what a building is worth, d therefore what it should sell for.[3]

There are limits though to the validity and cre-nce of assessment data. Even though most assessors like approximate a practice of determining assessments that fair and equitable, they frequently fall short of this rk.

Quite often an assessment office is severely under-affed and therefore unable to make frequent examinations d reassessments of property values. Also, it can happen at a city can quite unwittingly be utilizing out-moded thods for determining assessed values which can result having certain building types appraised unfairly.[4] never assessment data is grossly inequitably determined, affords little utility for urban research purposes. however, assessment practices are assidiously followed values are equitably determined and distributed, as-sed values can present an important source of economic a.

Figure 6 illustrates how the assessed value is ated to private investment in the case of single-family idential buildings.

ure 6.--The Assessed Value as A Record of Private Investment



A building begins to depreciate (both physically economically) once its construction is completed and s ready for occupancy. To counteract the general e of depreciation (which indeed can be made up of ral sub-forces), three countervailing forces enter in- he economic system. These are (1) demand, (2) infla- (which is very closely related to demand), and (3) tenance and improvement.

However, when assessed values are based on re- ement costs (which is the case of single-family resi- ial buildings in the City of Ann Arbor), they are the ltant of only two opposing forces--(1) depreciation (2) maintenance and improvement. For this reason they ect sound records of investment on the part of build- owners.

Inflation cannot have any skewing effects on the etermination of assessed values of single-family buildngs because it affects all types of construction uniformly. emand, likewise, cannot have any pulling effects on asessed values either (as might possibly be the case with rket values for certain types or locations of singlemily houses) because replacement costs are pegged to a ngle base price of labor and materials of some specified ar.[5]

An examination of the theoretical quality of the sessed value, in appraising its worth as a suitable recd of private investment, indicates that it incorporates l increments of value that accrue to a building from both intenance and improvement.[6] For if a building is properly intained, the appraiser uses a lower rate of depreciation determining its value than he normally would were it orly cared for.[7] Also, if a building is improved to the tent that the proposed construction will exceed $100 in lue, the assessor is immediately notified by the building partment and the additional worth of the improvement is led to the assessed value once the construction is comted and inspected.[8]

In determining the assessed value of a single-family idential building (utilizing the replacement cost minus reciation) for purposes of taxation, three methods of raisal can be used for estimating the replacement cost.[9]

are (1) the summation method, (2) the breakdown of s method, and (3) the unit-cost method.[10] When using ummation method, the appraiser determines the assessed as the sum of all the individual costs incurred in ctual construction of the building.[11] When using the down of trades method, he calculates the assessed as the total cost of all the individual trades that used in the construction of the building--e.g. masonry, ntry, plumbing, etc.[12] When utilizing the unit-cost d, he determines the replacement cost as the cost of dual components of the building--e.g. kitchen, bath- etc.[13]

oblem of Building
fication

Not all single-family residential buildings depre- at the same rate. Therefore, in order to make de- tion rates equitable in determining assessed values, sessor categorizes buildings by class in accordance he established state criteria.[14]

Determining the appropriate building class for a ntial structure is indeed no mean task for it re- extensive knowledge and experience on the part of praiser. This is true for several reasons.

The first is that buildings are constructed from nsive variety of materials and therefore often

eive an eclectic architectural treatment. Thus, it can pen that one segment or story of a house can be of one e of construction (brick, frame, etc.) while another t of it is of another. Then too, contractors and archi-ts (particularly those associated with large-scale de-ppers) frequently build and design some parts of houses ne set of building standards and some to others.

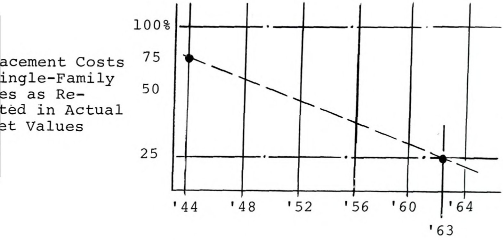
A second problem centers on the fact that many dings are built in stages. Sometimes, as is the case a good portion of the housing stock in Ann Arbor, e are twenty to thirty years between building additions. ith the case of mixed standards and construction methods, too can cause severe discrepancies in building classi-tion.

A third classification difficulty lies in the gen- problem of remodeling. Once a building has been ex-ively remodeled, its effective age is appreciably red. New materials, equipment, and building techniques add to this problem and increase the change of error assifying buildings.

<u>sment Practices in the</u>
<u>of Ann Arbor</u>

For the period 1944 to 1963 assessed values of e-family residential buildings in the City of Ann were based on 75% of their 1941 replacement cost.

.963, however, this practice was altered, and assessed ıes have since been based on 100% of the fair market ıe of the structure.[15] The major reason for the change- in assessment practices can be readily seen in the ıstration below, Figure 7.



re 7.--Assessment Practices in The City of Ann Arbor, Michigan

In 1944 when assessed values of single-family resi- al buildings were determined at 75% of their 1941 re- ment cost, they closely approximated actual market s. However, as time progressed, these replacement s became less realistic in the sense of reflecting ıarket values. Thus, in 1963, 1941 replacement costs, ect, only reflected approximately 25% of the actual arket value of a single-family house.

For purposes of determining property taxes such a ion can become quite critical. For when property is

essed at a very low percentage of its actual value, the nce of error in determining its appropriate amount of becomes grossly magnified. Therefore, the assessor ays attempts to base property taxes on assessments that lect at least 40 to 50% of their actual fair market ue.[16]

Since replacement costs of single-family houses dropped to 25% of actual fair market values by 1963, City of Ann Arbor was forced to make a change in their ssment practices. Rather than continue on with the acement cost method and cope with the problem of redeping new indices of construction costs, they decided witch to a system of fair market values for determining ssed values. Thus, since 1963, assessed values of le-family houses have been based on 100% of their fair e.

To keep the data uniform within this study, 1964 ssed values were determined by multiplying the figures e assessor's records by 25%.[17]

In general, assessment practices within the City of rbor are governed by those procedures specified within ssessor's Manual of 1955 published by the authority of chigan State Tax Commission.[18]

Appraisers from the Assessor's Office re-examine f necessary, reappraise every building within the f Ann Arbor every three years. Building permits on

ew construction are followed up immediately, and adjust-
ents are posted on assessment records within three to six
onths after the improvements are completed and inspected.[19]

ie Assessed Value as Both a
rdstick and a Surrogate for
ysical Urban Deterioration

Before any statements can be made to the effect
at the assessed value can be utilized as a measure of
vestment and thus as either an indicator or surrogate
r physical deterioration, it must first be demonstrated
at assessed values for single-family residential build-
gs do in fact relate to levels of private investment.
is can best be verified and illustrated by a direct
amination of the data itself. Particularly good exam-
es to support this notion can be seen in numbers 14, 69,
109, 110, and 119 of the study sample.[20] The effect
private investment on the assessed value of each build-
can be illustrated in Figures 8, 9, 10, 11, 12, and

The mean square foot assessed value of single-
ily residential buildings can be utilized to represent
tandardized unit of investment, and, when examined
ough a time-series analysis, can combine both the func-
of the yardstick and/or indicator and the leading
ogate.

Assessor's Number: 09-31-104-28
Description: Single story, woodframe with basement
Year Built: 1954
Zoning: R1C
Building Class: C

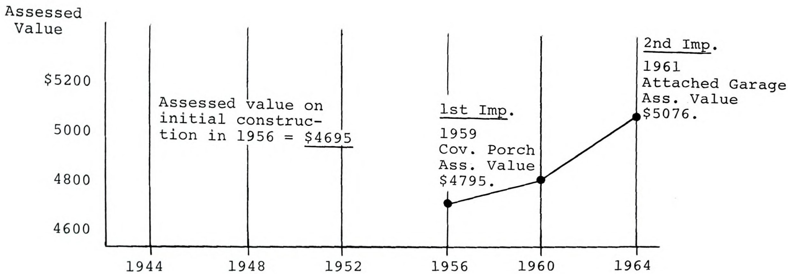


Figure 8.--Assessed Value and Building Improvement: Example No. 1

Address:	713 Miner Street
Assessor's Number:	09-20-312-05
Description:	1-1/2 story, brick with basement
Year Built:	1939
Zoning:	R1D
Building Class:	C

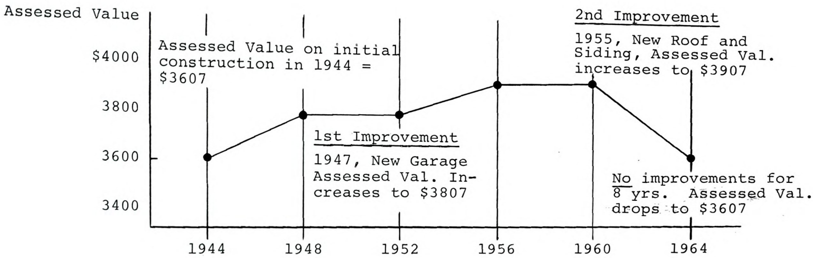


Figure 9.--Assessed Value and Building Improvements: Example No. 2

Assessor's Number: 09-33-409-19

Description:	One story, woodframe with basement
Year Built:	1947
Zoning:	R1C
Building Class:	C

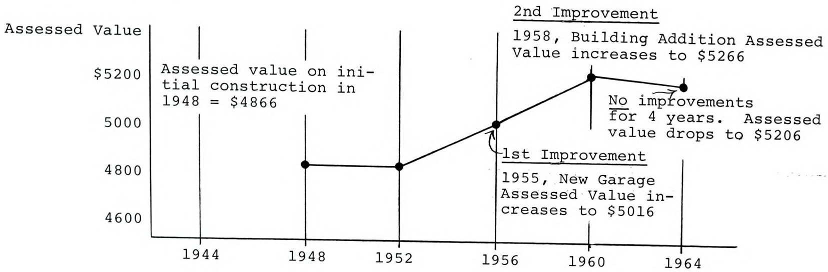


Figure 10.--Assessed Value and Building Improvement: Example No. 3

Description: One story, woodframe with basement
Year Built: 1947
Zoning: R1C
Building Class: C

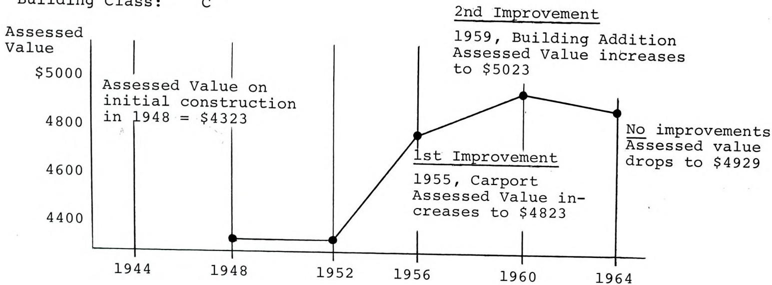


Figure 11.--Assessed Value and Building Improvements: Example No. 4

ption: Two story, woodframe with basement
Year Built: 1847
Zoning: R4C
Building Class: D

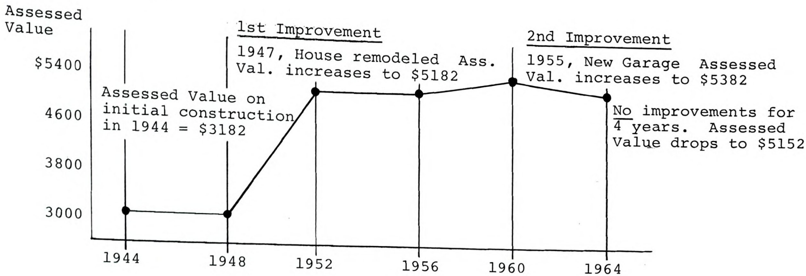


Figure 12.--Assessed Value and Building Improvement: Example No. 5

Assessor's Number: 09-29-427-12
Description: Two story, woodframe with basement
Year Built: 1885
Zoning: C2A
Building Class: C

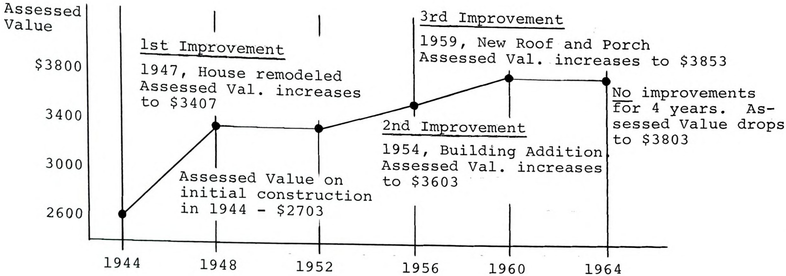


Figure 13.--Assessed Value and Building Improvement: Example No. 6

It has just been demonstrated that the assessed ıe, in effect, is primarily the result of two interact- forces--(1) depreciation and maintenance and (2) im- ement. Thus, when buildings are receiving more invest- (in terms of maintenance and improvement) than they being neglected, they are appreciating in value. And, ersely, when they are being more neglected than they being either maintained or improved, they are depre- ing in value.

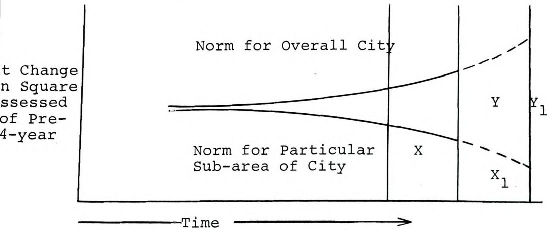
In the case of "blighted" properties where depre- ing levels of assessed values should correlate ngly with levels of physical deterioration, percent ge in the mean square foot assessed value should serve suitable indicator for physical deterioration.

One could also add that such an indicator should re credible and hence valuable than indicators devel- from either census data or urban renewal criteria be- both of these latter measures are primarily derived exterior observations and evaluations of building ions.

Since it is possible to determine relative levels t maintenance and improvement for various sub-areas city, the behavior of the percent change in mean foot assessed value, when examined over a given of time, should constitute an adequate leading sur- for future physical deterioration.

Since assessed values of structures are derived
tly from levels of maintenance and improvement, one
d expect that there would be a stronger proclivity
hysical deterioration to ensue in those areas re-
ing little history of improvement than in those areas
cting just the opposite. This can be graphically il-
ated in the following diagram (Figure 14).

14.--Utilizing the Assessed Value to Predict Future Levels of Physical Deterioration



In the hypothetical example it can be seen that
iven interval of time (X) the difference in slope
the two curves is only Y. However, for the same
of time (X_1) beyond the base year of 1968, the
ce in slope between the two curves is now Y_1 which
derably greater than the past value of Y.

This means that the given area is falling further further behind the general level of maintenance and rovement for the city. When the difference in slopes hes some critical threshold, the probability of some major investment for rehabilitation becomes fairly te (since it approaches the cost of completely replac- the buildings).

FOOTNOTES

[1]Many social commentators have reflected and ex-
ıded on this subject in recent years, i.e. John Gal-
ıth, The Affluent Society; Vance Packard, The Status
ters; David Riesman, Individualism Reconsidered, The
ely Crowd, etc., John Keats, The Crack in the Picture
dow, The New Romans, etc.; and numerous others. More
ent writings include George Katona, The Powerful Con-
er, The Mass Consumption Society, etc.; and James Mor-
The Productive American.

[2]Wagner, Percy, "The Appraisal of Single-Family
s," The Appraisal Journal, Volume 26, July 1958.

[3]This is primarily true for single-family houses,
in a rather strict sense. When a single-family resi-
e is converted into a rooming house or even a duplex,
assessed value is still largely based on its replace-
cost less depreciation. However, if the owner is
ving a considerable amount of rent from the building
tive to its replacement cost and risk factor of owner-
, the assessed value is adjusted to make it more
table with other residential income properties--e.g.
exes, apartment houses, etc. See Chapter IV, "The
aisal of Single-Family Residences," Assessor's Manual
955, published by the authority of the Michigan State
Commission, 1955.

[4]Lahde, Walter, "Practical Application of Residen-
Building Cost Schedules," A Short Course for Municipal
sing Officers, Papers in Public Administration, No. 3,
rbor: Bureau of Government, University of Michigan
, 1949.

[5]There are some perhaps who may disagree with this
ment. However, if one were to determine the replace-
cost of any building at various points in time, he
find that there would only be minimal differences in
of labor expended for certain units of work, i.e.
g, plumbing, etc. and in types of equipment utilized,
the replacement cost of a dishwasher or disposal in
when such items were not available in 1941 or even
The major costs of single-family residences center
ch items as basements and foundations, framing, floor-
roofing, etc. These items account for approximately
90% of the actual construction cost of the building.

[6]Michigan State Tax Commission, The Assessor's ual of 1955, Lansing, Michigan: Michigan State Tax nission, 1955.

[7]Ibid., Assessor's Manual, p. 69.

[8]Interview with Mr. Wayne Johnson, Deputy City essor for the City of Ann Arbor, Michigan, April 17, 3. At this time Mr. Johnson stated that the time lag assessing new improvements on existing structures ely exceeded six months, and that subsequent changes the tax rolls for buildings with new improvements were for the following year's assessment.

[9]Barlowe, Raleigh, Land Resource Economics, Engle- Cliffs, New Jersey: Prentice-Hall, 1958.

[10]Ibid., Barlowe.

[11]Ibid., Barlowe.

[12]Ibid., Barlowe.

[13]Ibid., Barlowe.

[14]Op. cit., Michigan State Tax Commission.

[15]Interview with Mr. Lahde, City Assessor for the of Ann Arbor, March 1, 1968.

[16]The Michigan constitution calls for equilization e 50% level.

[17]Interview with Mr. Lahde, City Assessor for the of Ann Arbor, March 1, 1968.

[18]Op. cit., Michigan State Tax Commission.

[19]Interview with Mr. Wayne Johnson, Deputy City sor for the City of Ann Arbor, Michigan, April 17,

[20]The study sample is described in full detail in er IV, pages 66 through 68.

CHAPTER IV

UTILIZING THE ASSESSED VALUE TO MEASURE AND PREDICT PHYSICAL DETERIORATION

verview of the Study

For the most part, the empirical research involved ne study will follow the outline presented in the open- section of the dissertation. The research will begin ndeavoring to show the extent to which assessed values e to levels of maintenance and improvement. It will try to demonstrate the degree to which depreciating of assessed valuation correlate with levels of phy- deterioration, and, in this respect, will attempt to how the behavior of the assessed value can be utilized asure physical deterioration.

The next phase of the study will endeavor to dem- ate a method using the assessed value to identify the al stage in the deterioration process in areas desig- as "physically deteriorated." For purposes of the such areas will be those that meet present accepted rds for physical deterioration--census definitions, renewal criteria, public housing standards, etc.

The final portion of the study will explore the
bility of using the behavior of the assessed value
leading surrogate for physical deterioration.

ptions

In developing this dissertation concerning assessed tion and physical deterioration, certain assumptions ding assessment practices within the City of Ann Arbor to be stated. Such assumptions lend credence to the and provide an appropriate framework for the research. ssumptions may be stated as follows:

. The assessment data obtained from the Ann Arbor City Assessor's Office is generally accurate.

a. The City Assessor adheres to the rules and regulations governing assessment practices and procedures within the city,

b. Assessments are made by trained appraisers who assess properties in accordance with the established municipal and state regulations,

c. Assessments are regularly re-examined and re-evaluated on a scheduled basis every three years, and

d. The assessor's office is notified by the building department every time a building permit is issued for new construction so that adjustments in assessments may be made to those buildings being improved.

The general range of problems inherent in estab-
g and maintaining assessment practices in the City
Arbor, Michigan are appreciably no different than
in any other Michigan city.

. The City of Ann Arbor while unique in its own physical and cultural resources, does not have any singular characteristics that might influence replacement costs on assessments for single-family residential buildings.

rch Procedures--Part I

The procedures for accomplishing the first portion e research may be stated as follows:

. Develop a random sample for selecting a number of assessed values of single-family residential buildings.

. For every building in the sample record its assessed value and floor area in four-year intervals from 1940 to 1964. Also record the added information for each of the buildings that is indicated on the Assessed Value Data Format shown in Appendix B.

Examine the assessed values of the single-family buildings within the sample to determine the extent to which particular housing characteristics (i.e. age, building class, construction type, etc.) influence them.

Determine the mean square foot assessed value for the total number of buildings sampled for each of the four-year intervals.

5. Determine the percent change in mean square foot assessed value for each of the four-year intervals.
6. Construct a curve representing the percent changes in mean square foot assessed value for the period 1940 to 1964. This curve should represent the general behavior of the mean square foot assessed value for the City of Ann Arbor for the time period 1940 to 1964.

arch Procedures--Part II

1. Select a number of assessed values of single-family residential buildings that in accordance with current standards of blight are physically deteriorated.
2. Record the assessed value and floor area of these buildings for each four-year interval from 1940 to 1964.
3. Determine the mean square foot assessed value for the buildings for each of the four-year intervals.
4. Determine the percent change in mean square foot assessed value for each of the four-year intervals.
5. Construct a curve representing the percent change in mean square foot assessed value for the total number of buildings in the deteriorated area for the period 1940 to 1964. This curve should represent the general behavior of the mean square foot assessed value for the physically deteriorated buildings.

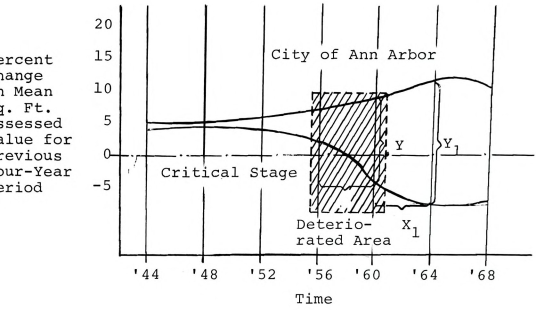
6. Note the direction of the curve. This should indicate the extent to which changes in assessed values correlate with levels of physical deterioration.
7. Develop an arbitrary grid for the base map of the selected city (the City of Ann Arbor). The size of the grid (scale) can be of any suitable dimension; however, to be most practical it would be best to keep it to the approximate size of an eight or ten block sub-area since this is approximately the minimum allowable urban renewal project as per current federal policies.
8. Compare the direction of the curve representing the behavior of the mean square foot assessed value of the deteriorated buildings from the physically deteriorated sub-area (selected from the arbitrary grid) with that of the behavior of the mean square foot assessed value for the overall city by placing both of the curves on one graph as shown in Chapter II page 43. Note the difference in direction (slope) between the two curves for the various time intervals. These differences represent the degree to which the behavior of the mean square foot assessed value of the selected sub-area (in this case, the physically deteriorated area) differs from that for the overall city.

Thus, the juxtaposition of the two cruves, in effect, represents a measure or level of physical deterioration at various stages of time (each four-year interval) for the physically deteriorated sub-area.

The technique of comparing the behavior of mean square foot assessed value does not have to be limited to deteriorated properties. Indeed, any sub-area of the city can be measured to ascertain the extent to which its behavior differs from that of the overall city. Hence, through the development of an arbitrary grid (as outlined in procedure No. 7) and indicator of physical deterioration can be developed for any sub-area of the city.

9. Note the particular time interval at which the difference in slope between the two curves (the one representing the percent change in mean square foot assessed value for the physically deteriorated area and the one representing the percent change in mean square foot assessed value for the overall city) is the greatest. This time interval can be identified as the critical stage in the deterioration process, for it is during this period that the area has deteriorated most rapidly and gone from one of blight potential to one of actual physical deterioration.

igure 15.--Defining the Critical Stage



The critical stage is actually defined by two irves. The top curve represents the normal behavior for ie mean square foot assessed value for the whole city. ie lower one represents the mean square foot assessed .lue for the deteriorated area. The critical stage in e above diagram (Figure 15) is from 1956 to 1960. For is during this time that the area has gone from one blight potential to one of actual physical deteriora- on. It is also during this interval of time that the ea has deteriorated most greatly and most rapidly.

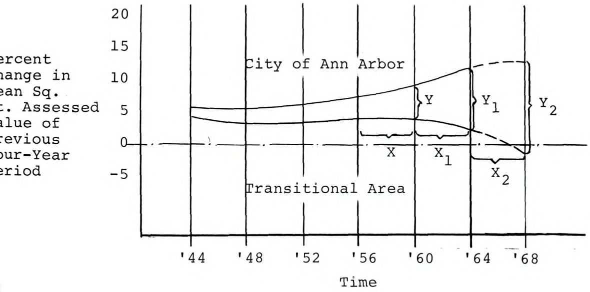
search Procedures--Part III

The procedures for accomplishing the final portion the research may be stated as follows:

1. Locate a sub-area of the city that has some actual "earmarks" of physical deterioration on the Sub-Area Map. Such an area conceivably would appear as having a potential for becoming physically deteriorated. Such buildings or areas could have physically identifiable characteristics (i.e. peeling paint, broken windows, sagging roofs, etc.) as well as some of the other conditions or circumstances mentioned in Chapter II, page 37, as "Blighting Pre-Conditions."
2. Select an appropriate number of assessed values of single-family residential buildings utilizing either a random or cluster sampling technique from the sub-area.
3. Determine the behavior of the mean square foot assessed value for the area and note its direction in comparison with the mean square foot assessed value for the overall city.
4. Project the two curves as indicated in Figure 16. If there appears to be an increasing separation between the two curves (an increase in change in slope), one could expect that the sub-area would be approaching an actual state of physical deterioration. The reason for such a judgment or opinion would be that the sub-area had received a disproportionate or lesser amount of private investment

relative to the rest of the city, and consequently would manifest less of a potential for attracting future capital or investment.

igure 16.--Predicting Physical Deterioration



e Data

The data utilized in this study concerns single-mily residential buildings. This category of land use s been selected for two reasons. The first is that ngle-family residential buildings presently occupy about % of the land use in most American Cities. Consequently, goodly share of the housing problem in the country cen-rs on this type of housing stock. The second reason is at the type of analysis utilized in this study is best ited to this type of residential land use. As mentioned rlier, assessments on single-family residential buildings

re primarily based on replacement costs which in turn are
ased on established prices of labor and materials for
ome base year. For other types of residential structures,
ssessments are based on replacement costs, but they also
nclude substantial adjustment factors for such things as
ncome capability, location, adaptability for other uses,
tc.

In this study, housing data was obtained directly om the records of the Ann Arbor City Assessor's Office. e data was obtained from both file cards and assessment cord books. (A sample file card illustrating the extent assessment data on each piece of property is shown in pendix B.)

Assessed values for single-family buildings were ken directly from the assessment records for the years 44, 1948, 1952, 1956, and 1960. Nineteen Hundred and xty-Four data was obtained by multiplying the 1964 mar- value prices by 25%.[1] Nineteen Hundred and Forty fig- es were obtained by dividing the 1944 replacement costs the building cost index numbers for the Detroit area 1940.[2] This is a fairly reliable technique and in the cific case of Ann Arbor only a matter of small impor- ce. Since 1944 building values are based on 1941 prices labor and material, 1940 figures actually reflect only year's difference in building costs.

Floor areas for each of the buildings sampled were
mputed by multiplying the plan area of the building by
s given number of stories. Basement areas were not
unted in the total floor areas. Quarter and half stories
re counted as such since they were given in the records
both drawings and photographs for each building.

The mean square foot assessed value for each in-
rval of time was determined by dividing the total as-
ssed value for each four-year period by the total floor
a for each 4-year period.

Sample

In developing the random sample for establishing
behavior of the mean square foot assessed value for
period 1940 to 1964 for the City of Ann Arbor, a spe-
l sampling technique was utilized. A random number
nnique was employed for the selection process, and
perties were identified according to their location on
1960 census map for the city.

In building the sample certain parameters regard-
the census map were noted and subsequently adhered to
the actual selection process. These parameters can be
ed as follows:

1. Census tracts were numbered 1 through 19.
2. Blocks in the various tracts ranged from 1 through 99. (No tracts had more than 99 blocks.)

3. Lots within each block ranged from 1 through 40 in some extreme cases, but in most cases only 1 through 20.

Each building within the sample could have been cted directly from a table of random numbers without ng any modification in the selection process (e.g. the t two digits could represent the tract number, the two the block number, and so on). However, this would required a lengthy exercise in getting an appropriate er of suitable buildings.

To short-cut the selection time, the following fication was utilized in the random number selection nique:

1. The first building was selected by having the first single digit represent the tract number; the second digit, the block number, and the third single digit, the lot number.
2. The second building was selected by having the first single digit <u>plus</u> <u>ten</u> represent the tract number; the second single digit, the block number; and third single digit, the lot number.
3. The third building was selected by having the first single digit represent the tract number; the <u>second</u> <u>and</u> <u>third</u> digits, the block number; and the next (fourth) digit, the lot number.

4. The fourth building was selected by having the first single digit <u>plus ten</u> represent the tract number; the <u>second and third</u> digits, the block number; and the next (fourth) digit, the lot number.

. The fifth building was selected by having the first single digit represent the tract number; the second single digit, the block number; and the third single digit <u>plus ten</u>, the lot number.

. The sixth building was selected by having the first single digit <u>plus ten</u> represent the tract number; the second single digit, the block number; and the third single digit <u>plus ten</u>, the lot number.

. The seventh building was selected by having the first single digit represent the tract number; the <u>second and third</u> digits represent the block number; and the next (fourth) digit <u>plus ten</u>, the lot number.

. The eighth building was selected by having the first single digit <u>plus ten</u> represent the tract number; the <u>second and third</u> digits, the block number; and the next (fourth) digit <u>plus ten</u>, the lot number.

The ninth building was selected by utilizing the
:ion criteria for the first building; the tenth

uilding was selected by utilizing the selection criteria or the second building; and so on until the sample was ompleted.

Whenever a building or area was selected that did ot meet the requirements of the sample (i.e. a service tation, school yard, cemetery, etc.), the random number as passed over and the next one utilized.[3]

To obtain some notion as to how large the sample ize should be, a pre-sample (1964 values) was run on 31 uildings. A crude mean of these sample values indicated hat the estimated value per square foot for the whole ty was \$1.93.[4]

It was then decided that a sample size with a 95% onfidence interval of plus or minus \$0.30 per square foot or the whole city would afford a reasonable level of acuracy for the research.

Using the formula

$$N = \frac{t^2 \ s^2}{d^2}$$

ere $t = 1.96$ (for a confidence interval of 95%)

$s^2 = 1.93$ (initial square foot value), and

$d - 0.30$

was indicated that the sample size (N) should be 82.

To be on the safe side, an additional 50% was added the sample bringing the total number of observations or ildings to 124.

In regards to the appropriateness of this sample ze, a subsequent analysis showed that its actual degree variation was even better than what had initially been ped for, for one standard deviation of the value per uare foot equaled only 0.89. At a confidence interval 95%, this would bring the value per square foot within us or minus $0.18 (as opposed to plus or minus $0.30) of e true value for the whole city.[5]

<u>e Selection of Sub-Areas</u>

The selection of particular sub-areas for purposes examination and comparison was made directly from the b-Area (grid) Map. The selection of specific buildings thin each of the sub-areas was tempered somewhat by the mitations of the laboratory community and by the peculiar quirements of the research itself. Six separate areas re selected for examination, and the selection of individual buildings within each sub-area was treated separately. e areas selected were as follows:

<u>ea No. 1, Deteriorated-Dilapidated Housing</u>:

Houses within this area were principally identified om the 1960 Housing Census Maps. The buildings selected re those meeting the census definitions of dilapidation d deterioration. In addition to the U.S. Census criteria deterioration, the dwellings were also checked for

building and sanitation code violations. Of the four blocks examined, there were 26 code violations listed in the premise files of the Ann Arbor City Health Officer. In respect to other areas of the city this was quite an inordinate amount.[6]

Area No. 2, Semi-Deteriorated, Transitional Area:

This sub-area of the city was identified by both the city assessor and the planning director as one that was in a possible state of semi-deterioration or one undergoing a physical transition from sound to unsound. Most of the dwellings within this area were in the 1960 U.S. Housing Census category of 20 to 40 percent deteriorated. An examination of the City Health Officer's premise files also indicated that there were 13 code violations for this area.

Area No. 3, Semi-Deteriorated, Transitional Area:

This sub-area was also identified by both the city assessor and the planning director as being in a possible transitional state. As had the buildings within Area No. 2, most of these also fell within the 1960 U.S. Housing Census category of 20 to 40 percent deteriorated. In addition to this general measure of deterioration it was found that there were 22 building and sanitation code violations for this area.

Area No. 4, Ann Arbor Urban Renewal (Deteriorated) Area:

The dwellings within this area were defined as deteriorated and dilapidated by the 1956 U.S. Urban Renewal Criteria. In addition, an examination of the Premise Files of the City Health Officer indicated that there had been a considerable number of Building and Sanitation Code violations within the area (60 such violations). For the most part, the buildings within the area fell within the 1960 U.S. Housing Census category of 40 to 60 percent deteriorated.

Area No. 5, Sound Housing (No Deterioration):

The buildings within this area had no indications of being physically deteriorated. According to the 1960 U.S. Census of Housing definitions of deterioration and dilapidation all of the structures were sound. There were only 3 building and sanitation code violations mentioned for this area in the City Health Officer's Premise Files, and these were all of a very minor nature--note the listing of these violations in Appendix C. The area was selected because it was a "good" area within walking distance of the central area of the city.

Area No. 6, Sound Housing (No Deterioration):

As with Area No. 5, none of the buildings within this area were either deteriorated or dilapidated. An examination of the 1960 U.S. Census of Housing indicates

that all of the structures were in sound condition. Further, the Premise Files in the City Health Office indicated that no violations had been reported in this area ever. The area was selected because it was a "good" area that was within the city, yet not within walking distance of the central area.

The buildings in Area No. 1 were selected by taking every building within Grids 10-12 and 11-12 that were defined by the 1960 U.S. Census of Housing as being either deteriorated or dilapidated. Since there was only a limited amount of these buildings within the city, it was decided to combine all of the blocks into one area--even though in a strict geographic sense, this was not actually the case. Twenty-seven buildings were selected.

The buildings in Area No. 2 were selected by taking all of the houses within the grid. Sixty-eight buildings were selected.

The houses in Area No. 3 were again selected by including all of the dwellings within the grid. Fifty-five buildings were selected.

The buildings in Area No. 4 were selected on the basis of the city's urban renewal maps. In sampling this area it was decided to select all of the houses from the best and worst blocks within the area. That is, to select dwellings from the block that was defined as having the

greatest amount of physical deterioration and the block that was defined as having the least amount of physical deterioration. Forty-four buildings were selected.

The buildings in Area No. 5 were selected by taking all of the buildings within the grid. Since these dwellings were built on much larger lots there were far fewer of them in the grid. Seventeen buildings were selected.

The buildings in Area No. 6 were selected by including all of the dwellings within the grid. Again, the large lots precluded there being very many houses within the grid. Twenty buildings were selected.

Base Maps

In developing the study several base maps were developed and utilized. They are listed here and exhibited in Appendix B as well.

1. Base Map for the City of Ann Arbor, Michigan. This map was used as the basic reference map for all studies within the city.
2. Building Sample Map for the City of Ann Arbor, Michigan. This map was developed to locate the various single-family dwellings selected in the housing sample.
3. Census Tract Map for the City of Ann Arbor. This map indicates the various census tracts for the City of Ann Arbor, Michigan.

4. Sub-Area (Arbitrary Grid) Map for the City of Ann Arbor, Michigan. This map was developed to subdivide the city into a number of sub-areas of equal size. Each grid or sub-area is approximately 1200 feet square.

Hypotheses to be Tested

In developing this dissertation several hypotheses have been advanced for testing. They are stated along with each research objective that is to be accomplished in the study.

OBJECTIVE NUMBER 1: To demonstrate the degree to which the assessed value of single-family residential buildings varies in accordance with specific housing characteristics.

Major Hypothesis: The assessed value of single-family residential buildings varies appreciably in accordance with the particular housing characteristics.

Sub-Hypotheses:

(1) Assessed values of single-family residential buildings vary according to differences in building class.

(2) Assessed values of single-family residences vary according to differences in building construction.

(3) Assessed values of single-family residences vary according to differences in building age.

(4) Assessed values of single-family residences vary according to differences in their number of stories.

(5) Assessed values of single-family residences vary according to differences in <u>lot areas</u>.

(6) Assessed values of single-family residences vary according to differences in <u>zoning</u>.

(7) Assessed values of single-family residences vary according to differences in <u>tenure of occupancy</u>.

(8) Assessed values of single-family residences vary according to differences in regards to the <u>presence or absence of a garage</u>.

OBJECTIVE NUMBER 2: To demonstrate that levels of physical deterioration correlate with depreciating rates of assessed valuation in single-family residential dwellings.

Major Hypothesis: Levels of physical deterioration correlate with depreciating rates of assessed valuation in single-family residential buildings.

OBJECTIVE NUMBER 3: To demonstrate a method using assessment data to quantify the extent of relative physical deterioration of single-family residential buildings within various sub-areas of the city.

Major Hypothesis: Percent changes in mean square foot assessed value can be utilized as a measure of building condition, and hence as a measure of physical deterioration.

OBJECTIVE NUMBER 4: To demonstrate that assessment data for single-family residential buildings can be utilized to identify the <u>critical stage</u> in the deterioration process in those areas of the city that are physically deteriorated.

Major Hypothesis: In those single-family residential areas of the city that <u>are</u> physically

deteriorated, the level of physical deterioration will be greatest and most rapid where the rate of depreciation in assessed valuation is the greatest.

OBJECTIVE NUMBER 5: To demonstrate that the percent change in assessed valuation can be used as a leading surrogate for future physical deterioration.

Major Hypothesis: The percent change in assessed valuation can be used as a leading surrogate for predicting possible future physical deterioration.

FOOTNOTES

[1]Interview with Mr. Wayne Johnson, Deputy City Assessor for the City of Ann Arbor, Michigan. Mr. Johnson stated that one could obtain the 1964 replacement cost figure for any single-family residential building in the city by merely multiplying the 1964 assessment figure (which was based on market value) by 25%. March 5, 1968.

[2]Building Costs. Edited by T. L. Ball and E. H. Boechk and Associates, Washington: 1956.

[3]The table of random numbers utilized in the study were taken from Arkin, H. A., Handbook of Sampling for Auditors and Accountants, New York: Wiley, 1965. The random number selection began with row 122, column 4, page 246.

[4]Similar results hold for the values for other years.

[5]Cochran, William G., Sampling Techniques, New York: Wiley, 1963. According to the author this technique for estimating the sample size obtains whenever the following conditions are met:

(1) When the sample is greater than 30, and
(2) When the coefficient of variation of both variables (e.g. valuation and square footage) is less than 10%, p. 157.

[6]A listing of Health and Building Code violations is given in Appendix C.

CHAPTER V

THE FINDINGS

Determining Primary Variables Affecting the Behavior of the Assessed Value

Even the most cursory examination of the literature of urban deterioration and assessment practices will alert one to look for particular variables that might have possible effects on the behavior of assessed values. Case noted in his work that occupany and tenure of occupancy were important factors related to physical blight.[1] Czamanski's efforts uncovered such blight-related variables as building age and lot area.[2] Walker's earlier research led her to believe that physical deterioration resulted from the interplay of many key factors not the least of which was lot size (overcrowdedness) and building age.[3] Walker also mentioned that strong relationships existed between physically deteriorated structures and depreciating assessed values.[4]

Fisher mentions in his paper on urban blight and zoning that zoning itself (single-family versus multiple usage) is a highly related variable to physical deterioration

and that changes in municipal zoning (spot zoning, etc.) often precede and perpetuate the spread and development of incipient blight.[5]

As well as noting many general factors (i.e. demographic characteristics, etc.) that one ordinarily associates with slums and slum development, Raymond Vernon also states that tenure of occupancy (rental versus owner-occupied housing) is a major factor related to physical deterioration.[6] For the most part Vernon found that owner-occupied housing deteriorated less rapidly than did rental housing.

Harland Bartholomew found in his investigation of physical deterioration of non-residential construction that standards and classes of building construction were important factors in both the physical and economic life of a building.[7]

In an examination of housing quality utilizing American Public Health Standards, Johnson, Williams, and McCaldin noted that residential building condition varied in accordance with such factors as tenure of occupany, occupancy, and building construction.[8]

The general literature of assessment practices and procedures also indicates that particular housing characteristics have strong linkages to the behavior of assessed values.

McDonald states in his article concerning the problem of depreciation in single-family residences that physical deterioration appears to be closely correlated with construction quality (type of construction and perhaps building class).[9] Albert gives primary importance to neighborhood or environmental conditions and demographic characteristics of the inhabitants, but also mentions such factors as zoning and building age.[10] Percy Wagner similarly gives considerable credence to environmental conditions, yet notes such physical characteristics as construction type, and building age.[11]

From the weight of the findings and evidence of these past research efforts one would be fairly constrained to examine his data quite closely to note the effect of such variables or housing characteristics upon it. Thus, in examining the data for this particular study of single-family housing in the City of Ann Arbor, Michigan, the extent of influence of particular variables has been noted. The variables selected for examination were (1) building assessment class, (2) tenure of occupancy (owner-occupied versus rental housing), (3) number of stories (single-story versus multiple stories), (4) building age, (5) presence of garages (houses with garages versus houses without garages), (6) building construction (wood frame versus brick construction), (7) zoning (single-family versus multiple zoning), and (8) lot area.

To test for the effect of such variables on the behavior of the assessed value of single-family buildings, the percent change in mean square foot assess value of all the buildings in the sample was determined for each four-year interval from 1940 to 1964. The data was then plotted graphically in a time-series analysis as illustrated in Figure 17. This graph then illustrated the general behavior of the mean square foot assessed value of single-family residential buildings for the whole city of Ann Arbor for the time period 1940 to 1964.

Against this graph in subsequent illustrations (Figures 18 through 31) the effect of each particular variable was shown. Thus, for example, when one wished to test for the effect of building age on the sample, the behavior of the mean square foot assessed value of buildings built before 1940 was compared with the behavior of the mean square foot assessed value for all the buildings in the sample.

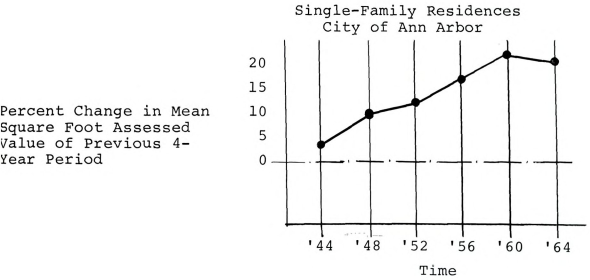
The utilization of this technique of time-series analysis allows the researcher to determine the rate of change in mean square foot assessed value. When two curves are compared on the same graph, it is then possible to determine differences in slope (hence acceleration or deceleration) which, in turn, demonstrates the extent to which a particular variable influences assessed values. A positive difference in slope indicates that the mean square

foot assessed value of single-family residences throughout the city is appreciating more than that for those buildings characterized by the particular variable or housing characteristic under examination. A negative difference in slope indicates just the reverse. The magnitude of the effect of each variable on the sample is, of course, measured by the value of each difference in slope. Thus, if we are to answer the specific question of whether or not a particular variable has an effect on the mean square foot assessed value of single-family residences, we have only to note the direction and the value or magnitude of the differences in slope in each particular case or illustration.

The Findings

The initial part of the empirical research concerned the determination of the behavior (percent change) of the mean square foot assessed value of single-family residential buildings for the City of Ann Arbor, Michigan (the sample) for the period 1940 to 1964. Presented in the form of a time-series analysis (Figure 17) the percent change for each four-year period can be seen as follows:

Figure 17.--The Behavior of the Mean Square Foot Assessed Value



Specifically, the findings indicated that the mean square foot assessed value had the following values and percent changes for the following years:

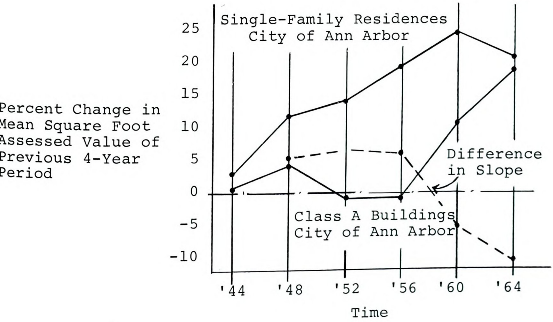
Table 1.--Percent change in mean square foot assessed value: City of Ann Arbor, Michigan

Value		Percent Change	
1940	$1.85		
1944	1.92	1940 to 1944	2.6
1948	2.08	1944 to 1948	8.3
1952	2.13	1948 to 1952	2.4
1956	2.26	1952 to 1956	6.1
1960	2.39	1956 to 1960	5.3
1964	2.31	1960 to 1964	-2.9

For the most part the percent change in mean square foot assessed value appears to be appreciating with the one exception of the last four-year interval (1960 to 1964). One possible explanation for this aberrant behavior in percent change might lie in the changeover in assessment procedures that were effected in January of 1963. After 1963, assessments on single-family buildings were based on fair market value rather than replacement costs. A second possible reason might be that of the 124 buildings sampled, only 14 had improvements made between 1960 and 1964.

In examining the data to determine the effect or importance of the variable building class the following differences (Figures 18 through 21) were noted:

Figure 18.--Percent Change in Mean Square Foot Assessed Value: Class A Buildings



Specifically, the findings indicated that the mean square foot assessed value for Class A buildings had the following values, percent changes, and differences in slope for the following years:

Table 2.--Percent change and difference in slope: Class A buildings

Value		Percent Change		Difference in Slope
1940	$2.74			
1944	2.72	1940 to 1944	-0.7	
1948	2.79	1944 to 1948	2.7	5.6
1952	2.67	1948 to 1952	-4.4	6.5
1956	2.67	1952 to 1956	0.0	6.1
1960	2.97	1956 to 1960	11.3	-6.0
1964	3.21	1960 to 1964	8.2	-11.1

In examining the data to determine the effect or importance of the variable of building class for Class B buildings, the differences were noted in Figure 19 (next page).

Specifically, the findings indicated that the mean square foot assessed value for Class B buildings had the values, percent changes, and differences in slope for the years shown in Table 3 (next page).

Figure 19.--Percent Change in Mean Square Feet Assessed Value: Class B Buildings

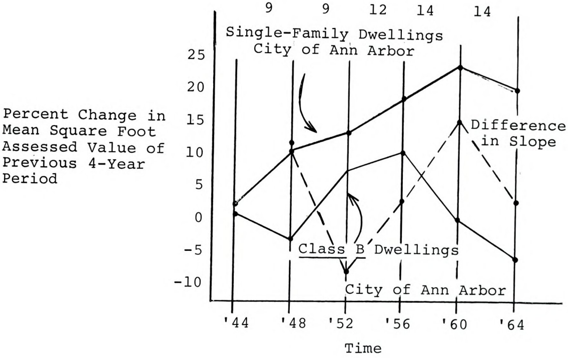
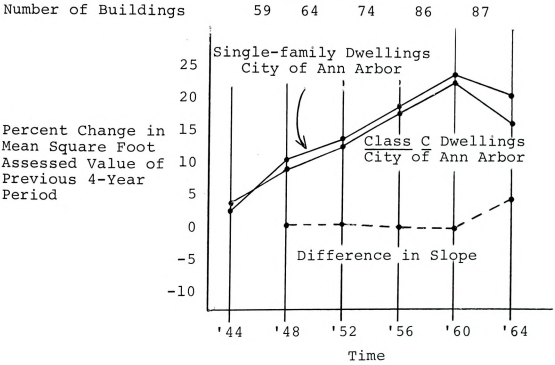


Table 3.--Percent change and difference in slope: Class B buildings

Value		Percent Change		Difference in Slope
1940	$2.32			
1944	2.35	1950 to 1944	1.4	
1948	2.29	1944 to 1948	-2.6	11.9
1952	2.49	1948 to 1952	8.9	-8.8
1956	2.78	1952 to 1956	11.5	3.2
1960	2.80	1956 to 1960	0.7	16.5
1964	2.63	1650 to 1964	-5.1	3.3

In examining the data to determine the effect or importance of the variable of building class for Class C buildings the following differences were noted (Figure 20):

Figure 20.--Percent Change in Mean Square Foot Assessed Value: Class C Buildings



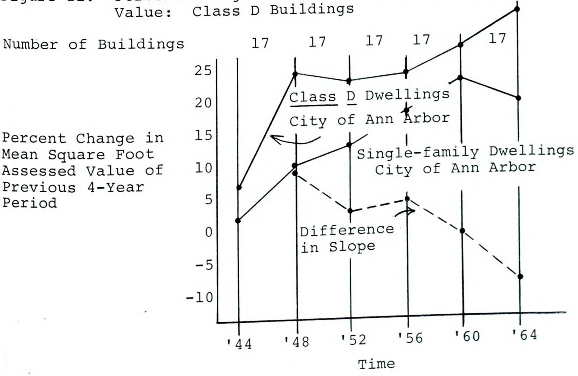
The findings indicated that the mean square foot assessed value for Class C buildings had the values, percent changes, and differences in slope for the years shown in Table 4 (next page).

Table 4.--Percent change and difference in slope: Class C buildings

Value		Percent Change		Difference in Slope
1940	$1.80			
1944	1.85	1940 to 1944	2.8	
1948	2.04	1944 to 1948	10.2	0.4
1952	2.10	1948 to 1952	2.9	0.6
1956	2.22	1952 to 1956	5.7	0.1
1960	2.34	1956 to 1960	5.8	0.1
1964	2.22	1960 to 1964	-4.8	4.8

In examining the data to determine the effect or importance of the variable of building class for Class D buildings, the following differences were noted (Figure 21):

Figure 21.--Percent Change in Mean Square Foot Assessed Value: Class D Buildings



The findings indicated that the mean square foot assessed value for Class D buildings had the following values, percent changes, and differences in slope for the following years:

Table 5.--Percent change and difference in slope: Class D buildings.

Value		Percent Change		Difference in Slope
1940	$1.39			
1944	1.50	1940 to 1944	7.9	
1948	1.76	1944 to 1948	17.3	10.0
1952	1.74	1948 to 1952	-1.1	3.4
1956	1.77	1952 to 1956	1.1	5.1
1960	1.86	1956 to 1960	5.0	0.1
1964	1.95	1960 to 1964	4.8	-7.1

In examining the data to determine the extent or importance of the variable of tenure of occupancy (owner-occupied versus rental housing), the differences were noted in Figure 22 (next page).

The findings indicated that the mean square foot assessed value for owner-occupied buildings had the values, percent changes, and differences in slope for the years shown in Table 6 (next page).

Figure 22.--Percent Change in Mean Square Foot Assessed Value: Owner-Occupied Buildings

95 Buildings

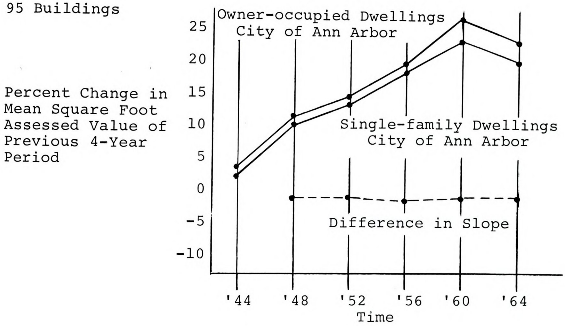
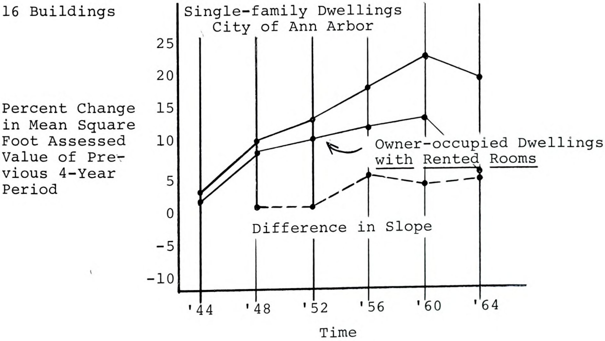


Table 6.--Percent change and difference in slope: owner-occupied buildings

Value		Percent Change		Difference in Slope
1940	$1.96			
1944	2.01	1940 to 1944	3.0	
1948	2.18	1944 to 1948	8.3	-0.1
1952	2.26	1948 to 1952	3.6	-1.1
1956	2.42	1952 to 1956	7.3	-1.2
1960	2.55	1956 to 1960	5.4	-0.3
1964	2.48	1960 to 1964	-3.4	0.6

In examining the data to determine the extent or importance of the variable of occupancy in regards to owner-occupied dwellings with rented rooms, the following differences were noted (Figure 23):

Figure 23.--Percent Change in Mean Square Foot Value: Buildings with Rented Rooms



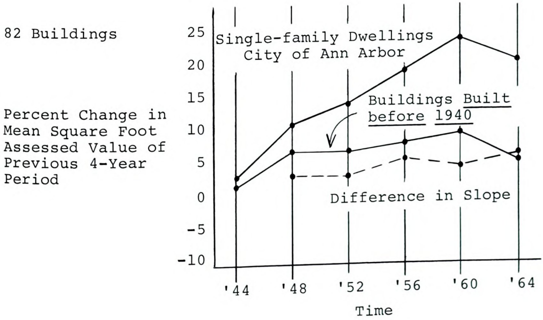
The findings indicated that the mean square foot assessed value for owner-occupied dwellings with rented rooms had the values, percent changes, and differences in slope for the years shown in Table 7 (next page).

Table 7.--Percent change and difference in slope: Buildings with rental rooms

Value		Percent Change		Difference in Slope
1940	$1.74			
1944	1.75	1940 to 1944	1.0	
1948	1.88	1944 to 1948	7.6	0.7
1952	1.91	1948 to 1952	1.7	0.7
1956	1.94	1952 to 1956	1.0	5.0
1960	1.96	1956 to 1960	1.5	3.6
1964	1.81	1960 to 1964	-7.6	4.7

In examining the data to determine the effect or importance of the variable of age (those buildings built before 1940), the following differences were noted (Figure 24):

Figure 24.--Percent Change in Mean Square Foot Assessed Value: Buildings Built before 1940



The findings indicated that the mean square foot assessed value for those buildings built before 1940 had the following values, percent changes, and differences in slope for the following years:

Table 8.--Percent change and difference in slope: Buildings built before 1940

Value		Percent Change		Difference in Slope
1940	$1.87			
1944	1.90	1940 to 1944	1.1	
1948	2.01	1944 to 1948	5.8	2.5
1952	1.97	1948 to 1952	-0.2	2.6
1956	1.99	1952 to 1956	1.0	5.1
1960	2.02	1956 to 1960	1.5	3.6
1964	1.95	1960 to 1964	-3.5	6.4

In examining the data to determine the effect or importance of the variable of garages (houses without garages versus houses with garages), the differences were noted for those dwellings without garages in Figure 25 (next page).

The findings indicated that the mean square foot assessed value for those buildings without garages had the values, percent changes, and differences in slope for the years shown in Table 9 (next page).

Figure 25.--Percent Change in Mean Square Foot Assessed Value: Buildings without Garages

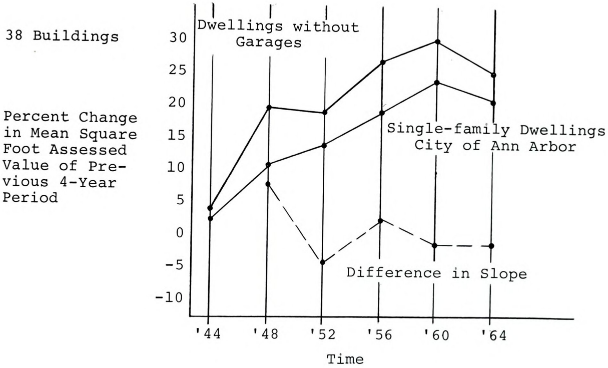


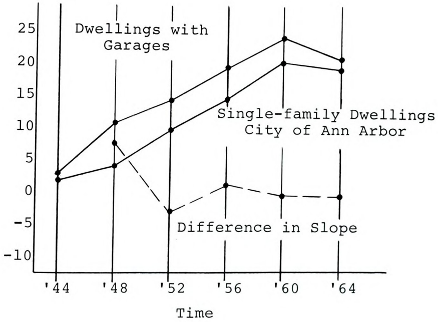
Table 9.--Percent change and difference in slope: Buildings without garages

Value		Percent Change		Difference in Slope
1940	$1.66			
1944	1.72	1940 to 1944	4.1	
1948	1.99	1944 to 1948	15.8	7.4
1952	1.98	1948 to 1952	-1.5	-3.9
1956	2.15	1952 to 1956	8.8	2.7
1960	2.22	1956 to 1960	3.7	-1.4
1964	2.10	1960 to 1964	-5.4	-1.5

In examining the data to determine the effect or importance of the variable of garages for those <u>houses with garages</u>, the following differences were noted (Figure 26):

Figure 26.--Percent Change in Mean Square Foot Assessed Value: Buildings with Garages

87 Buildings



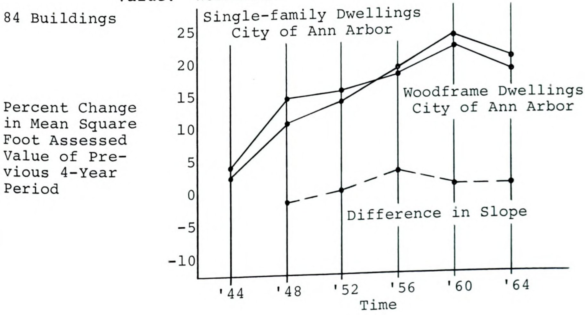
The findings indicated that the mean square foot assessed value for those <u>buildings with garages</u> had the values, percent changes, and differences in slope for the years shown in Table 10 (next page).

Table 10.--Percent change and difference in slope: Buildings with garages

Value		Percent Change		Difference in Slope
1940	$1.97			
1944	2.00	1940 to 1944	2.0	
1948	2.12	1944 to 1948	1.0	7.3
1952	2.20	1948 to 1952	6.1	-3.7
1956	2.31	1952 to 1956	5.1	1.0
1960	2.45	1956 to 1960	6.1	-1.1
1964	2.39	1960 to 1964	-1.8	-1.0

In examining the data to determine the effect or importance of the variable of construction in regards to woodframe dwellings, the following differences were noted (Figure 27):

Figure 27.--Percent Change in Mean Square Foot Assessed Value: Woodframe Houses



The findings indicated that the mean square foot assessed value for woodframe dwellings had the following values, percent changes, and differences in slope for the following years:

Table 11.--Percent change and difference in slope: Woodframe houses

Value		Percent Change		Difference in Slope
1940	$1.71			
1944	1.78	1940 to 1944	4.3	
1948	1.96	1944 to 1948	10.3	-2.0
1952	1.99	1948 to 1952	1.5	0.9
1956	2.03	1952 to 1956	2.3	3.5
1960	2.11	1956 to 1960	4.0	1.1
1964	2.02	1960 to 1964	-3.9	1.0

In examining the data to determine the effect or importance of the variable of construction in regards to brick dwellings, differences were noted in Figure 28 (next page)

The findings indicated that the mean square foot assessed value for brick dwellings had the values, percent changes, and differences in slope for the years shown in Table 12 (next page).

Figure 28.--Percent Change in Mean Square Foot Assessed Value: Brick Dwellings

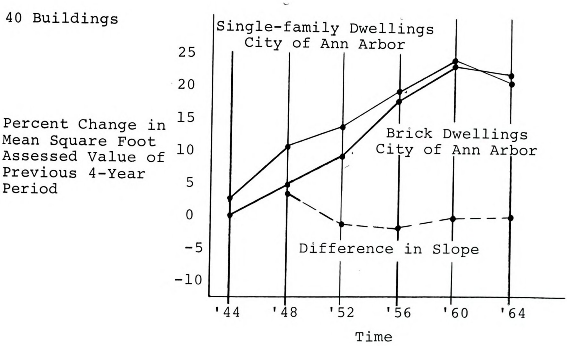
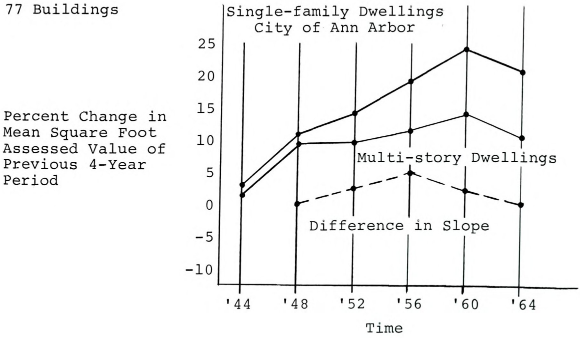


Table 12.--Percent change and difference in slope: Brick dwellings

Value		Percent Change		Difference in Slope
1940	$2.32			
1944	2.32	1940 to 1944	0.0	
1948	2.43	1944 to 1948	5.0	3.3
1952	2.51	1948 to 1952	3.6	-2.2
1956	2.75	1952 to 1956	9.6	-2.5
1960	2.91	1956 to 1960	6.0	-0.9
1964	2.85	1960 to 1964	-2.0	-0.9

In examining the data to determine the effect or importance of the variable of number of stories in regards to <u>multi-story buildings</u>, the following differences were noted (Figure 29):

Figure 29.--Percent Change in Mean Square Foot Assessed Value: Multi-story Buildings



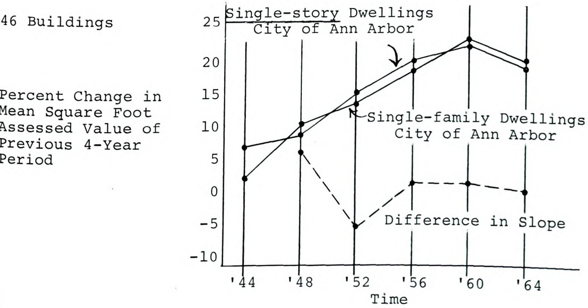
The findings indicated that the mean square foot assessed value for multi-story dwellings had the values, percent changes, and differences in slope for the years shown in Table 13. (next page).

Table 13.--Percent change and difference in slope: Multi-story buildings

Value		Percent Change		Difference in Slope
1940	$1.82			
1944	1.84	1940 to 1944	1.5	
1948	1.99	1944 to 1948	8.3	0.0
1952	1.99	1948 to 1952	0.0	2.4
1956	2.01	1952 to 1956	1.2	4.9
1960	2.07	1956 to 1960	3.1	2.1
1964	2.01	1960 to 1964	-3.7	0.8

In examining the data to determine the effect or importance of the variable of number of stories in regards to <u>single-story dwellings</u>, the following differences were noted (Figure 30):

Figure 30.--Percent Change in Mean Square Foot Assessed Value: Single-Story Dwellings



The findings indicated that the mean square foot assessed value for single-story houses had the following values, percent changes, and differences in slope for the following years:

Table 14.--Percent change and difference in slope: Single-story dwellings

Value		Percent Change		Difference in Slope
1940	$2.50			
1944	2.67	1940 to 1944	7.1	
1948	2.72	1944 to 1948	1.9	6.4
1952	2.92	1948 to 1952	7.6	-5.2
1956	3.14	1952 to 1956	4.1	1.9
1960	3.24	1956 to 1960	3.1	2.0
1964	3.11	1960 to 1964	-3.9	1.0

In examining the data to determine the effect or importance of the variable of zoning in regards to areas allowing only single-family residences, the differences were noted in Figure 31 (next page).

The findings indicated that the mean square foot assessed value for dwellings with single-family zoning only had the values, percent changes, and differences in slope for the years shown in Table 15 (next page).

Figure 31.--Percent Change in Mean Square Foot Assessed Value: Single-family Zoning

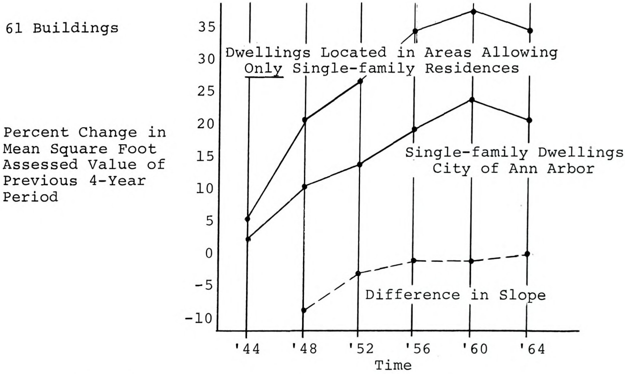


Table 15.--Percent change and difference in slope: Single-family zoning

Value		Percent Change		Difference in Slope
1940	$2.08			
1944	2.19	1940 to 1944	5.5	
1948	2.54	1944 to 1948	16.4	-8.4
1952	2.67	1948 to 1952	5.4	-3.0
1956	2.87	1952 to 1956	7.6	-1.5
1960	2.96	1956 to 1960	3.3	-1.8
1964	2.87	1960 to 1964	-3.0	-0.1

Lot Area and Assessed Values

The effect of lot area on the behavior of the mean square foot assessed value and total assessed value of single-family residences was determined through the use of regression analysis. When the total assessed value was plotted against the total lot area for each dwelling the correlation was 0.454. When the square foot assessed value was plotted against the total lot area the degree of correlation was 0.228. In that neither of these correlations exceed 0.50 they are not considered to be very significant. That is, the variable of lot area does not seem to have a significant influence on the behavior of the assessed value of single-family residential buildings.

Age and Assessed Values

In attempting to examine the effect of age on assessed values of single-family residential buildings a bit further, a regression analysis was developed to determine the degree of correlation between the two. When the year that each of the buildings was constructed was plotted against the total assessed value of each building, the degree of correlation was 0.204. This did not appear to be a significant correlation.

When the year that each building was constructed was plotted against the square foot assessed value of each building, the degree of correlation was 0.716. Since this

amount was substantially above 0.50, it was considered to be fairly significant. In effect, the degree of correlation indicates that newer buildings cost more to build or that construction costs have appreciated substantially in the post war years.

An examination of the findings illustrated in Figures 18 through 31 and tabulated in Table 16 indicates that some variables have greater influence on the behavior of the square foot assessed value than others do. The degree of influence is measured by the difference in slope for each interval (four-year period) of time.

Those variables or building characteristics that appear to have the most influence are building class, age, tenure of occupancy, and number of stories. The variable of the presence or absence of a garage seems to be quite important when examining the period 1944 to 1948. However, after this particular interval, the differences in the direction of the two curves (Figures 25 and 26) does not seem to be terribly significant.

Since not all housing types depreciate at the same rate, we would expect building class to be a major variable. The mean square foot assessed value of Class A and Class D buildings seems to appreciate at a much faster rate than that for Class C and Blass B buildings. An examination of the data indicates that four of the five Class A buildings in the sample had major improvements after 1956 while only

Table 16.--Differences in slope of various housing characteristics

Table 10. Differences in slope of various housing characteristics

Variable	Number of Buildings	Difference in Slope '44-'48	'48-'52	'52-'56	'56-'60	'60-'64
Building Class						
Class A Buildings	5	5.6	6.5	6.1	-6.0	-11.1
Class B Buildings	14	11.9	-8.8	3.2	16.5	3.3
Class C Buildings	87	0.4	0.6	0.1	0.1	4.8
Class D Buildings	17	10.0	3.4	5.1	0.1	-7.1
Tenure of Occupancy						
Owner-occupied	95	-0.1	-1.1	-1.2	-0.3	0.6
Owner-occupied with Rented Rooms	16	0.7	0.7	5.0	3.6	4.7
Age						
Buildings Built Before 1940	82	2.5	2.6	5.1	3.6	6.4
Garages						
Buildings without Garages	38	7.4	-3.9	2.7	-1.4	-1.5
Buildings with Garages	87	7.3	-3.7	1.0	-1.1	-1.0
Number of Stories						
Single-story Buildings	46	6.4	-5.2	1.9	2.0	1.0
Multi-story Buildings	77	0.0	2.4	4.9	2.1	0.8
Construction						
Woodframe Buildings	84	-2.0	0.9	3.5	1.1	1.0
Brick Buildings	40	3.3	-2.2	-2.5	-0.9	-0.9
Zoning						
Buildings with Single-family Zoning	61	-8.4	-3.0	-1.5	-1.8	-0.1

five of the fourteen class B buildings received any improvements during the entire twenty-year period. Ten of the seventeen class D buildings received improvements during the overall period of analysis while approximately half (41 out of 87) of the class C buildings were improved over the same span of time.

Age, as demonstrated by those buildings built before 1940, also appears to be a major variable. Newer buildings depreciate much more rapidly than do older buildings (Figure 24). Once a building reaches a particular age, it seems to reach a plateau in regards to the influence that this particular variable has upon it.

Tenure of Occupancy is similarly an important variable that influences the behavior of the square foot assessed value. The principal reason for this is that once a building is used for income purposes, its assessed value is increased because of its income capabilities. As mentioned earlier this is not as nearly significant in regards to single-family dwellings as it is with duplexes and apartment houses which the assessor and the state tend to view as commercial properties.[12]

Number of stories, as indicated in Figure 29, is also an important building characteristic that influences the behavior of the square foot assessed value. An examination of the data in regards to single-story buildings indicates that 23 of the 41 buildings in the sample had

improvements between 1940 and 1964 and 18 did not. A possible reason for this might be that single-story residences are less expensive to improve than are multi-story residences (i.e. it is much cheaper to build a one-story addition than a two-story one).

An Examination of the Behavior of the Mean Square Foot Assessed Value in Selected Sub-Areas

The second portion of the research involves a comparison of the behavior of the mean square foot assessed value of single-family residences in particular sub-areas of the city with certain segments of single-family housing stock throughout the city. In other words, the behavior of the mean square foot assessed value of single-family buildings in particular sub-areas will be compared with the general behavior of the mean square foot assessed value of single-family residences throughout the city that share similar characteristics. For example, a certain sub-area comprised primarily of deteriorated buildings which has characteristics such as class D structures, older buildings, and rental rooms will be compared with single-family housing stock throughout the city that has the same characteristics. A time series-analysis technique will again be utilized to demonstrate differences in slope between percent changes in mean square foot assessed values.

As it has just been stated in Part I, four variables or housing characteristics in particular seem to have the greatest influence on the behavior of the assessed value of single-family residences. These are (1) building class, (2) age, (3) tenure of occupancy, and (4) number of stories.

To get a more accurate picture as to how single-family residential buildings in particular sub-areas of the city vary from the overall development of the city in regards to percent change in mean square foot assessed value, each sub-area will be examined several times in accordance with the above variables.[13] Six sub-areas will be examined as indicated in Chapter IV.[14] These sub-areas are:

Sub-area No. 1, (Grids 10-12 and 11-12), 81 to 100% Deteriorated in accordance with the 1960 U.S. Census of Housing.

Sub-area No. 2, (Grid 8-11), Transitional Area showing some evidence or pre-conditions for potential future physical deterioration.

Sub-area No. 3, (Grid 9-12), Transitional Area showing some evidence or pre-conditions for potential future physical deterioration.

Sub-area No. 4, (Grid 10-14), North Central Urban Renewal Area, declared deteriorated in accordance with U.S. Urban Renewal criteria.

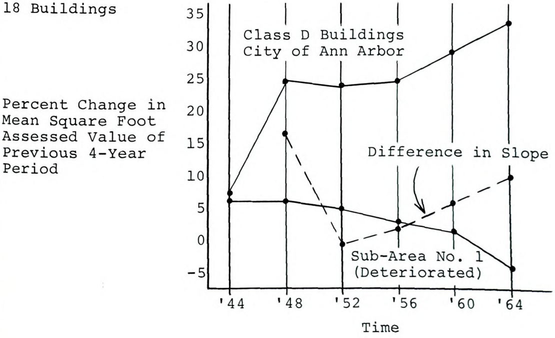
Sub-area No. 5, (Grid 15-21), Physically sound area "good housing" with <u>no</u> deterioration.

Sub-area No. 6, (Grid 17-23), Physically sound area "good housing" with <u>no</u> deterioration.

<u>Sub-Area Number 1 (Deteriorated Area)</u>

In examining the data to determine the difference in slope in percent change in mean square foot assessed value between Sub-area No. 1 and the overall city, it was noted that the sub-area contained structures that were primarily in building class D, were predominately two-story, had rented rooms, and were older (all were built before 1940). Differences in slope due to <u>building class</u> were noted as follows (Figure 32):

Figure 32.--Percent Change in Mean Square Foot Assessed Value: Sub-Area No. 1, Class D Buildings



The findings indicated that the mean square foot assessed value in regards to Class D buildings in Sub-area No. 1 had the following values, percent changes, and differences in slope for the following years:

Table 17.--Percent change and difference in slope: Sub-area No. 1, Class D buildings

Value		Percent Change		Difference in Slope
1940	$1.31			
1944	1.39	1940 to 1944	6.1	
1948	1.39	1944 to 1948	0	17.3
1952	1.38	1948 to 1952	-1.0	0.0
1956	1.35	1952 to 1956	-2.0	3.0
1960	1.34	1956 to 1960	-1.0	2.1
1964	1.26	1960 to 1964	-6.1	10.6

Differences in slope due to age (buildings built before 1940) in Sub-area No. 1 were noted in Figure 33 (next page).

The findings indicated that the mean square foot assessed value in regards to buildings built before 1940 in Sub-area No. 1 had the values, percent changes, and differences in slope for the years shown in Table 18 (next page).

Figure 33.--Percent Change in Mean Square Foot Assessed Value: Sub-Area No. 1, Buildings Built before 1940

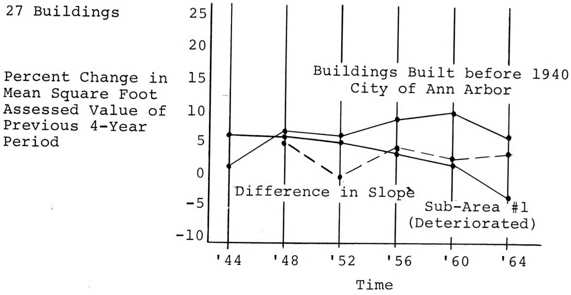
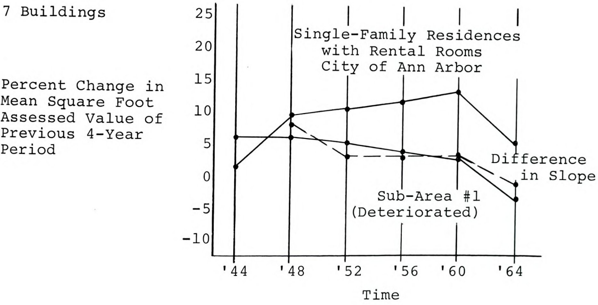


Table 18.--Percent change and difference in slope: Subarea No. 1, buildings built before 1940

	Value	Percent Change		Difference in Slope
1940	$1.31			
1944	1.39	1940 to 1944	6.1	
1948	1.39	1944 to 1948	0	5.8
1952	1.38	1948 to 1952	-1.0	0.5
1956	1.35	1952 to 1956	-2.0	3.3
1960	1.34	1956 to 1960	-1.0	2.1
1964	1.26	1960 to 1964	-6.1	3.0

Differences in slope due to the variable of <u>rental rooms</u> in Sub-area No. 1 were noted as follows (Figure 34):

Figure 34.--Percent Change in Mean Square Foot Assessed Value: Sub-Area No. 1, Buildings with Rental Rooms



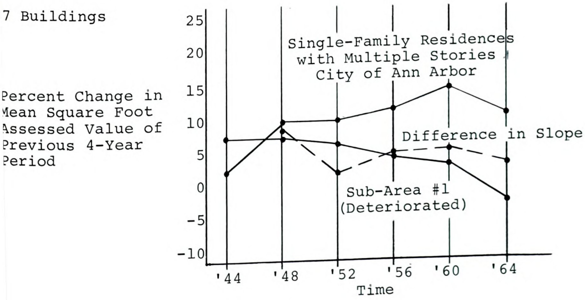
The findings indicated that the mean square foot assessed value in regards to owner-occupied dwellings with <u>rental rooms</u> in Sub-area No. 1 had the values, percent changes, and differences in slope for the years shown in Table 19 (next page).

Table 19.--Percent change and difference in slope: Sub-area No. 1, buildings with rental rooms

Value		Percent Change		Difference in Slope
1940	$1.31			
1944	1.39	1940 to 1944	6.1	
1948	1.39	1944 to 1948	0	7.6
1952	1.38	1948 to 1952	-1.0	2.7
1956	1.35	1952 to 1956	-2.0	3.0
1960	1.34	1956 to 1960	-1.0	2.5
1964	1.26	1960 to 1964	-6.1	-1.6

Differences in slope due to the variable of <u>multiple-stories</u> (houses with two or more stories) in Sub-area No. 1 were noted as follows (Figure 35):

Figure 35.--Percent Change in Mean Square Foot Assessed Value: Sub-Area No. 1, Multi-Story Buildings



The findings indicated that the mean square foot assessed value in regards to houses with two or more stories in Sub-area No. 1 had the following values, percent changes, and differences in slope for the following years:

Table 20.--Percent change and difference in slope: Sub-area No. 1, multi-story buildings

Value		Percent Change		Difference in Slope
1940	$1.31			
1944	1.39	1940 to 1944	6.1	
1948	1.39	1944 to 1948	0	8.3
1952	1.38	1948 to 1952	-1.0	1.0
1956	1.35	1952 to 1956	-2.0	3.2
1960	1.34	1956 to 1960	-1.0	4.0
1964	1.26	1960 to 1964	-6.1	2.3

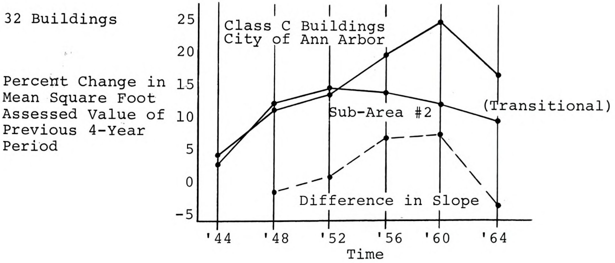
Sub-Area Number 2 (Transitional Area)

In examining the data to determine the difference in slope in percent change in mean square foot assessed value between Sub-area No. 2 and the overall city, it was noted that the sub-area contained structures that were almost evenly divided between class C and class D, were predominantly two-story, and were older (all were built before 1940). Only 12% of the buildings had rental rooms.

Differences in slope due to <u>building class C</u> were noted as follows (Figure 36):

Figure 36.--Percent Change in Mean Square Foot Assessed Value: Sub-Area No. 2, Class C Buildings

32 Buildings



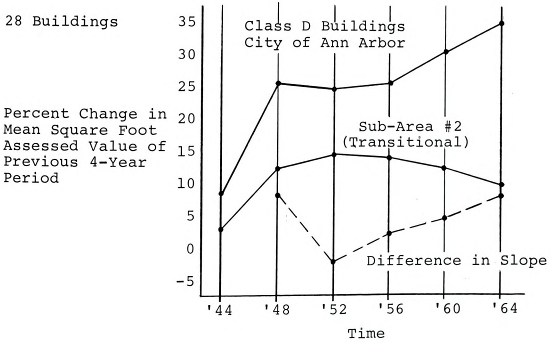
The findings indicated that the mean square foot assessed value in regards to <u>class C buildings</u> in Sub-area No. 2 had the following values, percent changes, and differences in slope for the following years:

Table 21.--Percent change and difference in slope: Sub-area No. 2, class C buildings

Value		Percent Change		Difference in Slope
1940	$1.36			
1944	1.39	1940 to 1944	2.2	
1948	1.52	1944 to 1948	11.8	-2.6
1952	1.56	1948 to 1952	14.0	0.8
1956	1.55	1952 to 1956	13.6	6.4
1960	1.51	1956 to 1960	11.9	6.7
1964	1.46	1960 to 1964	8.9	-4.7

Difference in slope in regards to structures in building class D in Sub-area No. 2 were noted as follows (Figure 37):

Figure 37.--Percent Change in Mean Square Foot Assessed Value: Sub-Area No. 2, Class D Buildings



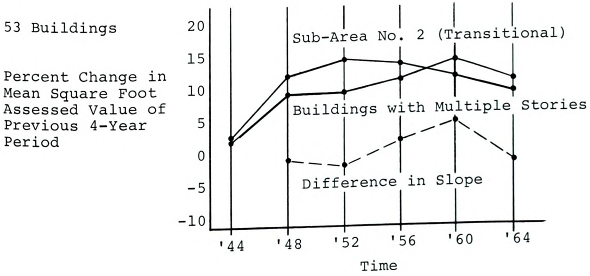
The findings indicated that the mean square foot assessed value in regards to class D buildings in Sub-area No. 2 had the values, percent changes, and differences in slope for the years shown in Table 22 (next page).

Table 22.--Percent change and difference in slope: Sub-area No. 2, class D buildings

Value		Percent Change		Difference in Slope
1940	$1.36			
1944	1.39	1940 to 1944	2.2	
1948	1.52	1944 to 1948	11.8	7.7
1952	1.56	1948 to 1952	14.0	-3.2
1956	1.55	1952 to 1956	13.6	1.4
1960	1.51	1956 to 1960	11.9	3.3
1964	1.46	1960 to 1964	8.9	7.6

Differences in slope in regards to structures with multiple stories in Sub-area No. 2 were noted as follows (Figure 38):

Figure 38.--Percent Change in Mean Square Foot Assessed Value: Sub-Area No. 2, Multi-Story Buildings



The findings indicated that the mean square foot assessed value in regards to buildings with multiple stories in Sub-area No. 2 had the following values, percent changes, and differences in slop for the following years:

Table 23.--Percent change and difference in slope: Sub-area No. 2, multi-story buildings

Value		Percent Change		Difference in Slope
1940	$1.36			
1944	1.39	1940 to 1944	2.2	
1948	1.52	1944 to 1948	11.8	-1.3
1952	1.56	1948 to 1952	14.0	-2.2
1956	1.55	1952 to 1956	13.6	1.4
1960	1.51	1956 to 1960	11.9	4.7
1964	1.46	1960 to 1964	8.9	-1.7

Difference in slope in regards to age (buildings built before 1940) in Sub-area No. 2 were noted in Figure 39 (next page).

The findings indicated that the mean square foot assessed value in regards to the variable age (older buildings) in Sub-area No. 2 had the values, percent changes, and differences in slope for the years shown in Table 24 (next page).

Figure 39.--Percent Change in Mean Square Foot Assessed Value: Sub-Area No. 2, Buildings Built before 1940

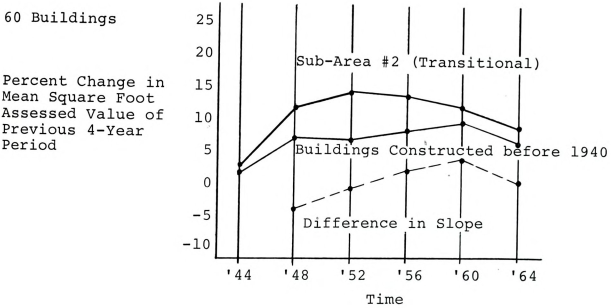


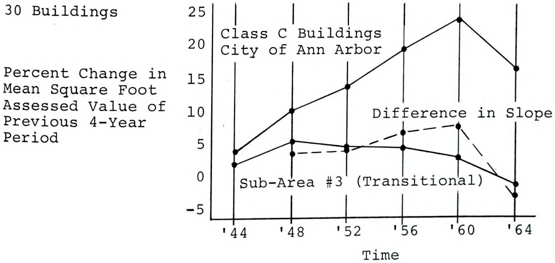
Table 24.--Percent change and difference in slope: Sub-area No. 2, buildings built before 1940

Value		Percent Change		Difference in Slope
1940	$1.36			
1944	1.39	1940 to 1944	2.2	
1948	1.52	1944 to 1948	11.8	-3.8
1952	1.56	1948 to 1952	14.0	-1.4
1956	1.55	1952 to 1956	13.6	1.4
1960	1.51	1956 to 1960	11.9	3.2
1964	1.46	1960 to 1964	8.9	-0.5

Sub-Area Number 3 (Transitional Area)

In examining the data to determine the difference in slope in percent change in mean square foot assessed value between Sub-area No. 3 and the overall city, it was noted that the sub-area contained structures that were almost evenly divided between class C and class D (45% class D, 55% class C), were predominantly older (all built before 1940), had rental rooms, and were predominantly two-story. Differences in slope due to building class C were noted as follows (Figure 40):

Figure 40.--Percent Change in Mean Square Foot Assessed Value: Sub-Area No. 3, Class C Buildings



The findings indicated that the mean square foot assessed value in regards to class C buildings in Sub-area No. 3 had the values, percent changes, and differences in slope for the years shown in Table 25 (next page).

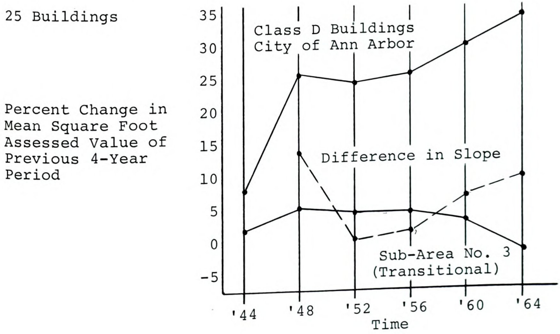
Table 25.--Percent change and difference in slope: Sub-area No. 3, class C buildings

Value		Percent Change		Difference in Slope
1940	$1.36			
1944	1.38	1940 to 1944	1.6	
1948	1.43	1944 to 1948	3.6	5.2
1952	1.41	1948 to 1952	-1.0	4.2
1956	1.50	1952 to 1956	0.0	6.0
1960	1.37	1956 to 1960	-1.7	6.7
1964	1.30	1960 to 1964	-4.4	-3.3

Differences in slope in regards to structures in <u>building class D</u> in Sub-area No. 3 were noted as follows (Figure 41):

Figure 41.--Percent Change in Mean Square Foot Assessed Value: Sub-Area No. 3, Class D Buildings

25 Buildings



The findings indicated that the mean square foot assessed value in regards to class D buildings in Sub-area No. 3 had the following values, percent changes, and differences in slope for the following years:

Table 26.--Percent change and difference in slope: Sub-area No. 3, class D buildings

Value		Percent Change		Difference in Slope
1940	$1.36			
1944	1.38	1940 to 1944	1.6	
1948	1.43	1944 to 1948	3.6	13.7
1952	1.41	1948 to 1952	-1.0	0.0
1956	1.40	1952 to 1956	0.0	1.0
1960	1.37	1956 to 1960	-1.7	6.9
1964	1.30	1960 to 1964	-4.4	9.8

Differences in slope in regards to single-family dwellings with rental rooms in Sub-area No. 3 were noted in Figure 42 (next page).

The findings indicated that the mean square foot assessed value in regards to dwellings with rental rooms in Sub-area No. 3 had the values, percent changes, and differences in slope for the years shown in Table 27 (next page).

Figure 42.--Percent Change in Mean Square Foot Assessed Value: Sub-Area No. 3, Buildings with Rental Rooms

20 Buildings

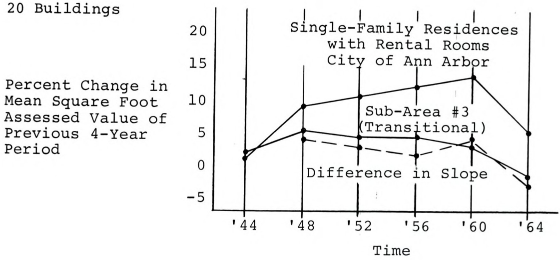
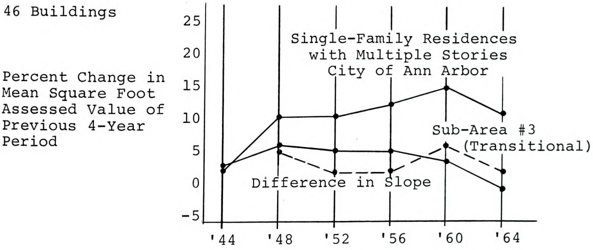


Table 27.--Percent change and difference in slope: Sub-area No. 3, buildings with rental rooms

Value		Percent Change		Difference in Slope
1940	$1.36			
1944	1.38	1940 to 1944	1.6	
1948	1.43	1944 to 1948	3.6	4.0
1952	1.41	1948 to 1952	-1.0	2.7
1956	1.40	1952 to 1956	0.0	1.3
1960	1.37	1956 to 1960	-1.7	3.2
1964	1.30	1960 to 1964	-4.4	-1.9

Differences in slope in regards to dwellings with multiple stories in Sub-area No. 3 were noted as follows (Figure 43):

Figure 43.--Percent Change in Mean Square Foot Assessed Value: Sub-Area No. 3, Multi-Story Buildings



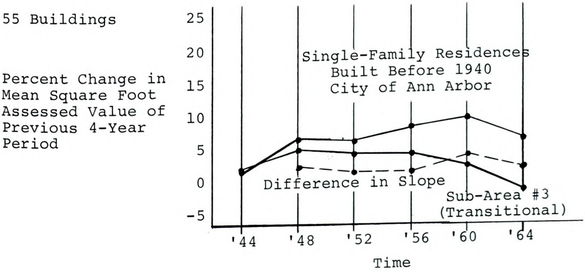
The findings indicated that the mean square foot assessed value in regards to dwellings with multiple stories in Sub-area No. 3 had the values, percent changes, and differences in slope for the years shown in Table 28 (next page).

Table 28.--Percent change and difference in slope: Sub-area No. 3, multi-story buildings

Value		Percent Change		Difference in Slope
1940	$1.36			
1944	1.38	1940 to 1944	1.6	
1948	1.43	1944 to 1948	3.6	4.7
1952	1.41	1948 to 1952	-1.0	1.0
1956	1.40	1952 to 1956	0.0	1.2
1960	1.37	1956 to 1960	-1.7	4.9
1964	1.30	1960 to 1964	-4.4	0.7

Differences in slope in regards to age (those structures built before 1940) in Sub-area No. 3 were noted as follows (Figure 44):

Figure 44.--Percent Change in Mean Square Foot Assessed Value: Sub-Area No. 3, Buildings Built Before 1940



The findings indicated that the mean square foot assessed value in regards to age of structures in Sub-area No. 3 had the following values, percent changes, and differences in slope for the following years:

Table 29.--Percent change and difference in slope: Sub-area No. 3, buildings built before 1940

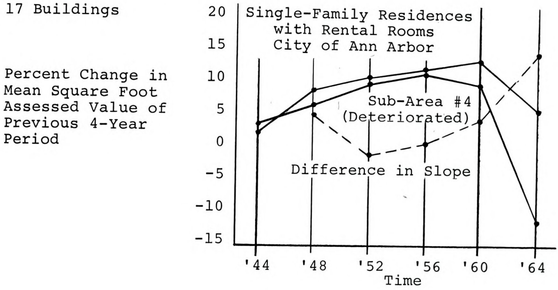
Value		Percent Change		Difference in Slope
1940	$1.36			
1944	1.38	1940 to 1944	1.6	
1948	1.43	1944 to 1948	3.6	2.2
1952	1.41	1948 to 1952	-1.0	1.2
1956	1.40	1952 to 1956	0.0	1.2
1960	1.37	1956 to 1960	-1.7	3.2
1964	1.30	1960 to 1964	-4.4	1.4

Sub-Area Number 4--Urban Renewal (Deteriorated Area)

In examining the data to determine the difference in slope in percent change in mean square foot assessed value between Sub-area No. 4 and the overall city, it was noted that the sub-area contained structures that were primarily class D buildings, had multiple stories, had rental rooms, and were older (all were built before 1940). Differences in slope due to the presence of rental rooms were noted in Figure 45 (next page).

Figure 45.--Percent Change in Mean Square Foot Assessed Value: Sub-Area No. 4, Buildings with Rental Rooms

17 Buildings



The findings indicated that the mean square foot assessed value in regards to <u>rental rooms</u> in dwellings in Sub-area No. 4 had the following values, percent changes, and differences in slope for the following years:

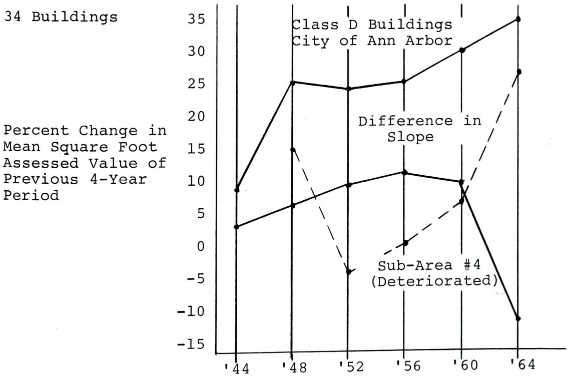
Table 30.--Percent change and difference in slope: Sub-area No. 4, buildings with rental rooms

Value		Percent Change		Difference in Slope
1940	$1.18			
1944	1.21	1940 to 1944	2.7	
1948	1.24	1944 to 1948	3.0	4.6
1952	1.28	1948 to 1952	3.7	-2.1
1956	1.29	1952 to 1956	1.5	-0.4
1960	1.27	1956 to 1960	-1.5	3.0
1964	0.99	1960 to 1964	-21.7	14.1

Differences in slope in regards to structures in <u>building class D</u> in Sub-area No. 4 were noted as follows (Figure 46):

Figure 46.--Percent Change in Mean Square Foot Assessed Value: Sub-Area No. 4, Class D Buildings

34 Buildings



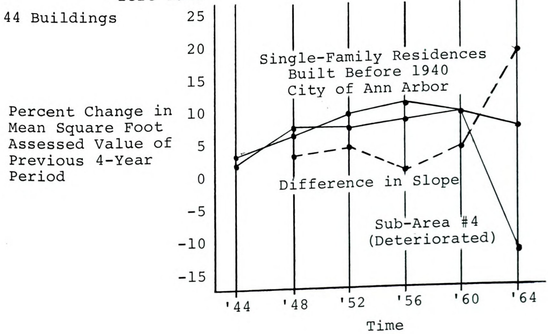
The findings indicated that the mean square foot assessed value in regards to class D structures in Sub-area No. 4 had the values, percent changes, and differences in slope for the years shown in Table 31 (next page).

Table 31.--Percent change and difference in slope: Sub-area No. 4, class D buildings

Value		Percent Change		Difference in Slope
1940	$1.18			
1944	1.21	1940 to 1944	2.7	
1948	1.24	1944 to 1948	3.0	14.3
1952	1.28	1948 to 1952	3.7	-4.7
1956	1.29	1952 to 1956	1.5	-0.5
1960	1.27	1956 to 1960	1.5	6.5
1964	0.99	1960 to 1964	-21.7	26.5

Differences in slope in regards to the <u>age of</u> structures in Sub-area No. 4 were noted as follows (Figure 47):

Figure 47.--Percent Change in Mean Square Foot Assessed Value: Sub-Area No. 4, Buildings Built before 1940



The findings indicated that the mean square foot assessed value in regards to the age of structures in Sub-area No. 4 had the following values, percent changes, and differences in slope for the following years:

Table 32.--Percent change and difference in slope: Sub-area No. 4, buildings built before 1940

Value		Percent Change		Difference in Slope
1940	$1.18			
1944	1.21	1940 to 1944	2.7	
1948	1.24	1944 to 1948	3.0	2.8
1952	1.28	1948 to 1952	3.7	3.9
1956	1.29	1952 to 1956	1.5	0.3
1960	1.27	1956 to 1960	-1.5	3.5
1964	0.99	1960 to 1964	-21.7	18.7

Differences in slope in regards to dwellings with multiple stories in Sub-area No. 4 were noted in Figure 48 (next page).

The findings indicated that the mean square foot assessed value in regards to dwellings with multiple stories in Sub-area No. 4 had the values, percent changes, and differences in slope for the years shown in Table 33 (next page).

Figure 48.--Percent Change in Mean Square Foot Assessed Value: Sub-Area No. 4, Multi-Story Buildings

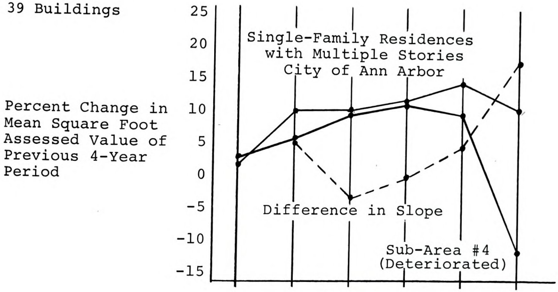


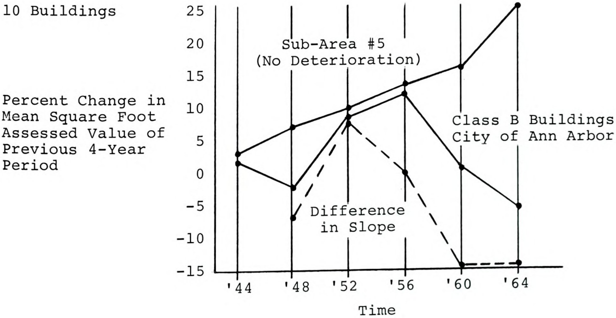
Table 33.--Percent change and difference in slope: Sub-area No. 4, multi-story buildings

Value		Percent Change		Difference in Slope
1940	$1.18			
1944	1.21	1940 to 1944	2.7	
1948	1.24	1944 to 1948	3.0	5.3
1952	1.28	1948 to 1952	3.7	-3.7
1956	1.29	1952 to 1956	1.5	0.3
1960	1.27	1956 to 1960	-1.5	4.5
1964	0.99	1960 to 1964	-21.7	17.6

Sub-Area Number 5 (No Deterioration, "Good" Area)

In examining the data to determine the difference in slope in percent change in mean square foot assessed value between Sub-area No. 5 and the overall city, it was noted that the sub-area contained primarily class B buildings, had mostly two-story structures, and was comprised of older housing stock. Differences in slope due to class B structures were noted as follows (Figure 49):

Figure 49.--Percent Change in Mean Square Foot Assessed Value: Sub-Area No. 5, Class B Buildings



The findings indicated that the mean square foot assessed value in regards to class B buildings in Sub-area No. 5 had the values, percent changes, and differences in slope for the years shown in Table 34 (next page).

Table 34.--Percent change and difference in slope: Sub-area No. 5, class B buildings

Value		Percent Change		Difference in Slope
1940	$2.00			
1944	2.05	1940 to 1944	2.5	
1948	2.13	1944 to 1948	4.0	-7.6
1952	2.19	1948 to 1952	3.1	8.0
1956	2.26	1952 to 1956	3.1	-0.1
1960	2.34	1956 to 1960	3.7	-15.1
1964	2.54	1960 to 1964	9.0	-15.1

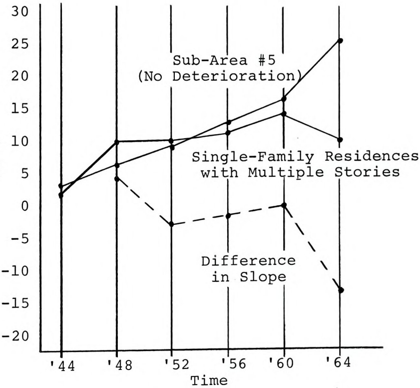
Differences in slope in regards to dwellings with <u>multiple stories</u> in Sub-area No. 5 were noted in Figure 50 (next page).

The findings indicated that the mean square foot assessed value in regards to dwellings with <u>multiple stories</u> in Sub-area No. 5 had the values, percent changes, and differences in slope for the years shown in Table 35 (next page).

Differences in slope in regards to <u>older dwellings</u> (structures built before 1940) in Sub-area No. 5 were noted in Figure 51 (page 152).

Figure 50.--Percent Change in Mean Square Foot Assessed Value: Sub-Area No. 5, Multi-Story Buildings

16 Buildings

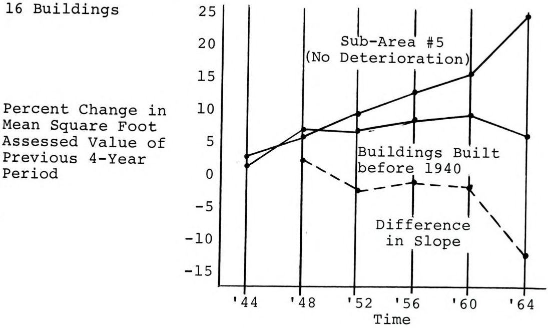


The findings indicated that the mean square foot assessed value in regards to dwellings with multiple stories in Sub-area No. 5 had the following values, percent changes, and differences in slope for the following years:

Table 35.--Percent change and difference in slope: Sub-area No. 5, multi-story buildings

Value		Percent Change		Difference in Slope
1940	$2.00			
1944	2.05	1940 to 1944	2.5	
1948	2.13	1944 to 1948	4.0	4.3
1952	2.19	1948 to 1952	3.1	-3.1
1956	2.26	1952 to 1956	3.1	-1.9
1960	2.34	1956 to 1960	3.7	-0.7
1964	2.54	1960 to 1964	9.0	-12.7

Figure 51.--Percent Change in Mean Square Foot Assessed Value: Sub-Area No. 5, Buildings Built before 1940



The findings indicated that the mean square foot assessed value in regards to older dwellings in Sub-area No. 5 had the following values, percent changes, and differences in slope for the following years:

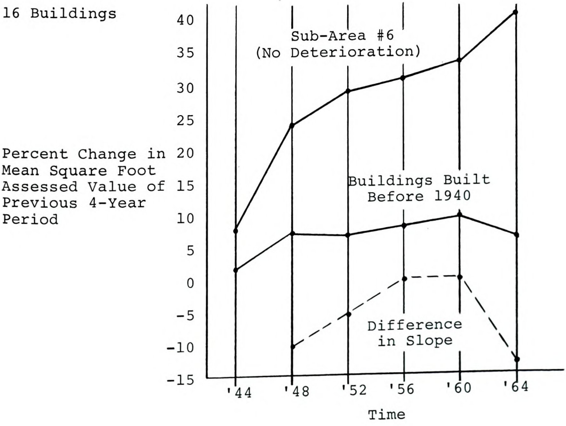
Table 36.--Percent change and difference in slope: Sub-area No. 5, buildings built before 1940

Value		Percent Change		Difference in Slope
1940	$2.00			
1944	2.05	1940 to 1944	2.5	
1948	2.13	1944 to 1948	4.0	1.8
1952	2.19	1948 to 1952	3.1	-3.3
1956	2.26	1952 to 1956	3.1	-1.9
1960	2.34	1956 to 1960	3.7	-2.2
1964	2.54	1960 to 1964	9.0	-12.0

Sub-Area Number 6 (No Deterioration, "Good" Area)

In examining the data to determine differences in slope in percent change in mean square foot assessed value between Sub-area No. 6 and the overall city, it was noted that the sub-area contained mainly class B buildings, had mostly 2-story houses, and was comprised of older buildings. Differences in slope due to building age were noted as follows (Figure 52):

Figure 52.--Percent Change in Mean Square Foot Assessed Value: Sub-Area No. 6, Buildings Built before 1940



The findings indicated that the mean square foot
essed value in regards to building age in Sub-area No.
ad the following values, percent changes, and differ-
es in slope for the following years:

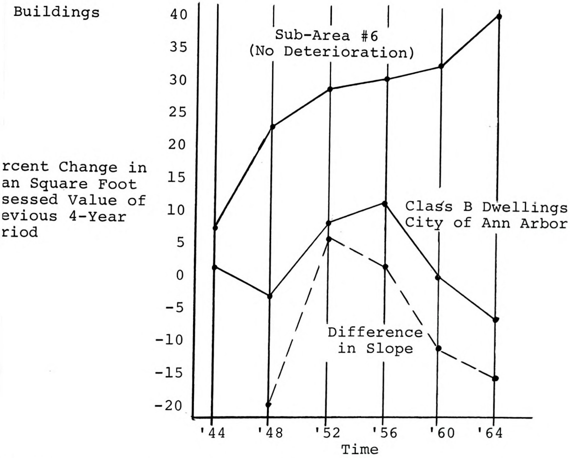
le 37.--Percent change and difference in slope: Sub-area No. 6, buildings built before 1940.

Value		Percent Change		Difference in Slope
0	$2.10			
4	2.25	1940 to 1944	7.5	
8	2.61	1944 to 1948	16.1	-10.3
2	2.74	1948 to 1952	5.2	-5.4
6	2.79	1952 to 1956	2.0	-0.8
0	2.84	1956 to 1960	2.1	-0.5
4	3.09	1960 to 1964	8.9	-12.9

Differences in slope in regards to class B dwellings
Sub-area No. 6 were noted in Figure 53 (next page).

The findings indicated that the mean square foot
essed value in regards to class B dwellings in Sub-
a No. 6 had the values, percent changes, and differences
slope for the years shown in Table 38 (next page).

gure 53.--Percent Change in Mean Square Foot Assessed Value: Sub-Area No. 6, Class B Buildings

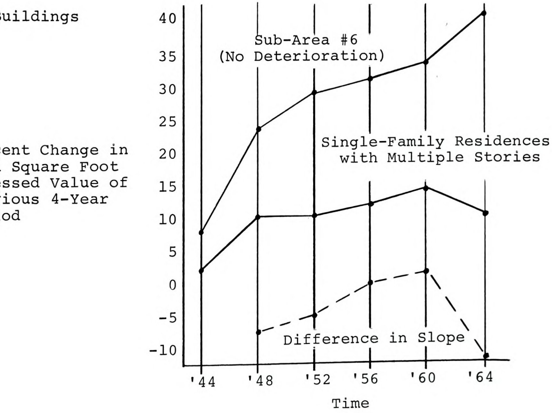


ble 38.--Percent change and difference in slope: Sub-area No. 6, class B buildings

Value		Percent Change		Difference in Slope
40	$2.10			
44	2.25	1940 to 1944	7.5	
48	2.61	1944 to 1948	16.1	-19.7
52	2.74	1948 to 1952	5.2	6.1
56	2.79	1952 to 1956	2.0	1.0
0	2.84	1956 to 1960	2.1	-11.4
4	3.09	1960 to 1964	8.9	-15.1

Differences in slope in regards to dwellings with
iple stories in Sub-area No. 6 were noted as follows
ure 54):

re 54.--Percent Change in Mean Square Foot Assessed
Value: Sub-Area No. 6, Multi-Story Buildings



The findings indicated that the mean square foot
ssed value in regards to dwellings with multiple
ies in Sub-area No. 6 had the values, percent changes,
differences in slope for the years shown in Table 39
t page).

ble 39.--Percent change and difference in slope: Sub-
area No. 6, multi-story buildings

Value		Percent Change		Difference in Slope
40	$2.10			
44	2.25	1940 to 1944	7.5	
48	2.61	1944 to 1948	16.1	-7.8
52	2.74	1948 to 1952	5.2	-5.2
56	2.79	1952 to 1956	2.0	-0.8
60	2.84	1956 to 1960	2.1	1.0
64	3.09	1960 to 1964	8.9	-12.6

Table 40.--Differences in slope in various sub-areas

Variable (Housing Character.)	Differences in Slope				
	'44-'48	'48-'52	'52-'56	'56-'60	'60-'64
Sub-Area Number One					
Building Class D	17.3	0.0	3.0	2.1	10.6
Bldgs. Built before 1940	5.8	0.5	3.3	2.1	3.0
Bldgs. with Rental Rooms	7.6	2.7	3.0	2.5	-1.6
Bldgs. with 2 Stories	8.3	1.0	3.2	4.0	2.3
Sub-Area Number Two					
Building Class C	-2.6	0.8	6.4	6.7	-4.7
Building Class D	7.7	-3.2	1.4	3.3	7.6
Bldgs. Built before 1940	-3.8	-1.4	1.4	3.2	-0.5
Bldgs. with 2 Stories	-1.3	-2.2	1.4	4.7	-1.7
Sub-Area Number Three					
Building Class C	5.2	4.2	6.0	6.7	-3.3
Building Class D	13.7	0.0	1.0	6.9	9.8
Bldgs. with Rental Rooms	4.0	2.7	1.3	3.2	-1.9
Bldgs. Built before 1940	2.2	1.2	1.2	3.2	1.4
Bldgs. with 2 Stories	4.7	1.0	1.2	4.9	0.7
Sub-Area Number Four					
Building Class D	14.3	-4.7	-0.5	6.5	26.5
Bldgs. Built before 1940	2.8	3.9	0.3	3.5	18.7
Bldgs. with Rental Rooms	4.6	-2.1	-0.4	3.0	14.1
Bldgs. with 2 Stories	5.3	-3.7	-0.3	4.5	17.6
Sub-Area Number Five					
Building Class B	-7.6	8.0	-0.1	-15.1	-15.1
Bldgs. Built before 1940	1.8	-3.3	-1.9	-2.2	-12.0
Bldgs. with 2 Stories	4.3	-3.1	-1.9	-0.7	-12.7
Sub-Area Number Six					
Building Class B	-19.7	6.1	1.0	-11.4	-15.1
Bldgs. Built bwfore 1940	-10.3	-5.4	-0.8	-0.5	-12.9
Bldgs. with 2 Stories	-7.8	-5.2	-0.8	1.0	-12.6

FOOTNOTES

[1]Case, Frederick C., "Prediction of the Incidence of Urban Residential Blight," Papers and Proceedings of the Regional Science Association, Volume 11, 1963.

[2]Czamanski, Stanislaw, "The Effects of Public Investment on Urban Land Values," Journal of the American Institute of Planners, July 1966.

[3]Walker, Mabel L., Urban Blight and Slums, Cambridge: Harvard University Press, 1938.

[4]Ibid., Walker.

[5]Fisher, Ernest M., "Economic Aspects of Zoning, Blighted Areas, and Rehabilitation Laws," American Economic Review, Volume 32, No. 1, Part 2, Supplement, July 1942.

[6]Vernon, Raymond, "Some Reflections on Urban Decay," Confluence, Volume 7, 1958, pp. 128-40.

[7]Bartholomew, Harland, The Measurement of Non-Residential Blight in St. Louis, Missouri, St. Louis: Harland Bartholomew and Associates, 1946.

[8]Johnson, Ralph, J., Huntington, Williams, and Roy O. McCaldin, "The Quality of Housing 'Before' and 'After' Rehabilitation," Urban Housing. Edited by William l.c. Wheaton, Grace Milgrim, and Margy Ellin Meyerson, New York: The Free Press, 1966.

[9]McDonald, A.M., "A Study of Depreciation in Residences," The Appraisal Journal, October 1958 pp. 581-88.

[10]Albert, Sterling H., "Neighborhood Factors Affecting Residential Value," The Appraisal Journal, January 1960 pp. 81-98.

[11]Wagner, Percy, "The Appraisal of Single-Family Homes," The Appraisal Journal, January 1958 pp. 40-43.

[12]Michigan State Tax Commission, The Appraiser's Manual of 1955.

[13]In that Sub-Areas Five and Six are relatively "sound" areas containing no deterioration, they will only be compared against three criteria--age, number of stories, and building class.

[14]A description of each of the six sub-areas is given in some detail in Appendix A.

CHAPTER VI

AN EXAMINATION OF THE FINDINGS

Introduction

Perhaps the most important part of any thesis is that portion of it that interprets the findings of the research and demonstrates their relevance or importance to the general field of study.

The bulk of this research endeavor focuses on assessed valuation and urban deterioration; however, a good share of it also deals with the general problem of measuring housing condition. Thus, many of the findings and implications will extend beyond the initial charge of the study as previously stated in the five principal objectives. These objectives appear in the Introduction and Chapter IV and are repeated here as follows:

1. To examine the assessed value of single-family residential buildings to determine those variables or housing characteristics that influence it most strongly and directly,
2. To demonstrate the degree of correlation between the behavior of the assessed value of improvements

and levels of physical deterioration according to current standards of physical deterioration,

3. To demonstrate a method using assessment data to quantify the extent of relative physical deterioration of single-family residential buildings within various sub-areas of the city,

4. To identify the critical stage in the deterioration process in those areas of the city that are physically deteriorated, and

5. To demonstrate a method for predicting possible future physical deterioration in various sub-areas of the city.

Each of these objectives will now be discussed within the framework of these objectives.

<u>Objective No. 1</u> — To examine the assessed value of single-family residential buildings to determine those variables or housing characteristics that influence it most strongly or directly.

Major Hypothesis: Certain variables or housing characteristics comprising the assessed value of single-family residential buildings exert more influence upon its behavior than do others.

In examining the findings in the earlier portions of the research (Figures 18 through 31 in Chapter V), one can note that housing characteristics such as <u>building class</u>, <u>age</u>, <u>tenure of occupancy</u>, and <u>number of stories</u> have much greater influence or difference in slope in regards to the behavior of the mean square foot assessed value of

single-family dwellings than do others such as zoning, the presence or absence of a garage, lot size, or construction type when scrutinizing them through time-series analyses.

In this respect one would have to conclude that the stated hypothesis above would have to be accepted.

Objective No. 2 — To demonstrate the degree of correlation between the behavior (percent change) of the mean square foot assessed value of single-family residential buildings and levels of physical deterioration.

Major Hypothesis: Depreciating assessed values of single-family residential buildings correlate with rates of physical deterioration.

Sub-Area No. 1 (Grids 10-12 and 11-12) is considered to be a deteriorated area. Eighty-one to 100% of all the single-family dwellings within this sub-area fall within the 1960 U. S. Census of Housing as being either deteriorated or dilapidated. In addition, this area (which in effect is comprised of only three and one half blocks) contains the highest per capita rate of public health and building code violations of any area within the city. An investigation of the premise files of the Ann Arbor City Health Officer indicates that the area has 27 such violations for the period 1948 to 1964.[1] (See Appendix C for a specific list of these code violations.)

An examination of the specific housing characteristics of the single-family dwellings within this area indicates that they are (1) primarily class D structures, (2) two or more stories, (3) older (all built before 1940), and (4) have rental rooms. Thus, when comparing the behavior of the mean square foot assessed value with each of these specific variables in a time-series analysis for the period 1944 to 1964, it appears that in all cases the difference in slope is consistently positive (with the one exception of the interval 1960 to 1964 in regards to the one variable of tenure of occupancy or dwellings with rental rooms). Note Table 41.

Table 41.--Differences in Slope in Sub-Area No. 1

Variable (Bldg. Character)	Differences in Slope 1944-1948	1948-1952	1952-1956	1956-1960	1960-1964
Building Class D	17.3	0.0	3.1	6.0	10.6
Age (Buildings built before 1940)	5.8	0.5	3.3	2.5	3.0
Dwellings with rental rooms	7.6	2.7	3.1	2.5	-1.6
Dwellings with 2 or more stories	8.3	1.0	3.2	4.0	2.3

Sub-Area No. 4 (Grid 10-14) is also considered to be a deteriorated area. All of the buildings within this area were classified as deteriorated structures in accordance with the 1956 U. S. Urban Renewal Criteria and were scheduled for either rehabilitation or demolition upon the approval of the urban renewal project by the Ann Arbor City

Council.[2] In addition, an investigation of the premise files of the Ann Arbor City Health Officer indicated that the area (the entire Project area) contained 69 public health and building code violations which further attested to its general pathological condition.[3] (See Appendix C for a specific list of these code violations.)

An examination of the specific housing characteristics of the single-family dwellings within this area indicates that they are (1) primarily class D structures, (2) two or more stories, (3) older (all were built before 1940), and (4) have rental rooms. Except for the one interval of 1948 to 1952, all the other periods indicate that the differences in slope in regards to the various housing characteristics examined in the time-series analyses were positive. This is particularly noticeable in intervals 1956 to 1960 and 1960 to 1964. There were three cases during the interval 1952 to 1956 when the differences in slope were minimumly negative (-0.5, -0.3, and -0.4); however, these indeed are not considered to be significant indications that the sub-area was experiencing a euphoric period of growth and development, but rather that it was approaching that point where it would begin to deteriorate most rapidly.

Table 42 indicates the differences in slope for each variable of housing characteristic for each interval of time.

Table 42.--Differences in Slope in Sub-Area No. 4

Variable (Bldg. Character.)	Differences in Slope 1944-1948	1948-1952	1952-1956	1956-1960	1960-1964
Building Class D	14.3	-4.7	-0.5	6.5	26.5
Age (Buildings built before 1940)	2.8	3.9	0.3	3.5	18.7
Dwellings with 2 or more stories	5.7	-3.7	-0.3	4.5	17.6
Dwellings with rental rooms	4.6	-2.1	-0.4	3.0	14.1

In that these findings indicate that decreasing rates of assessed valuation do in fact correlate with levels of physical deterioration in single-family residential buildings in both of these sub-areas, the stated hypothesis holds.

Objective No. 3 To demonstrate a method using assessment data to quantify the extent of relative physical deterioration of single-family residential buildings within various sub-areas of the city.

Major Hypothesis: Percent changes in mean square foot assessed values can be utilized as a measure of building condition, and, hence, as a measure of physical deterioration.

The findings in Chapter IV indicate that differences in slope can be computed for each of the sub-areas at various points in time by means of time-series analyses. These differences in slope represent the degree to which

the percent change in mean square foot assessed value in each of the sub-areas varies from that of the overall city. That is, the difference in slope demonstrates the rate or extent to which the mean square foot assessed value of single-family residences within a particular sub-area is either appreciating or depreciating relative to the overall city. Thus, when the difference in slope is positive, the percent change in mean square foot assessed value in a particular sub-area is depreciating relative to the city as a whole, and when it is negative, the percent change in mean square foot assessed value is appreciating relative to the city as a whole. When the difference in slope is zero, the mean square foot assessed value of single-family residences in both the sub-area and the city are depreciating or appreciating at the same rate.

Since the findings indicated that the mean square foot assessed value in sub-areas with deteriorated housing stock depreciated over time when compared with that of the overall city (Figures 32 through 35), and appreciated in sub-areas with no deterioration or sound housing stock (Figures 49 through 54), it seems apparent that the assessed value of single-family houses is closely linked with physical building condition and can be used to measure it. In this respect, the stated hypothesis holds.

Objective No. 4 — To demonstrate that assessment data for single-family residential buildings can be utilized to identify the critical stage in the deterioration process for those areas of the city that are physically deteriorated.

Major Hypothesis: In those single-family residential areas of the city that are physically deteriorated (in accordance with current standards of physical deterioration) the change in physical condition (going from sound to deteriorated) will be most severe where the difference in slope in the percent change in mean square foot assessed value is the greatest.

In that we have demonstrated that depreciating assessed values of single-family residential buildings correlate very strongly with rates of physical deterioration (Objective No. 1) and that changes in assessed values correspond with building improvements in general (Chapter I), we can only assume that buildings meeting the criteria for deterioration in 1960 and 1956 that have histories of depreciating assessed values would meet criteria for deterioration in 1950. From this premise we should then be able to assume that Sub-Area No. 1 has at least been a deteriorated area from the period 1952 to 1964.

In examining the difference in slope in the percent change in mean square foot assessed value in the first deteriorated area, Sub-Area No. 1, we can note the following (Table 43):

Table 43.--Total Differences in Slope in Sub-Area No. 1

Variable (Bldg. Character.)	Highest Value Difference in Slope	Period	Lowest Value Difference in Slope	Period	Total Difference in Slope
Bldg. Class (D)	17.3	1944-1948	0.0	1948-1952	17.3
Tenancy (Rental Rooms)	6.1	1944-1948	-1.6	1960-1964	7.7
Stories (2 or more)	8.3	1944-1948	1.0	1948-1952	7.3
Age (All buildings built before 1940)	5.8	1944-1948	0.5	1948-1952	5.3

In identifying the critical stage in the deteriora-
ion process in Sub-Area No. 1, we could say that it would
e either (1) that period of time in which the most critical
ariable in the time-series analyses had its greatest dif-
erence in slope, or (2) that interval in which most of the
ariables examined had their greatest difference in slope.
lso, we would expect that the point where the difference
n slope was the least to be that interval immediately
ollowing the critical stage (if we were to replicate
reger's notion of the critical stage somewhat schematic-
lly).

Again, an examination of Table 43 indicates that
1) the greatest difference in slope of the most critical
ariable (building class) occurs in the interval 1944 to
948, and (2) all of the variables have their greatest
ifference in slope in this same interval. In addition,
ith the one exception of the variable of tenancy (build-
ngs with rental rooms), all of the variables have their
east difference in slope in the interval 1948 to 1952.
hus, in regards to this particular sub-area the critical
tage in the deterioration process occurs during the period
944 to 1948. In this respect, we would have to say that
he stated hypothesis holds (e.g. the critical stage in the
eterioration process can be identified by the difference
n slope in the percent change in mean square foot assessed
alue).

Utilizing our same stream of logic in our examination of Sub-Area No. 4 as to its degree of deterioration after 1956 where it was considered to be deteriorated in accordance with U. S. Urban Renewal Criteria and 1960 where it was considered to be 61 to 80% deteriorated in accordance with U. S. Census of Housing definitions of deterioration and dilapidation, we should be able to assume that the area was at least deteriorated from 1956 to 1964.

In examining the difference in slope in the percent change in mean square foot assessed value in the second deteriorated area, Sub-Area No. 4, we can note the following (Table 44):

Table 44.--Highest Value Differences in Slope in Sub-Area No. 4

Variable (Bldg. Character.)	Highest Value Difference in Slope	Period
Bldg. Class (D)	26.5	1960-1964
Tenancy (Rental Rooms)	14.1	1960-1964
Stories (2 or more)	17.6	1960-1964
Age (Buildings built before 1940)	18.7	1960-1964

In that the greatest difference in slope consistently occurs in the last interval of the time-series analyses, we have to assume that this indeed is the critical stage in the

deterioration process for this particular sub-area. If the time-series analyses were to extend beyond 1964, we would expect to find the least difference in slope in most of the variables (e.g. the "plateauing" effect in Breger's concept) to occur during the period 1964 to 1968. However, in that we do not have this information, we can only state this as an assumption.

Again using our criteria of the critical stage as being either (1) that period of time where the difference in slope of the most critical variable is the greatest or (2) that period in the time-series analyses in which most of the variables have their greatest difference in slope, we find that the area is consistent with both of these requirements. The greatest difference in slope of the most critical variable (building class) occurs in the period 1960 to 1964, and <u>all</u> of the variables have their greatest difference in slope similarly in this same period. Thus, the <u>critical stage</u> in regards to this particular sub-area is the period 1960 to 1964. We would therefore have to conclude that again the stated hypothesis holds.

<u>Objective No. 5</u> To demonstrate a method for predicting possible future physical deterioration in various sub-areas of the city that contain certain blighting pre-conditions.

Major Hypothesis: The percent change in mean square foot assessed values can be utilized as a leading surrogate for physical deterioration in those areas of the city that have certain blighting pre-conditions.

If the behavior of the mean square foot assessed value is to have any utility as a leading surrogate for the possible prediction of future physical deterioration, it would have to be demonstrated that in those areas of the city possessing some of the blighting pre-conditions that were mentioned in Chapter II there would have to be an indication that the difference in slope was increasing in the latter intervals of the time-series analyses. This would indicate that the buildings in the sub-areas were not appreciating in assessed value and hence were receiving a disproportionate (lesser) amount of private investment in terms of maintenance and improvement than were other single-family structures throughout the city.

In examining the difference in slope in the percent change in mean square foot assessed value in the first transitional area, Sub-Area No. 2, we can note the following (Table 45):

Table 45.--Differences in Slope in Sub-Area No. 2

Variable (Bldg. Character)	Differences in Slope 1944-1948	1948-1952	1952-1956	1956-1960	1960-1964
Building Class C	-2.6	0.8	6.4	6.7	-4.7
Building Class D	7.7	-3.2	1.4	3.3	7.6
2 or More Stories	-1.3	-2.2	1.4	4.7	-1.7
Age (Buildings built before 1940)	-3.8	-1.4	1.4	3.2	-0.5

In most instances the difference in slope in mean square foot assessed value appears to be increasing except for the final period of 1960 to 1964. Assuming that depreciating rates of assessed valuation correlate with levels of physical deterioration, this would indicate that the area was initially heading in a direction of physical deterioration or blight, but then somehow managed to counter this trend. Any or all of several things could have happened to bring about this effect.

One might have been that the changeover in assessment practices from the replacement cost method to the fair market value method on the part of the City of Ann Arbor had some spurious macro effect on single-family residential assessments. A second could be that a majority of the buildings in the sample did in fact receive less investment in terms of improvements during this particular interval than they had in prior ones as it has already been mentioned in Chapter V. Still a third reason could be that the owners of the dwellings in the sub-area <u>actually</u> had been investing proportionally more in their homes than had home owners in general throughout the city.

Since building class is a critical variable and half of the buildings are class D structures (which, in turn, reflects a difference in slope for the interval 1960 to 1964 of 7.6), and the general trend of assessed value <u>is</u> in the direction of depreciation, it seems very likely that

the buildings in the sub-area are deteriorating and that the assessed value could be a suitable leading surrogate for physical deterioration. However, since the other differences in slope for the other variables are negative and a reversal of the direction of the previous time periods, one would have to reject the hypothesis in regards to this particular sub-area.

In examining the difference in slope in the percent change in mean square foot assessed value in the second transitional area, Sub-Area No. 3, we can note the following (Table 46):

Table 46.--Differences in Slope in Sub-Area No. 3

Variable (Bldg. Character.)	Differences in Slope 1944-1948	1948-1952	1952-1956	1956-1960	1960-1964
Building Class C	3.4	4.2	6.0	6.7	-3.3
Building Class D	13.7	0.0	1.0	6.9	9.8
Dwellings with Rental Rooms	4.0	2.7	1.3	3.2	-3.2
Dwellings with 2 or more stories	4.7	1.0	1.2	4.9	0.7
Age (Buildings built before 1940)	2.2	1.2	1.2	3.2	1.4

An examination of Table 46 indicates that the sub-area has been doing several things in regards to the values of the different variables or housing characteristics. The

dwellings in the sub-area are almost evenly divided between class C and class D structures. The variable of building class C indicates that the dwellings within the sub-area were following a trend towards deterioration, but then as was characteristic of Sub-Area No. 2 managed to reverse this direction in the final period, 1960 to 1964. Building class D indicates that except for the drop during the period 1948 to 1952 there was a strong and steady increase in the difference in slope. This would mean that the buildings within the sub-area were clearly headed in a direction of physical deterioration. The variable of tenancy (dwellings with rental rooms) demonstrates a pattern very much like that of building class C. The other variables, however with the one exception of the first interval, show an increasing tenancy towards physical blight with a reversal in rate only during the last period.

Therefore, using the criteria of (1) one of the most critical variables (building class D) having a strong and increasing difference in slope throughout the time-series analysis, and (2) almost all of the variables having positive differences in slope, one could conclude that the dwellings within the sub-area were tending in a direction of physical deterioration or blight. In this respect one would have to accept the stated hypothesis that the percent change in mean square foot assessed value could be used as a leading surrogate for predicting possible future physical deterioration.

The Relevance of the Findings to the Field of Urban Planning

There are several important contributions of the study to the general field of planning and urban development. Some of the more salient of these can be listed as follows:

1. By combining the technique of the time-series analysis with an arbitrary grid or sub-area map, the study demonstrates a technique for indexing single-family housing condition throughout the city. In this respect it provides a technique for developing indices of relative building condition that are based on investment rather than health or construction standards.
2. It illustrates a method for obtaining a rapid, inexpensive appraisal (overview) of levels of physical deterioration within any given city. An examination of the difference in slope at various points in time allows the researcher an immediate opportunity to ascertain the relative degree of investment or maintenance and improvement that an area has received at any given period of time. When the difference in slope is <u>positive</u>, the area under examination is receiving less in terms of investment than the city is in general. When it is <u>negative</u>, just the opposite obtains. When the slope is <u>equal</u>

to zero, both the sub-area under examination and the city are receiving proportionally the same amount of investment. The value of the difference in slope determines the magnitude of the relative increase or decrease in investment.

3. In regards to urban redevelopment the study demonstrates an important tool for improving local decision-making. This is especially true in the case of urban renewal conservation or rehabilitation projects. Quite often the success or failure of such efforts hinges upon the willingness and support that the impacted groups are inclined to give them. What better measure of citizenship or stewardship could a renewal agency have for a potential project than an index based on the actual record of maintenance and improvement that an area had received?

FOOTNOTES

[1]An examination of the Premise Files in the Ann Arbor Public Health Office indicated that those dwellings in Sub-Area No. 1 had incurred far more violations than single-family dwellings in any other area of the city. There were no aggregate statistics available to verify this observation mathematically or statistically. However, personal observation of the files and an interview with Dr. Bowler, the Ann Arbor City Health Officer, attested to this fact quite emphatically.

[2]It should be pointed out that even though the buildings within the project area (the North Central Urban Renewal Area) were qualified and classified as deteriorated, the project did not materialize. The reason for this is not spelled out in any of the information included in the urban renewal application. However, both the City Planning Director and the City Assessor felt it was a matter of political concern rather than anything else.

[3]To give further credence to this notion of numbers of health and building code violations in the different sub-areas, each of the areas were ranked according to their number of violations. The ordinal ranking of the areas showed that the deteriorated areas, Sub-Areas One and Four, had the highest number of violations; the transitional areas, Sub-Areas Two and Three, the next highest number, and the "sound" areas with no deterioration, Sub-Areas Five and Six, the least number of violations.

CHAPTER VII

CONCLUSIONS

Undoubtedly there are many points of criticism that could be raised in regards to a research endeavor of this nature. However, before exploring some of these in detail, a few broad comments generic to the overall purpose and execution of the study should be made.

First of all the prime concern of the dissertation centered on the examination of a body of public data to appraise its worth in (1) municipal decision-making, and (2) urban sociological research.

Secondly, it attempted to demonstrate a method or technique in which this information could be utilized to practical advantage, and in this respect, narrowed its focus to the specific problem of measuring and predicting physical urban deterioration.

Finally, it was an exploratory effort in which little or no previous work of a similar nature had been done. Consequently, many of the mechanical facets of the study had to be developed and utilized on the spot as various research problems occurred. If such a study were to be replicated, it would be well to make many refinements

of the research techniques to sharpen the quality of some of the measurements and predictive statements.

Potentially, there indeed are limitations to a study of this kind. In general, assessment data is fraught with discrepancies, and unfortunately much of the success of this type of research is dependent on "good" data.[1] Undoubtedly, the City of Ann Arbor presented a rather singular opportunity as the laboratory for the study. Had the assessment data there merely been an accumulation of "last year's figures in this year's book," little of much value could have been derived from the research.

An examination of the Michigan Tax Study Staff Papers of 1958 reveals the presence of some substantial problem areas in regards to assessment practices and assessment data in the state of Michigan.[2] One rudimentary one centers on the general notion of assessing property at its "true cash value" as specified in the state constitution. For the most part, the State Tax Commission accepts an appraisal standard of 50% of the current true cash value.[3] However, in actual practice appraisal levels range anywhere from 20 to 50%. This can allow severe inequities in assessments since lower ratios tend to magnify errors in appraised values. Assessors who appraise properties at high proportions of their true cash value do a more equitable job than those who use lower assessment levels because they work within a much broader range of tolerance.[4]

In examining the lack of uniformity in assessment levels in regards to counties, townships, and local assessment districts, the State Tax Commission also noted that discrepancies in assessed values were higher at the local level than they were at either the county or township level.[5]

However, the data developed in this study of assessed values and physical urban deterioration in the City of Ann Arbor present a much different picture.

Assessments were developed on the basis of sound, sophisticated appraisal techniques. They were re-examined regularly at scheduled periods of time, and there was little time lag in making adjustments for depreciation and building improvements.

What then should one conclude from a research effort of this nature? On the surface it appears as though some very significant findings regarding assessment data and physical urban deterioration have been developed in a rather atypical community. However, two important considerations seem to extend beyond this initial observation.

The first is that the study did show that there was a definite linkage between depreciating assessed values and physical urban deterioration in regards to single-family residential buildings.

The second is that it demonstrated various methods and techniques in which assessment data could be applied and utilized in studying urban problems and in improving

local decision-making. In this respect it showed that there is considerable value and potential utility in assessment data. This fact alone is a substantial contribution in the field of urban studies.

If the study were to be replicated to emphasize its broader worth in the solution of problems involving physical urban deterioration, it would have to be applied to a much larger urban community and perhaps even to several such communities. Only then would one be able to demonstrate its full promise and utility as a planning tool.

FOOTNOTES

[1] Pealy, Robert H., Barlowe, Raleigh, Taylor, Clarence B., and Claude R. Tharp, "The General Property Tax," _Michigan Tax Study Staff Papers of 1958_, Ann Arbor: Institute of Public Administration, University of Michigan Press, 1959.

[2] _Ibid_.

[3] _Ibid_., Barlowe, p. 214.

[4] _Ibid_., Barlowe, p. 215.

[5] _Ibid_., Barlowe, pp. 216-19.

APPENDIX A

THE CITY OF ANN ARBOR

Introduction

The City of Ann Arbor, Michigan, founded in 1824 is located approximately 40 miles west of the City of Detroit in the Huron River Valley. It has an area of nineteen square miles and an estimated 1967 population of 92,000 inhabitants.[1] The surrounding topography of the city can best be described as gently rolling hills covered with hardwood forests. The city is served by two major highway routes--Interstate 94 and U. S. 23. In addition, it is also served by the New York Central Railroad.

As well as being the county seat of Washtenaw County, the city is also the home of the University of Michigan. As a result, it has become a prominent center in the Midwest for learning and research.

An examination of the 1960 U. S. Census of Population reveals several important facts worth noting. Some of these have been listed as follows:

1. The percent foreign born for the city is approximately 25. The preponderence of foreign stock originates from western Europe (Germany, U.S.S.R., and Ireland) and from Canada.

2. The percent of non-white inhabitants is approximately 6.3.
3. The median family income is $7,750.
4. The median number of school years completed for the inhabitants of the city is 13.7.

Housing Characteristics

In addition to some of the general housing characteristics for the city that are expressed in Table 47, certain other related facts such as the following should be mentioned:

Housholds: There are approximately 26,650 households (occupied housing units) in the City of Ann Arbor. Student households represent approximately 18% of the total number of households.[2]

Household Size: The average household size in the City of Ann Arbor is 2.84. In 1950 the figure was 3.05. A major factor influencing this trend towards smaller household size is the increase in student households in the city.[3]

Housing Supply: Currently there are 27,350 housing units in the City of Ann Arbor. This figure represents a net increase of 6,600 units (or 32%) over the 1960 figure of 20,750.[4]

Age of Dwellings: Approximately 42% of the housing stock within the City of Ann Arbor was built before 1939.[5]

Housing Condition: Aggregate statistics on the condition of housing in Washtenaw County reveal the following:
Of the 59,900 housing units in Washtenaw County (the Ann Arbor Housing Market Area), approximately 4,750 units or 8%

Housing Condition: (Cont'd)
are either dilapidated or deteriorated (lacking one or more plumbing facilities). These findings indicate an improvement in the housing market area since 1960 when 5,250 units or 11% of the total number of units were either dilapidated or deteriorated.[6]

Housing Demolition: Since April 1, 1960, approximately 200 housing units within the City of Ann Arbor have been demolished.[7]

Sales Market: The market for new sales housing in Ann Arbor is quite strong. Presently, the most popularly priced housing in single-family dwellings seems to be in the $23,000 to $25,000 price bracket. Within Ann Arbor subdivision activity has centered in areas south of Packard Road and in the vicinity of the intersection of Plymouth and Nixon Roads.[8]

Table 47.--General Housing Characteristics for the City of Ann Arbor[9]

	Ann Arbor	Michigan
Total Dwellings	20,752	2,548,792
% in One Housing Unit Structures	82.6	53.7
% Sound with All Plumbing Facilities	86.3	78.6
% Occupied by Non-white	06.3	08.4
% Owner Occupied	51.3	74.4
Median Value of Owner Occupied Units	$18,000	$12,000
Median Gross Rent	$99.00	$77.00
Vacancy Rate (Owners Occupied Units)	1.7%	1.5%
Med. No. of Persons in Occupied Units	2.5*	3.1

*Lowest in the state

Physical and Locational Characteristics

In examining the city for any physical or locational characteristics which might possibly influence the determination or skew the distribution of assessed values of single-family residences, none of any consequence could be found. The University of Michigan, the major employer in the city, is situated approximately in the center of the city and has equal access from most residential areas. The internal road and street system very closely approximates a classical "spoke" or radial system with all major streets and avenues converging on the central area. The freeway system extends around the periphery of the city, and, except for a small missing segment on the northern boundary, all but encloses the entire city.

There are no extreme topographical features with the city in the way of hills or low areas. The Huron River runs through the center of the city; however, and, on some occasions, has been known to flood its banks.

The Selection of the City as the Laboratory Community

There are two major reasons for selecting the City of Ann Arbor as the laboratory community for the study. The first is that the assessment practices within the city are regarded by many authorities in the field of real property appraisal and assessment to be among the best in the

state.[10] Records are kept up to date with minimum lag time, are well organized, and are readily available to the public. Reassessments are made on a regular basis. Approximately every three years each piece of residential property in the city is re-examined. Also, as a matter of mere office routine, building permits for new construction (any improvements to the building of $100 or more in value) are forwarded directly from the building department to the accessor's office so that adjustments in appraisals and assessed values can be made immediately upon the completion of the work. This gives a close scrutiny to building activity on the part of the city accessor and gives substantial credence to building value assessments as reflecting current worths.

The second important reason is that a considerable portion of the housing stock in the city is old (approximately 42%) as it has just been mentioned. In that the bulk of the nation's housing problems are in older cities and older parts of cities, this gives the research an appropriate setting for development.

DESCRIPTIONS OF THE SUB-AREAS SELECTED FOR STUDY

Each of the sub-areas selected for examination in this study will be described from three general vantage points. The first concerns a description of each from the personal viewpoints of the City Planning Director and the City Assessor. The second considers each area from the point of view of its objective physical characteristics and appearance. The third method of description considers each sub-area in light of its major demographic characteristics and statistics.

The six sub-areas selected for study were located within the city in the following demographic areas (Table 48):

Table 48.--Locations and Characteristics of Sub-Areas

Sub-Area	General Description	Location
One	Deteriorated	Cen. Tract 7
Two	Transitional	Cen. Tract 7
Three	Transitional	Cen. Tract 6
Four	Deteriorated	Cen. Tract 7
Five	No Deterioration	Cen. Tract 10
Six	No Deterioration	Cen. Tract 10

Both the City Planning Director and the City Assessor stated that they considered the first sub-area to be deteriorated. They stated that most of the dwellings reflected little maintenance and improvement and had been in a general state of disrepair for an extended period of time.

Sub-Area Number Two, however, constituted a residential portion of the city that was somewhat questionable. In their opinion, it had been a fairly viable area of the city that had commanded good rents and had attracted some prospective homeowners. However, there appeared to be little interest in building activity in terms of private rehabilitation efforts.

Sub-Area Number Three similarly reflected mixed opinions concerning its viability in the Ann Arbor housing market. Again, both the City Planning Director and the City Assessor considered it to be a marginal area in terms of its ability to attract investment and renewal interest.

Sub-Area Number Four was thought to be a deteriorated residential area. Many of the structures in the area had been replaced by commercial establishments and new multi-family dwellings. For the most part, interest in maintaining the remaining single-family dwellings had apparently been rapidly waning.

Sub-Area Number Five, in the opinion of both the assessor and planning director, was a very competitive, upper middle-class, housing market area. Most of the dwellings within it commanded high sales prices and inordinately high rents ($300 or more per month).

Sub-Area Number Six was similarly an "expensive" residential area, and, as Sub-Area Number Five, had a long history as a "prestige" area within the city.

From an aesthetic or visual point of view the areas are fairly distinctive. Sub-Area Number One can be characterized as being an older housing area within the city with late 19th century residential architecture. The lots are narrow and many of the blocks have rear alleys. Curbs are often found broken with parking strips overgrown with weeds and bushes.

Sub-Area Number Two is also an older residential area within the city. It contains some houses that are well kept, yet has others that show a definite lack of maintenance--dirty paint, missing shingles, unkempt yards, etc. As in the first sub-area most of the houses are late nineteenth century architecture (steep roofs, ornamental cornices, odd-shaped windows, front porches, etc.) and are constructed on small, narrow lots. For the most part the area is quite clean with little trash and other debris strewn about.

Sub-Area Number Three is more closely located to the central part of the city. The houses are older two-story structures. Many of the lots are larger than those in the first two sub-areas, and consequently, there is considerably more space between buildings on some blocks. A few buildings reflect a lack of maintenance and are in disrepair. Most of the yards are well kept. Sidewalks, curbs, and gutters are well taken care of, and very few parking strips are overgrown.

Sub-Area Number Four contains some unfortunate blighting influences. A large junk yard abutts the northern edge of the area while several marginal commercial establishments--small stores, cleaners, service stations, etc. within it have been left to deteriorate. Almost all of the houses are old--several over 100 years old. Most new construction has taken the form of jerry-built additions and shacks. The lots are very narrow. Sidewalks, curbs, and gutters are in very poor condition and appear to have been so for many years. Many of the parking strips and yards are overgrown with weeds, vines, and bushes. Several buildings contain major building defects.

Sub-Area Number Five contains very large houses on large lots. The houses are well set back from the streets giving them a very elegant appearance. Most of the dwellings are two and three stories and reflect very conservative architectural styles. The area is somewhat hilly, and

almost all of the houses are well landscaped and nicely sited on their lots to take full advantage of slopes, trees, and views. Yards are well attended, yet do not give a "manicured" appearance as one notices in newer suburban areas. The buildings are older structures and are mostly of pre World War I vintage. One or two of the houses have been converted to fraternity houses.

Sub-Area Number Six is also a bit hilly. The houses are quite large, but much newer than those in Sub-Area Five. The lots and yards are huge. There are no sidewalks in the area so lawns extend over 100 feet in some cases from the front of the buildings to the street. The street pattern is irregular. Large, older trees are decidedly missing giving the area a bit of a "suburban" feel. Many of the dwellings are single-story and one and a half stories. The architecture is fairly "modern" with a variety of styles and tastes--some houses are predominantly brick while others are of redwood, half-timber, etc. A Frank Lloyd Wright house abutts the area on the west.

In examining some of the census figures for each of the sub-areas (or tracts in which the sub-areas are located) one can note some major distinctions.

In the case of mobility (as measured by changes in residence since 1955) it seems as though the percentage of persons living in the same house was approximately the same in all areas or census tracts (43%). However, in noting

the place of residence in 1955 in the central city, it appears that more people migrated to Tracts 7 and 6 (Sub-Areas 1 through 4) than to Tract 10 (Sub-Areas 5 and 6). In noting the percent living in Michigan, yet outside the SMSA in 1955, it seems that substantially more (26.7% versus 18.3%) migrated to Tract 10 (Sub-Areas 5 and 6) than to either Tracts 7 or 6 (Sub-Areas 1 through 4).

In the case of general demographic characteristics one can note that the major percentage of non-whites in the City of Ann Arbor lives in Tract 7 (28.5% versus 4.2% in Tract 6 and 0.5% in Tract 10). Median family income also indicates very high differences. In Tract 7 the median family income is $5,500 (Sub-Areas One, Two, and Four). In Tract 6 the median family income is $6,292 (Sub-Area Three). In Tract 10 the median family income is $18,292 (Sub-Areas 5 and 6). Differences in educational level are also significant, but are fairly high. In Tract 7 (Sub-Areas One, Two, and Four) the educational level is 10.9. In Tract 6 (Sub-Area 6) the educational level is 12.0. In Tract 10 (Sub-Areas 5 and 6) the educational level is 16+.

Differences in employment characteristics are also quite interesting. In Tract 7 (Sub-Areas One, Two, and Four) the percent employed as service workers is three times that in Tract 10 (Sub-Areas 5 and 6). In regards to the percent employed in technical, professional, and kindred

work and managerial positions, less than 20% are so employed Tract 7 (Sub-Areas One, Two, and Four) while over 75% are so employed in Tract 10 (Sub-Areas 5 and 6).

A detailed listing of differences in demographic characteristics is presented in Table 49.

Table 49.--Demographic Characteristics of the Sub-Areas

Residential

Sub-Area	Tract	Population	Residence in 1955: Percent Same House	Percent Central City	Percent Outside SMSA
One	7	3,209	43.7	20.3	12.9
Two	7	3,209	43.7	20.3	12.9
Three	6	4,993	44.4	19.8	18.3
Four	7	3,209	43.7	20.3	12.9
Five	10	3,365	43.3	17.3	26.7
Six	10	3,365	43.3	17.3	26.7

General Characteristics

Sub-Area	Tract	Population	Percent Non-White Ann Arbor	Median Family Income	Educational Level
One	7	3,209	28.5	$ 5,500	10.9
Two	7	3,209	28.5	$ 5,500	10.9
Three	6	4,993	4.2	$ 6,292	12.0
Four	7	3,209	28.5	$ 5,500	10.9
Five	10	3,365	0.5	$18,292	16+
Six	10	3,365	0.5	$18,292	16+

Employment Characteristics

Sub-Area	Tract	Population	Percent Employed: Prof. and Tech.	Manager.	Service	Educational Service
One	7	3,209	15.2	4.7	9.9	18.4
Two	7	3,209	15.2	4.7	9.9	18.4
Three	6	4,993	22.9	6.8	4.9	20.3
Four	7	3,209	15.2	4.7	9.9	18.4
Five	10	3,365	56.4	18.4	3.7	40.6
Six	10	3,365	56.4	18.4	3.7	40.6

FOOTNOTES

[1]Ann Arbor City Planning Commission Report, The Regional Setting of the City of Ann Arbor, Michigan, Ann Arbor: City Planning Office, 1967, pp. 1-2.

[2]Archambault, Ronald T., Damiani, Joseph A., Mandeville, Thomas D., Richardson, James S., and Reinhardt Van Dyke, Housing for People of Limited Means in Ann Arbor: A Modest Proposal, Ann Arbor: University of Michigan School of Social Work (mimeo), April 15, 1968.

[3]*Ibid.*, p. 39.

[4]*Ibid.*, p. 39.

[5]*Ibid.*, p. 40.

[6]*Ibid.*, p. 40.

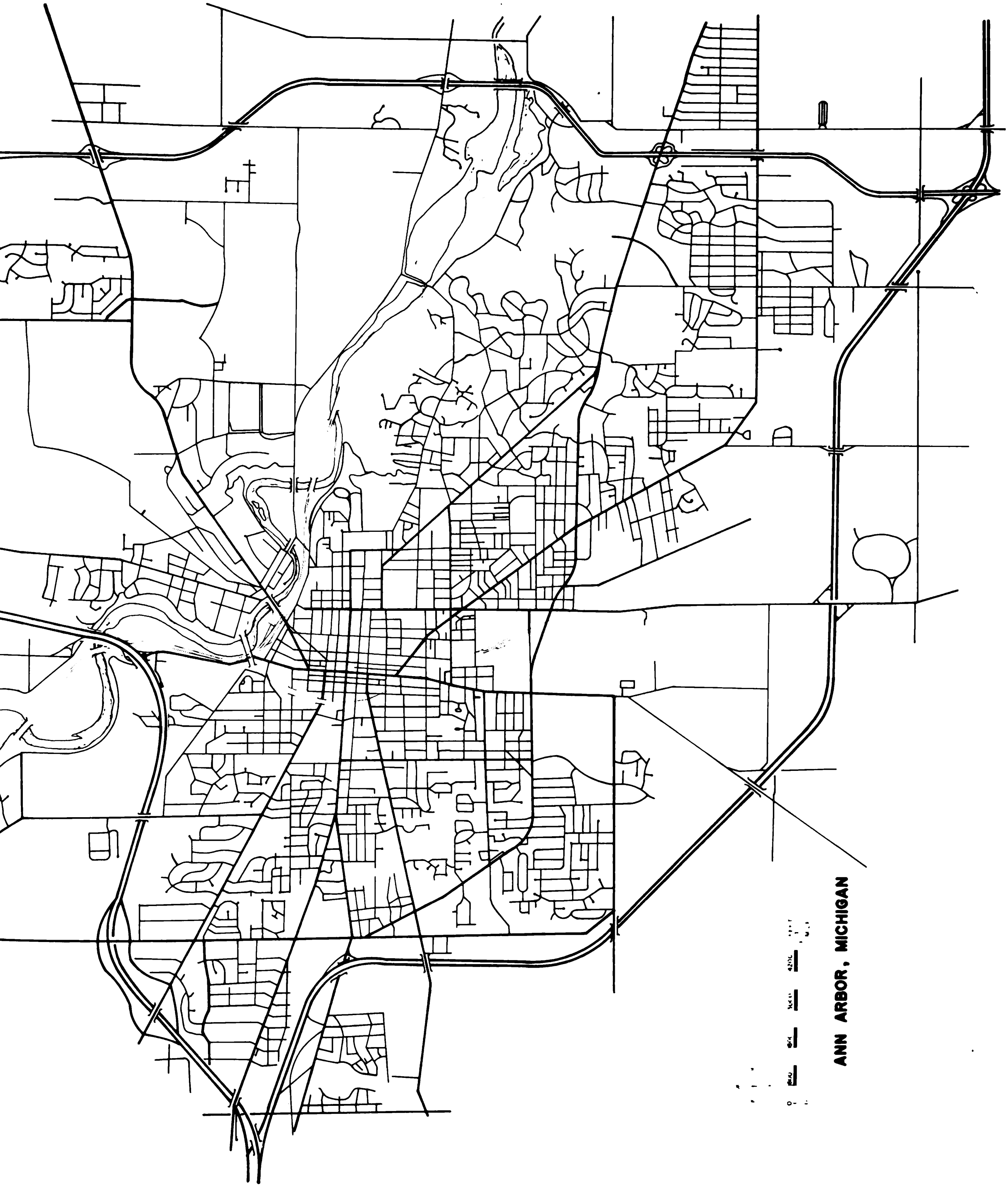
[7]*Ibid.*, p. 40.

[8]*Ibid.*, p. 41.

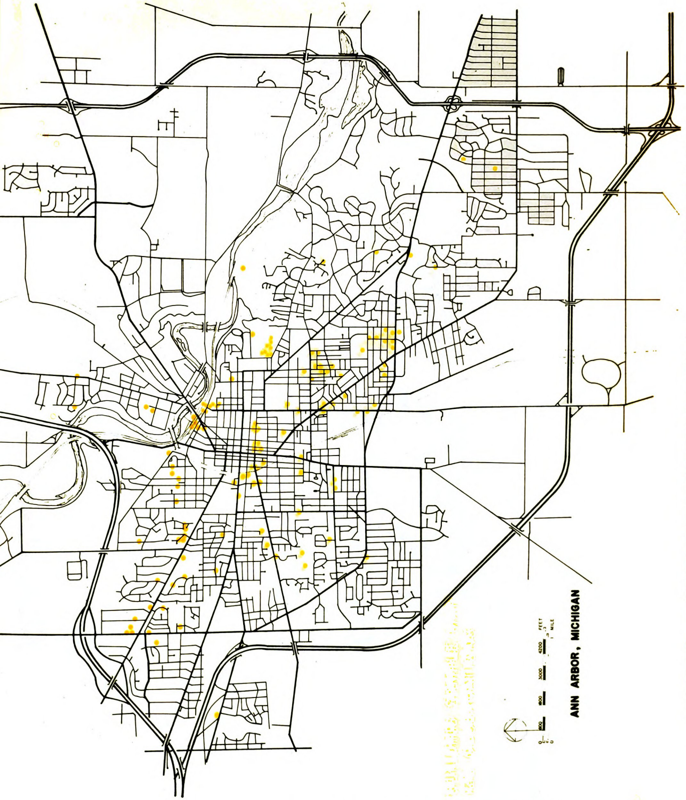
[9]U. S. Census of Housing and Population, Ann Arbor, Michigan.

[10]Interview with Dr. Raleigh Barlowe, Chairman of the Department of Resource Development, Michigan State University, East Lansing, Michigan, April 3, 1968. Dr. Barlowe stated that many of the techniques and methods for appraising and assessing real property that were pioneered and developed by the City of Ann Arbor were later adopted as standard assessment practices by many cities throughout the State of Michigan.

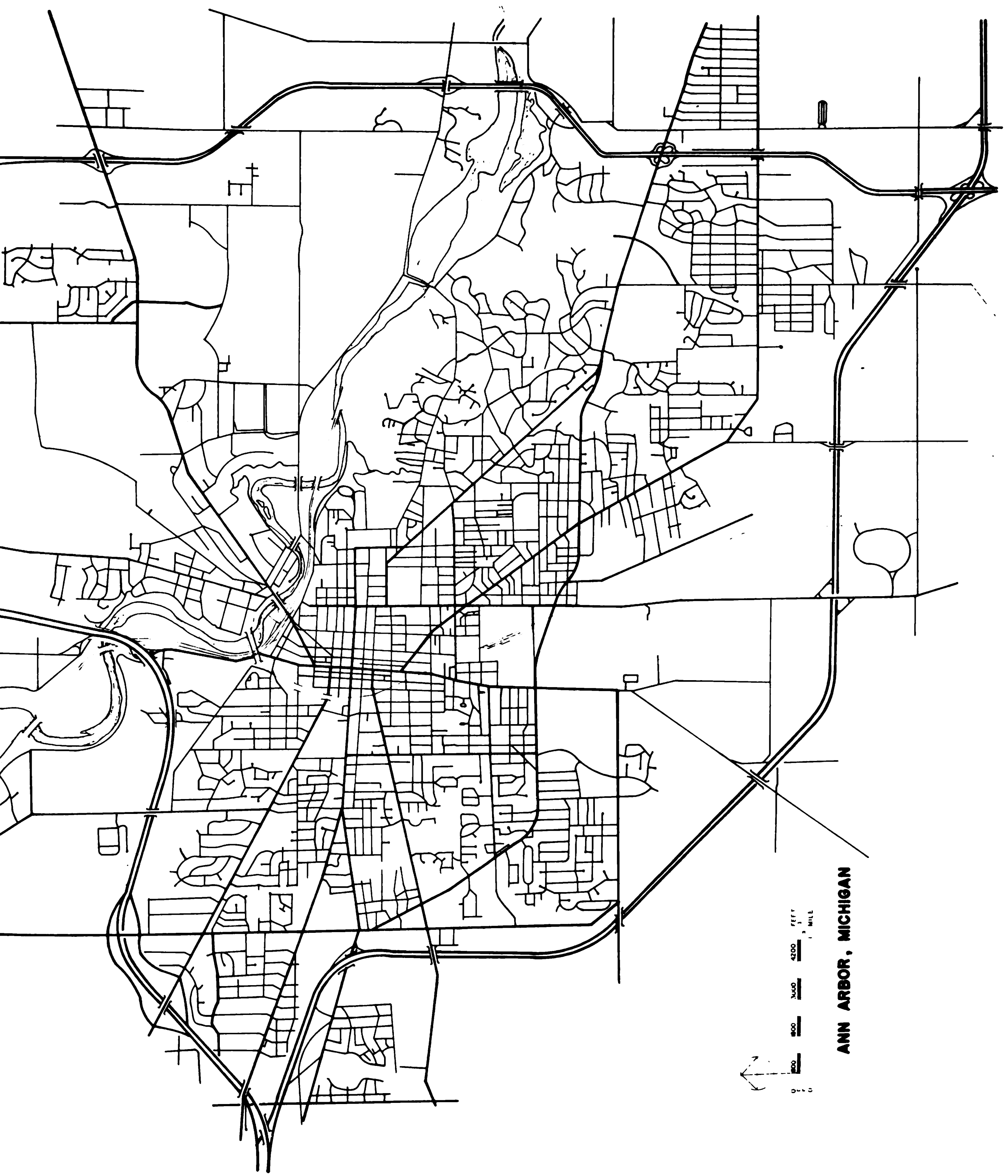
APPENDIX B



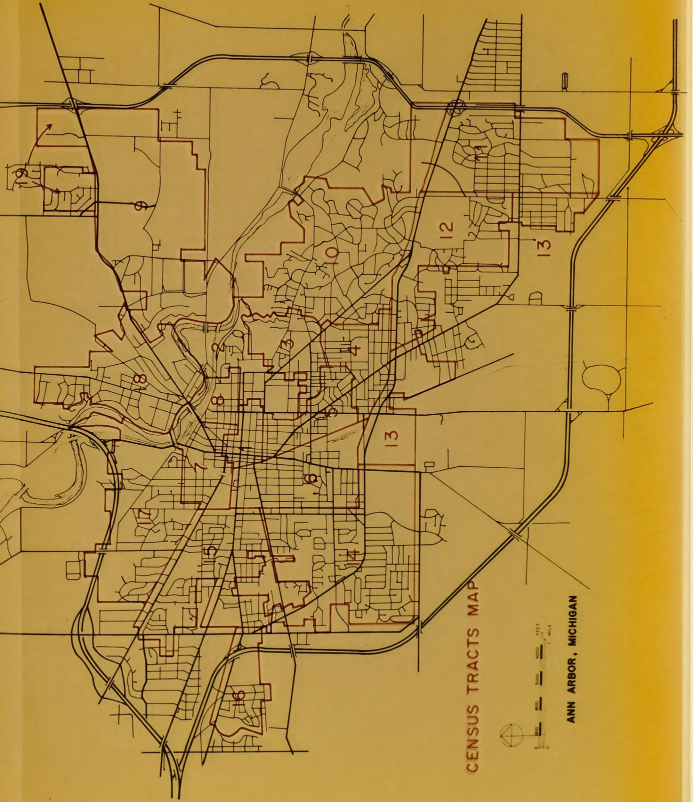
Map 1.--Base Map for the City of Ann Arbor, Michigan



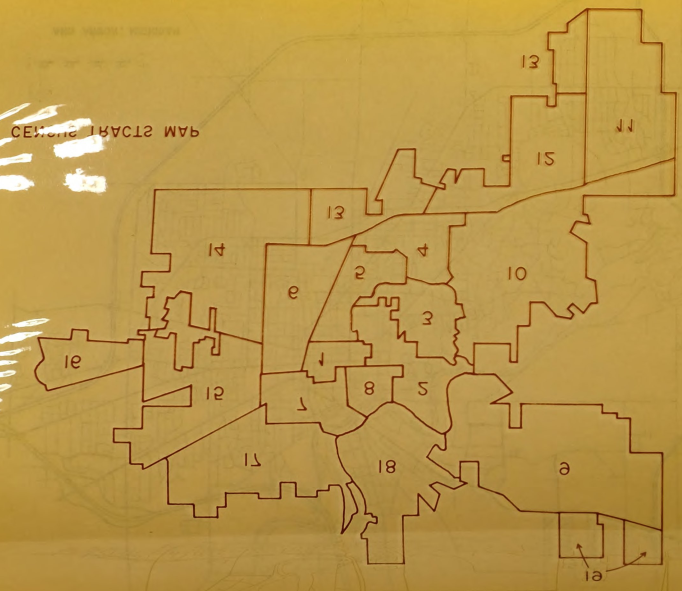
Map 2.--Building Sample for the City of Ann Arbor, Michigan

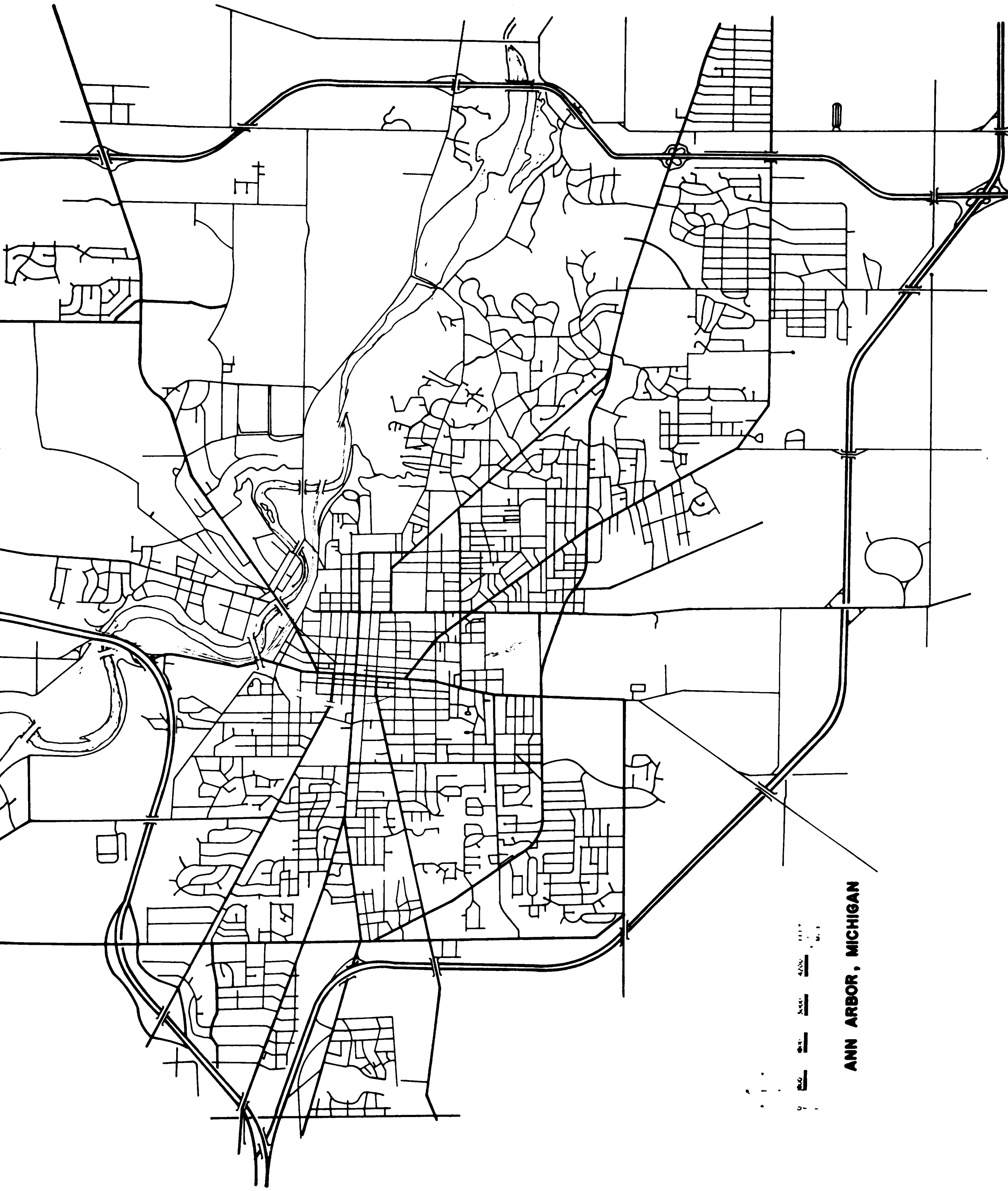


Map 2.--Building Sample for the City of Ann Arbor, Michigan

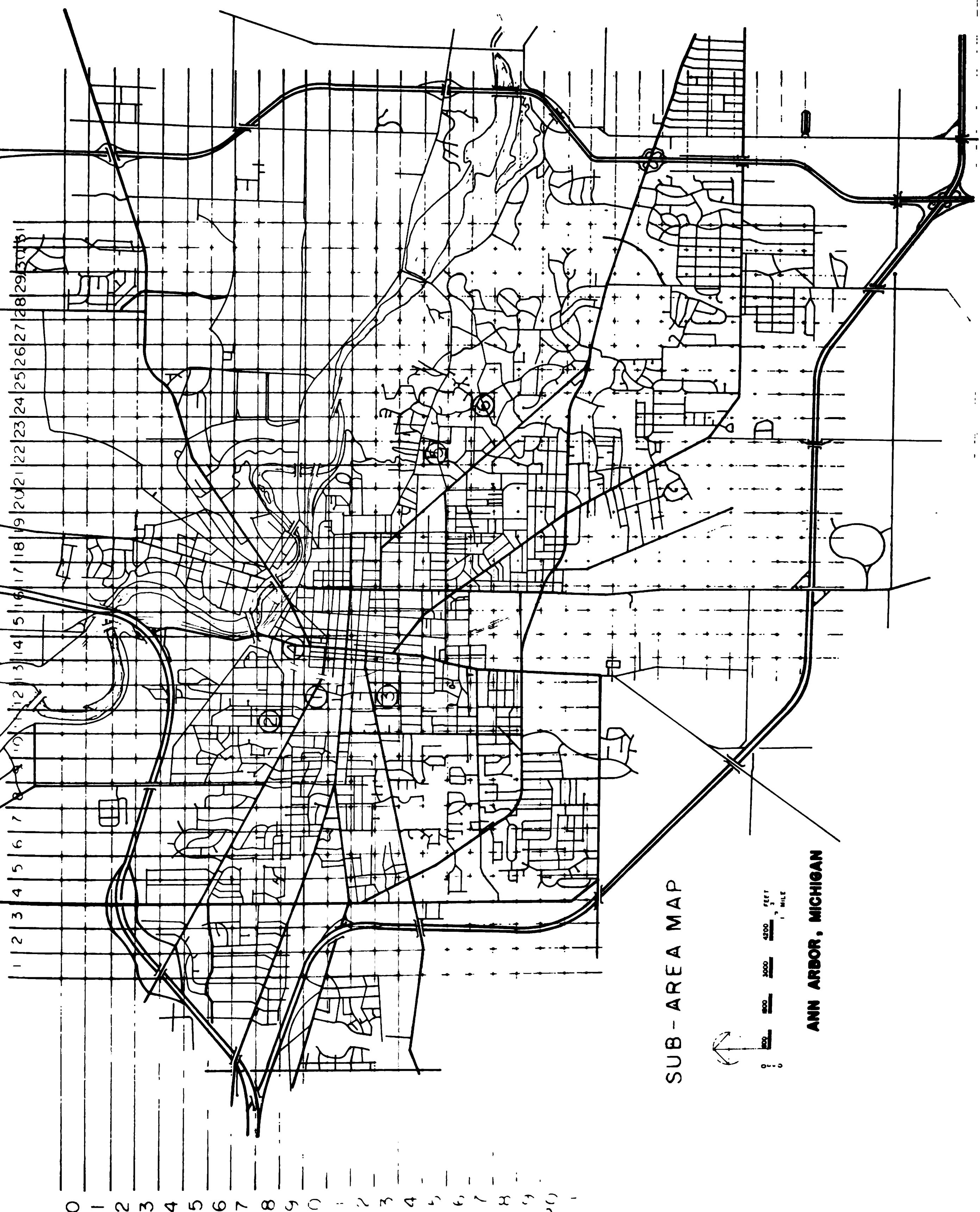


Map 3.--Census Tract Map for the City of Ann Arbor, Michigan

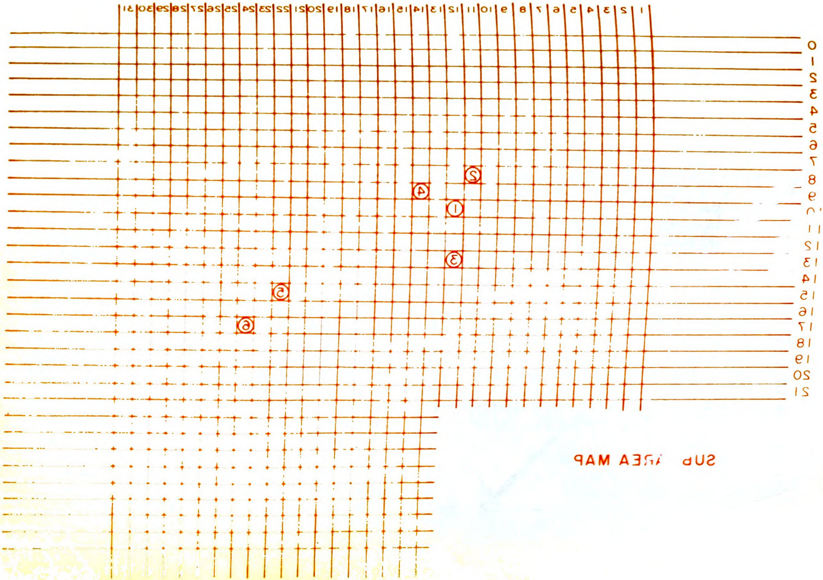

CENSUS TRACTS MAP

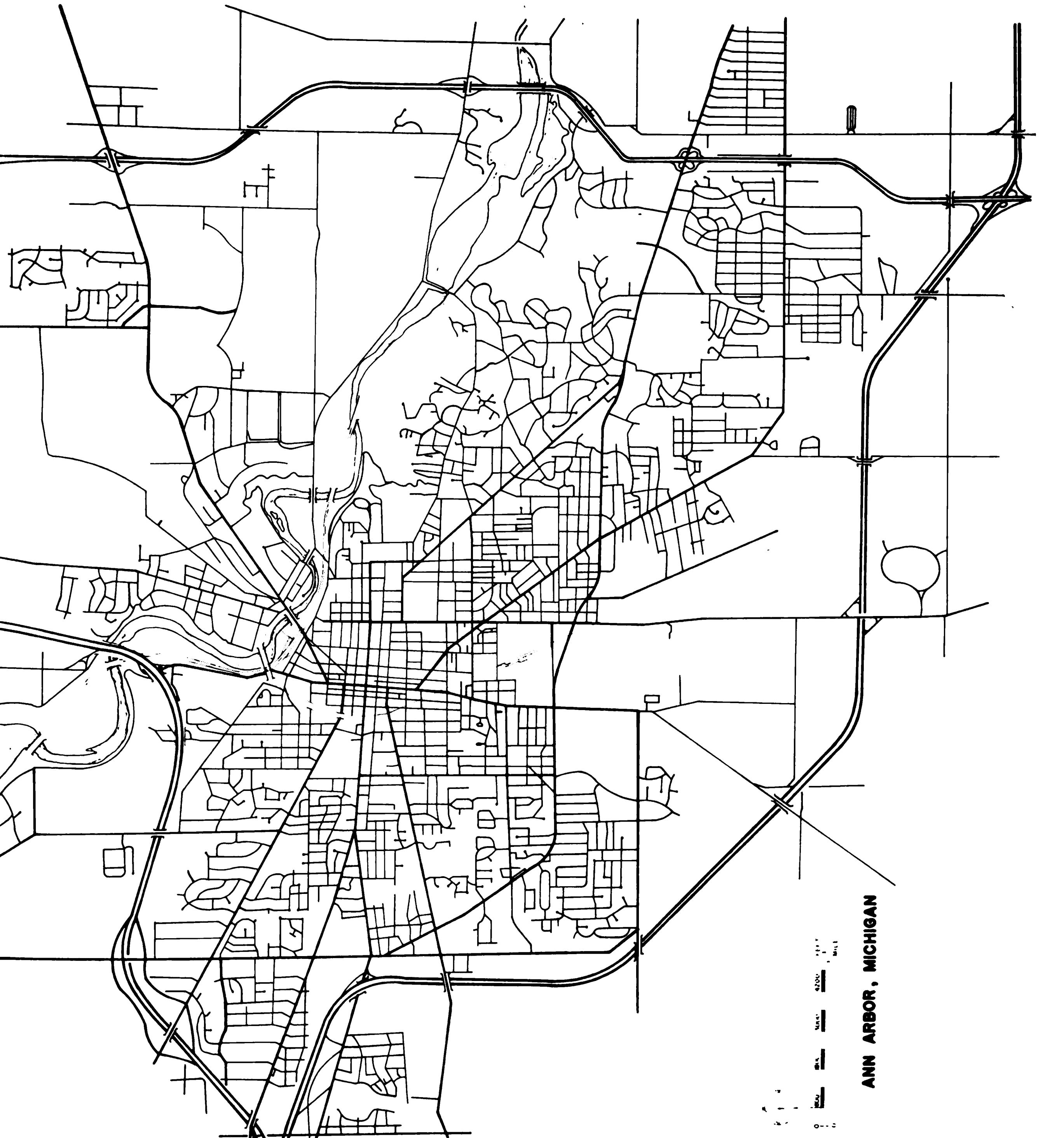


Map 3.--Census Tract Map for the City of Ann Arbor, Michigan

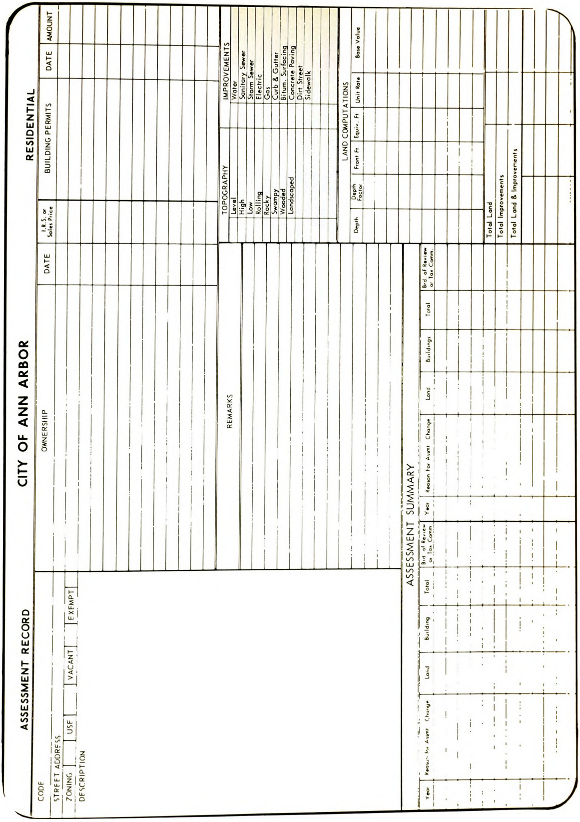


Map 4.--Sub-Area Map for the City of Ann Arbor, Michigan


SUB AREA MAP



Map 4.--Sub-Area Map for the City of Ann Arbor, Michigan


ASSESSMENT RECORD

CITY OF ANN ARBOR

RESIDENTIAL

CODE

STREET ADDRESS

ZONING

USF

VACANT

EXEMPT

DESCRIPTION

OWNERSHIP

DATE

I.R.S. or Sales Price

BUILDING PERMITS

DATE

AMOUNT

REMARKS

TOPOGRAPHY

Level
High
Low
Rolling
Rocky
Swampy
Wooded
Landscaped

IMPROVEMENTS

Water
Sanitary Sewer
Storm Sewer
Electric
Gas
Curb & Gutter
Bitum. Surfacing
Concrete Paving
Dirt Street
Sidewalk

LAND COMPUTATIONS

Depth	Depth Factor	Front Ft	Equiv. Ft	Unit Rate	Base Value

Total Land

Total Improvements

Total Land & Improvements

ASSESSMENT SUMMARY

Year	Reason for Asmt Change	Land	Building	Total	Brd of Review or Tax Comm.	Year	Reason for Asmt Change	Land	Buildings	Total	Brd of Review or Tax Comm.

Figure 55.--Property Assessment Record Card City of Ann Arbor, Michigan

1. OCCUPANCY
Single Family
Family Duplex
Family Flat
Family Conversion
Rooming House
Apts. 1 Rm 2 Rm
3 Rm 4 Rm 5 Rm

2. EXT WALLS
Wood Siding
Alum Siding
Wood Shingles
Comp Shingles
Br Ven Fc Com
Br Fc Com
Brickcrete
Stone Veneer
Stone
Artificial Stone
Conc Cin Blk
Stucco Blk Frm.
Stucco Brick

3. ROOFING
Asphalt Shing
Asbestos Shing
Wood Shingles
Roll
Tar & Gravel
Slate
Tile
Metal

4 INSULATION
Roof or Ceiling
Walls

5. FDN. & BSMT.
Piers
Poured Concrete
Conc or Cin Blk
Brick or Stone
None
Part
Full
C.C. Joists

6. BSMT. FIN.
Fl. S.F
Clg. S.F
Walls L.F

7. HEATING
None
Pipeless
Hot Air
Floor Furnace
Wall Furnace
Forced Air
Steam
Hot Water-Vapor
Radiant
Electric
Auto Burner
Air Cond Tons

8. ATTIC FIN.
Attic Fl. & Stairs
Fin Area %
Dormers

9. INTERIOR FINISH
B 1 2 3 A
Plastered
Drywall
Paneled
Trim Pine Hardwood
Acoustical
Unfinished

10. FLOORING
B 1 2 3 A
Earth
Cement
Pine
Hardwood
Plywood & Carpeting
Asphalt Tile Vinyl
Slate Brick V. Asb.

11 PLUMBING
B 1 2 3 A
Bath
Tile Floor
Tile Wains
Tile Tub only
2 Pc Lav.
Tile Floor
Tile Wains
Tile Stall Shw
Extra Wash Bowl
Extra Stool
No Plumbing

12. FIREPLACES
B 1 2 3 A
Single
Double

13. ROOMS
B 1 2 3 A
Kitchen
Living
Dining
L & D Comb
Family
Den or Study
Bedroom
Dressing
Laundry
Recreation
Sitting

14. BUILT-INS
Disposal
Dishwasher
Oven & Range
C & R w Broiler
Refrigerator
Tile Wains Kitch
Intercomm
Attic Fan
Incinerator
Kitch Fan-Hood

15. DEPRECIATION
Economic
Overbuilt
Location
Functional
Multi-Story
Int. Layout
Structural Obs
Physical
Yr. built
Yr. remod.

16. ☐GAR. ☐CARPORT
Attached Unfin. Int.
Detached Fin. Int.
Walls Fr Br Blk
Roof Comp T&G
Floor Conc Asph Dirt
Doors OH SW
Year Built BSMT Car
Size

16A.

17. REMODELING DATA
Kitchen
Plumbing
Heating

STY HT.					
BASE					
BSMT.					
FINISH					
HEATING					
MULT. FAM.					
TOTAL					
FACTOR %					
UNIT COST					

S.BR. L.F. =
S.BR. L.F. =

TYPE OF BUILDING	CLASS	YEAR BUILT	SQ FT AREA	UNIT COST	REPRODUCTION VALUE	DEPRC	DEPRECIATED VALUE	ECON. FACTOR	SOUND VALUE

Measured by:	Listed by:	Date Listed	Person Interviewed	Checked by:	Date Checked

Figure 55.--(Cont'd)

Tract:	Block:	Lot:	Year:	Zoning:			
Assessor's No:		Address:					
Stories:	Lot Size:		Construction:				
Tenure of Occup.:		Garage:	Bldg. Class:				
Development History	1940	1944	1948	1952	1956	1960	1964
Improvements:							
Bldg. Area:							
Assessed Val.:							

Figure 56.--Assessment Data Form

APPENDIX C

20

A RECORD OF SANITATION AND

BUILDING CODE VIOLATIONS

FOR SUB-AREAS EXAMINED

WITHIN THE STUDY

The following list of code violations were taken e premise files of the Ann Arbor City Health Officer. clude all violations of Building and Sanitation ces occurring within the sub-areas that have happened 948. Violations for each building are given below.

a Number 1, Ann Arbor (Deteriorated)

Address: 308 North Spring Street
Description: 2-Story, woodframe with basement
Tenancy: Single-family with 3 rented rooms

Violations noted March 12, 1960

1. Litter strewn about backyard
2. Broken windows and torn screens have to be replaced
3. Heating system has to be replaced
4. Electrical wiring has to be brought up to code requirements

Address: 431 North Spring Street
Description: 2-Story, woodframe with basement
Tenancy: Single-family with 4 rented rooms

Violations noted February 6, 1956

1. Electrical wiring must be brought up to code requirements
2. Water pressure inadequate
3. Holes in ceiling have to be repaired

Address: 429 Spring Street
Description: 1-Story, woodframe without basement
Tenancy: Single-family

Violations noted August 15, 1961

1. Bathroom has to be replaced
2. Chimney needs repainting
3. Electrical wiring must be brought up to code requirements

Address: 448 North Spring Street
Description: 1-Story, woodframe without basement
Tenancy: Single-family

Violations noted November 25, 1962

1. Litter in front yard

Address: 612 North Spring Street
Description: 2-Story, woodframe with basement
Tenancy: Single-family

Violations noted July 11, 1959

1. Electrical wiring must be brought up to code requirements
2. Plumbing must be brought up to code requirements
3. Floor in front room has to be replaced

Address: 625 North Spring Street
Description: 2-Story, woodframe with basement
Tenancy: Single-family with 2 rented rooms

Violations noted August 17, 1959

1. Electrical wiring must be brought up to code requirements
2. Combustibles in cellar

Address: 626 North Spring Street
Description: 2-Story, woodframe with basement
Tenancy: Single-family

Violations noted August 17, 1961

1. Combustibles in cellar
2. Electrical wiring must be brought up to code requirements

Address: 705 North Spring Street
Description: 1-Story, woodframe without basement
Tenancy: Single-family

Violation noted April 11, 1960

1. Rubbish in backyard

Address: 115 North First Street
Description: 3-Story, woodframe with basement
Tenancy: Single-family with 4 rented rooms

Violations noted December 4, 1953

1. No fire escape for 3rd story rented rooms and one apartment
2. Only one bathroom (2 are needed)
3. Insufficient window space for 3 bedrooms
4. One rented room has no heat
5. Cellar apartment is illegal and must be vacated

Address: 119 North First Street
Description: 2-Story, woodframe with basement
Tenancy: Single-family

Violations noted October 3, 1960

1. Electrical wiring must be brought up to code requirements
2. Plumbing must be brought up to code requirements
3. Floor joints for first floor have to be replaced

Address: 214 North First Street
Description: 1-Story, woodframe with basement
Tenancy: Single-family

Violations noted April 14, 1960

1. Chimney must be cleaned out in basement
2. Rubbish must be picked up in backyard

Address: 217 North First Street
Description: 1-Story, woodframe with basement
Tenancy: Single-family

Violations noted June 21, 1960

1. Front porch has to be replaced
2. Foundation has to be replaced
3. Electrical wiring must be brought up to code requirements

4. Plumbing must be brought up to code requirements
5. Chimney has to be replaced

Address: 219 North First Street
Description: 2-Story, woodframe with basement
Tenancy: Single-family with 2 rented rooms

Violations noted June 22, 1960

1. Replace flooring on second floor
2. Electrical wiring must be brought up to code requirements
3. Plumbing must be brought up to code requirements

Address: 221 North First Street
Description: 1-Story, woodframe with basement
Tenancy: Single-family

Violations noted June 20, 1960

1. Front porch has to be replaced
2. Rubbish has to be picked up

Address: 412 Fountain Street
Description: 2-Story, woodframe with basement
Tenancy: Single-family with 2 rented rooms

Violations noted November 7, 1957

1. Electrical wiring must be brought up to code requirements
2. Plumbing must be brought up to code requirements
3. Fire escape has to be installed on second floor

Address: 507 Fountain Street
Description: 2-Story, woodframe with basement
Tenancy: Single-family

Violation noted July 21, 1954

1. Rubbish must be picked up in front yard

Address: 603 Fountain Street
Description: 2-Story, woodframe with basement
Tenancy: Single-family

Violation noted April 15, 1958

1. Garbage in backyard

Address: 605 Fountain Street
Description: 1-Story, brick with basement
Tenancy: Single-family

Violation noted November 18, 1961

1. Plumbing must be brought up to code requirements

Address: 610 Fountain Street
Description: 2-Story, woodframe with basement
Tenancy: Single-family

Violation noted March 18, 1963

1. Rubbish and garbage in front yard

Address: 614 Fountain Street
Description: 2-Story, woodframe with basement
Tenancy: Single-family

Violations noted February 26, 1958

1. Garbage in backyard
2. Rats in backyard

Address: 743 Fountain Street
Description: 2-Story, woodframe with basement
Tenancy: Single-family

Violations noted November 18, 1964

1. Electrical wiring must be brought up to code requirements
2. Plumbing must be brought up to code requirements
3. Remove latch from old refrigerator in backyard

Address: 753 Fountain Street
Description: 2-Story, woodframe with basement
Tenancy: Single-family

Violations noted August 26, 1960

1. Electrical wiring must be brought up to code requirements
2. Plumbing must be brought up to code requirements
3. Replace cap on chimney

Address: 1318 Fountain Street
Description: 1-Story, woodframe with basement
Tenancy: Single-family

Violation noted January 27, 1952

1. Septic tank overflowing and smelling

Address: 503 Cherry Street
Description: 2-Story, woodframe with basement
Tenancy: Single-family

Violation noted February 11, 1963

1. Rubbish in backyard

Address: 524 Cherry Street
Description: 1-Story, brick with basement
Tenancy: Single-family

Violation noted February 15, 1962

1. Rubbish in rear yard

Address: 417 Miller Street
Description: 2-Story, woodframe with basement
Tenancy: Single-family with one apartment

Violations noted March 9, 1962

1. Electrical wiring must be brought up to code requirements
2. Additional bathroom is needed for apartment
3. Plumbing must be brought up to code requirements

a Number 2, Ann Arbor (Transitional)

Address: 520 North Miner Street
Description: 1-Story, woodframe with basement
Tenancy: Single-family

Violation noted January 4, 1957

1. Hazardous fuse box--must be brought up to code requirements

Address: 615 North Miner Street
Description: 2-Story, woodframe with basement
Tenancy: Single-family

Violations noted December 29, 1964

1. Plumbing must be brought up to code requirements
2. Leaky return line to hot water boiler

Address: 803 North Miner Street
Description: 1-Story, brick without basement
Tenancy: Single-family

Violation noted July 22, 1957

1. Complaint--dog pen has strong smell, odor nuisance

Address: 702 Brooks Street
Description: 1-Story, woodframe with basement
Tenancy: Single-family

Violation noted August 11, 1957

1. Garbage in backyard

Address: 800 Brooks Street
Description: 2-Story, woodframe with basement
Tenancy: Single-family

Violation noted June 29, 1962

1. Rubbish in both front and rear yards

Address: 111 Felch Street
Description: 2-Story, woodframe with basement
Tenancy: Single-family with 2 rented rooms

Violations noted May 31, 1957

1. Electrical wiring is overloaded--must be brought up to code requirements
2. Fire door is required on boiler (furnace) room

Address: 114 Felch Street
Description: 2-Story, woodframe with basement
Tenancy: Single-family with 2 studio apartments

Violations noted July 12, 1950

1. Electrical wiring must be brought up to code requirements
2. Separate bathroom is needed for each apartment
3. Underside of central stairway must be fire proofed

Address: 703 Felch Street
Description: 2-Story, woodframe with basement
Tenancy: Single-family

Violation noted January 4, 1956

1. Toilet must have outside ventilation

Address: 508 Felch Street
Description: 1-Story, brick without basement
Tenancy: Single-family

Violation noted September 12, 1961

1. Garbage and filth in rear yard must be removed

Address: 301 Hiscook Street
Description: 2-Story, woodframe without basement
Tenancy: Single-family

Violations noted August 18, 1954

1. Foundation is rotten and must be replaced
2. Rear porch must be replaced
3. Roof rafters have to be replaced
4. Chimney must be repointed

Address: 302 Hiscook Street
Description: 2-Story, woodframe with basement
Tenancy: Single-family

Violation noted March 17, 1964

1. Garbage scattered in rear and side yards

Address: 510 Hiscook Street
Description: 1-Story, woodframe with basement
Tenancy: Single-family and 1 studio apartment

Violations noted July 26, 1961

1. Electrical wiring must be brought up to code requirements
2. Plumbing must be brought up to code requirements
3. Fire escape must be provided for apartment

Address: 626 Hiscook Street
Description: 1-Story, woodframe without basement
Tenancy: Single-family

Violation noted February 7, 1964

1. Garbage in both front and rear yards

a Number 3, Ann Arbor (Transitional)

Address: 119 Mosley Street
Description: 1-Story, brick without basement
Tenancy: Single-family

Violation noted June 26, 1962

1. Litter and rubbish in rear yard

Address: 424 West Madison Street
Description: 2-Story, woodframe with basement
Tenancy: Single-family

Violation noted July 7, 1964

1. Kitty litter box behind garage is causing offensive olor. Must be removed

Address: 515 West Madison Street
Description: 1-Story, woodframe without basement
Tenancy: Single-family

Violation noted June 14, 1956

1. Odor from dog kennel in rear yard is obnoxious and must be taken care of

Address: 116 West Jefferson Street
Description: 2-Story, woodframe with basement
Tenancy: Single-family

Violation noted May 8, 1964

1. Unsanitary condition in rear yard must be cleaned up--junk, foul smells, etc.

Address: 308 West Madison Street
Description: 2-Story, woodframe with basement
Tenancy: Single-family

Violations noted April 3, 1959

1. Electrical wiring must be brought up to code requirements
2. Plumbing must be brought up to code requirements

Address: 207 West Jefferson Street
Description: 2-Story, woodframe with basement
Tenancy: Single-family

Violations noted February 4, 1957

1. Electrical wiring must be brought up to code requirements
2. Plumbing must be brought up to code requirements

Address: 411 West Jefferson Street
Description: 2-Story, woodframe with basement
Tenancy: Single-family with studio apartment

Violations noted June 24, 1962

1. Plumbing must be brought up to code requirements
2. Water pressure is insufficient

Address: 615 West Jefferson Street
Description: 1-Story, brick with basement
Tenancy: Single-family

Violations noted June 23, 1962

1. Heating system is in dangerous condition and must be brought up to code requirements
2. Chimney must be repointed

Address: 410 South First Street
Description: 1-Story, woodframe with basement
Tenancy: Single-family

Violation noted June 20, 1962

1. Rubbish in rear yard must be removed

Address: 453 South First Street
Description: 2-Story, woodframe with basement
Tenancy: Single-family

Violations noted September 23, 1959

1. Electrical wiring must be brought up to code requirements
2. Plumbing must be brought up to code requirements
3. Trash in rear yard must be removed

Address: 454 South First Street
Description: 2-Story, woodframe with basement
Tenancy: Single-family with 2 rented rooms

Violations noted November 5, 1956

1. Plumbing must be brought up to code requirements
2. Water closet in upstairs bathroom must be replaced

Address: 502 South First Street
Description: 2-Story, woodframe with basement
Tenancy: Single-family

Violations noted August 27, 1959

1. Electrical wiring must be brought up to code requirements
2. Plumbing must be brought up to code requirements

Address: 520 South First Street
Description: 1-Story, woodframe with basement
Tenancy: Single-family

Violation noted September 21, 1949

1. Electrical wiring in dangerous condition

Address: 531 South First Street
Description: 1-Story, woodframe with basement
Tenancy: Single-family

Violation noted June 6, 1950

1. Plumbing must be brought up to code requirements

Address: 532 South First Street
Description: 2-Story, woodframe with basement
Tenancy: Single-family (unoccupied)

Violation noted July 7, 1963

1. Deadly night shade growing in rear yard

Address: 539 South First Street
Description: 2-Story, woodframe with basement
Tenancy: Single-family with 2 apartments

Violations noted June 12, 1959

1. Electrical wiring must be brought up to code requirements
2. Plumbing must be brought up to code requirements
3. Central staircase must be fire proofed on underside

Address: 549 South First Street
Description: 2-Story, woodframe with basement
Tenancy: Single-family with 3 rented rooms

Violations noted September 21, 1958

1. Electrical wiring must be brought up to code requirements
2. Combustibles must be removed from basement

Address: 553 South First Street
Description: 1-Story, woodframe with no basement
Tenancy: Single-family

Violations noted August 1, 1953

1. Heating system must be replaced
2. Electrical wiring must be brought up to code requirements
3. Plumbing must be brought up to code requirements

Address: 560 South First Street
Description: 1-Story, woodframe with basement
Tenancy: Single-family with 1 apartment

Violation noted March 2, 1953

1. Cellar apartment is illegal and must be vacated

Address: 502 South Second Street
Description: 2-Story, woodframe with basement
Tenancy: Single-family with 2 rented rooms

Violations noted September 21, 1959

1. Electrical wiring must be brought up to code requirements
2. Plumbing must be brought up to code requirements
3. Heating system is inadequate

Address: 508 South Second Street
Description: 2-Story, woodframe with basement
Tenancy: Single-family with 2 rented rooms

Violations noted September 21, 1959

1. Electrical wiring (fuse box) is unsafe
2. Plumbing must be brought up to code requirements

Address: 524 South Second Street
Description: 2-Story, brick with basement
Tenancy: Single-family with 1 rented room

Violations noted September 28, 1959

1. Closet under central staircase must be removed
2. Plumbing must be brought up to code requirements

a Number 4, Ann Arbor Renewal Area

Address: 401 North Fourth Avenue
Description: 2-Story, woodframe with basement
Tenancy: Single-family with rented rooms

Violations noted August 14, 1950

1. No fire escape for upstairs rented rooms
2. Dangerous holes in first floor
3. Insufficient number of refuse cans

Violations noted October 3, 1954

1. Gas pipe in fireplace needs safety valve
2. House needs new eaves

Violations noted August 28, 1962

1. First floor needs to be repaired
2. Broken windows in two second story bedrooms
3. Combustibles stored in basement
4. Basement infested with roaches

Address: 409 North Fourth Avenue
Description: 2-Story, woodframe with basement
Tenancy: Single-family with 2 studio apartments

Violations noted June 12, 1952

1. Studio apartment in cellar (basement rooms without windows--cellars--cannot be rented)
2. Chimney needs to be pointed

Address: 411 North Fourth Avenue
Description: 2-Story, woodframe with basement
Tenancy: Single-family

Violation noted June 20, 1963

1. Dangerous retaining wall in rear of property presents an attractive hazard to small children (needs safety railing)

Address: 415 North Fourth Avenue
Description: 1-Story, woodframe with basement
Tenancy: Single-family

Violation noted June 8, 1952

1. Dilapidated garage in rear of property is unsafe and has to be torn down

Address: 420 North Fourth Avenue
Description: 3-Story, brick veneer with basement
Tenancy: Single-family with 1 apartment and 3 rented rooms

Violations noted April 10, 1956

1. No handrail on stairs leading to upstairs apartment
2. Plumbing, heating, and electrical wiring in need of repair and has to be brought up to code requirements
3. Closet under stairs leading to upstairs rented rooms (not allowed in houses with rented rooms)

Violations noted September 2, 1961

1. Plumbing in first floor bathroom in need of repair and has to be brought up to code requirements
2. Combustibles in cellar have to be removed

Address: 423 North Fourth Avenue
Description: 2-Story, woodframe with basement
Tenancy: Single-family with 3 rented rooms

Violations noted February 8, 1954

1. Excessive garbage, filth on premises
2. Front porch in need of major repair
3. Plumbing on second floor in need of repair and has to be brought up to code requirements
4. Wiring throughout entire house has to be repaired and brought up to code requirements
5. Combustibles in cellar have to be removed

Violations noted August 21, 1958

1. Plumbing on second floor in need of repair and has to be brought up to code requirements
2. Upstairs rented rooms have to have outside fire escape

Address: 502 North Fourth Avenue
Description: 1-Story, brick with basement
Tenancy: Single-family with studio apartment

Violations noted July 9, 1948

1. Floor joists rotten and have to be replaced
2. Electrical wiring in need of repair and has to be brought up to code requirements

Address: 611 North Fourth Avenue
Description: 2-Story, woodframe with basement
Tenancy: Single-family

Violations noted Janaury 23, 1953

1. Plumbing in kitchen and bathroom need to be repaired and brought up to code requirements
2. Electrical wiring in dangerous condition and has to be brought up to code requirements

Address: 617 North Fourth Avenue
Description: 3-Story, woodframe with basement
Tenancy: Single-family with 2 studio apartments

Violations noted March 16, 1957

1. First floor apartment needs separate bathroom
2. Back stairs have to be replaced

Violations noted June, 1960

1. Chimney has to be repaired
2. Combustibles have to be removed from basement

Address: 621 North Fourth Avenue
Description: 1-Story, woodframe with basement
Tenancy: Single-family

Violations noted October 10, 1956

1. First floor sags and is in poor structural condition--needs new joists
2. South side of garage has to be replaced or the entire building must be razed
3. Combustibles must be removed from cellar
4. Litter in backyard

Address: 652 North Fourth Avenue
Description: 2-Story, brick with basement
Tenancy: Single-family with 2 studio apartments

Violations noted February 5, 1958

1. Trash in backyard
2. Rats in house
3. Refrigerator in backyard has to be removed or have latch taken off

Violations noted July 27, 1960

1. Heating system has to be brought up to code requirements
2. Plumbing system has to be brought up to code requirements
3. Kitchen floor has to be replaced
4. Broken windows and torn screens have to be repaired or replaced
5. Chimney is in dangerous condition and has to be repaired
6. House needs new eave troughs
7. Cellar apartment has to be abandoned (illegal)

Address: 701 North Fourth Avenue
Description: 2-Story, woodframe with basement
Tenancy: Single-family with 4 rented rooms

Violations noted June 12, 1955

1. Upstairs rented rooms need separate bathroom
2. Upstairs rented rooms need separate fire escape
3. Electrical wiring must be brought up to code requirements

Address: 708 North Fourth Avenue
Description: 2-Story, woodframe with basement
Tenancy: Single-family with 1 apartment

Violations noted February 10, 1951

1. Large accumulation of trash in backyard has to be removed
2. House needs new eaves
3. First floor flooring has to be replaced
4. Apartment needs separate bathroom

Violations noted January 22, 1952

1. Large holes in outside walls have to be replaced
2. One upstairs bedroom needs a larger window

Address: 711 North Fourth Avenue
Description: 1-Story, woodframe without basement
Tenancy: Single-family

Violation noted September 20, 1950

1. Building is in extremely poor condition and must be razed. It is not fit for habitation

Address: 718 North Street
Description: 2-Story, woodframe with basement
Tenancy: Single-family with 3 rented rooms

Violations noted July 6, 1960

1. Electrical wiring must be brought up to code requirements (fuse box and circuits overloaded
2. Holes in plaster in upstairs ceiling
3. Fireproof second story stairway
4. Building is infested with rodents
5. Backyard is filled with trash

Address: 105 East Summit Avenue
Description: 3-Story, woodframe with basement
Tenancy: Single-family with 1 studio apartment

Violations noted February 20, 1959

1. Split in main floor beam in third story. Beam has to be replaced
2. Wiring has to be brought up to code requirements

Address: 112 East Summit Avenue
Description: 1-Story, woodframe with basement
Tenancy: Single-family

Violations noted January 9, 1963

1. Plumbing below code and must be repaired
2. Trash in rear yard has to be removed

Address: 127 East Summit Avenue
Description: 1-Story, brick with basement
Tenancy: Single-family

Violations noted March 25, 1961

1. Plumbing is below code and must be brought up to city standards
2. Electrical wiring has to be brought up to code requirements

Address: 212 East Summit Avenue
Description: 2-Story, woodframe with basement
Tenancy: Single-family

Violations noted September 10, 1957

1. Junk in backyard has to be removed
2. Backyard is infested with rodents

Address: 306 East Summit Avenue
Description: 2-Story, woodframe with basement
Tenancy: Single-family with 1 apartment

Violations noted August 6, 1959

1. Bathroom to rented apartment needs separate entrance
2. Electrical wiring has to be brought up to code requirements
3. Trash in backyard has to be removed

Address: 117 West Summit Avenue
Description: 1-Story, woodframe with basement
Tenancy: Single-family

Violations noted May 10, 1952

1. Trash in backyard has to be removed
2. Backyard is infested with rodents

Address: 114 West Summit Avenue
Description: 2-Story, woodframe with basement
Tenancy: Single-family with 2 apartments

Violations noted May 10, 1960

1. Accessory building in rear of property in dangerous structural condition and should be razed
2. Rear apartment illegal--no bath, kitchen or separate entrance
3. Front and rear porch have to be replaced
4. Plumbing below code and must be repaired
5. Electrical wiring must be brought up to code requirements
6. Garage unsafe and must be razed

Address: 401 North Main Street
Description: 1-Story, woodframe with basement
Tenancy: Single-family

Violations noted September 22, 1957

1. Abandoned junk car in rear of property has to be removed
2. Litter in backyard has to be picked up and removed from premises

Address: 402 North Main Street
Description: 2-Story, brick with basement
Tenancy: Single-family with 2 apartments

Violations noted February 14, 1952

1. Plumbing in whole house is below code
2. Bathroom in basement apartment needs outside window

Violation noted August 10, 1953

1. Combustibles in basement have to be removed

Address: 401 North Fourth Street
Description: 1-Story, brick with basement
Tenancy: Single-family

Violations noted November 22, 1955

1. Storm windows are needed for many windows
2. Litter in backyard has to be removed

Address: 407 North Main Street
Description: 2-Story, woodframe with basement
Tenancy: Single-family

Violations noted March 3, 1956

1. Bathroom does not have outside window or any ventilation system
2. Electrical wiring has to be brought up to code requirements
3. Holes in plaster have to be repaired

Violations noted June 10, 1960

1. Broken windows have to be replaced
2. Front porch has to be replaced
3. Litter in front yard has to be picked up and removed from premises

Address: 501 North Main Street
Description: 2-Story, woodframe with basement
Tenancy: Single-family with 5 rented rooms

Violations noted October 6, 1950

1. Electrical wiring has to be brought up to code requirements
2. Plumbing has to be brought up to code requirements

3. Self-closing firedoor must be installed at end of stairwell
4. Fire escape is needed for second story rented rooms

Violations noted September 3, 1952

1. Complete bathroom is needed for second floor rental units

Address: 515 North Main Street
Description: 2-Story, woodframe with basement
Tenancy: Single-family with 1 apartment

Violations noted January 11, 1959

1. Electrical wiring has to be brought up to code requirements
2. Fan is needed for apartment in basement
3. Bathroom for basement apartment needs outside window

Address: 533 North Main Street
Description: 2-Story, woodframe with basement
Tenancy: Single-family

Violations noted April 4, 1951

1. Electrical wiring is below code requirements
2. Front porch has to be replaced

Address: 532 North Main Street
Description: 2-Story, brick with basement
Tenancy: Single-family with 1 apartment

Violations noted March 11, 1951

1. Apartment has to have complete separate bathroom
2. Kitchen sink has to be replaced

Address: 537 North Main Street
Description: 2-Story, woodframe with basement
Tenancy: Single-family with 2 rented rooms

Violations noted August 10, 1960

1. Chimney has to be repointed
2. Interior walls have to be replastered
3. Closet under front stairs has to be removed
4. Plumbing has to be brought up to code requirements
5. Extra trash cans have to be provided
6. Combustibles have to be removed from cellar

Address: 603 North Main Street
Description: 2-Story, woodframe with basement
Tenancy: Single-family with 3 rented rooms

Violations noted June 3, 1955

1. Electrical wiring has to be brought up to code requirements
2. Combustibles have to be removed from cellar
3. Litter has to be removed from backyard
4. Kitchen sink has to be replaced

Address: 604 North Main Street
Description: 2-Story, woodframe with basement
Tenancy: Single-family

Violations noted June 10, 1960

1. Garbage in backyard
2. Infestation of rodents
3. Building in unsafe condition and unsanitary

Address: 608 North Main Street
Description: 2-Story, woodframe with basement
Tenancy: Single-family with 1 rented room

Violations noted June, 1960

1. No heat, lights, or water (building not suited for habitation)
2. Litter strewn about premises

Address: 612 North Main Street
Description: 1-Story, woodframe without basement
Tenancy: Single-family

Violation noted April, 1964

1. Kitty litter heaped by garbage cans--odor

Address: 618 North Main Street
Description: 2-Story, woodframe with basement
Tenancy: Single-family

Violations noted August, 1960

1. Plumbing below code requirements
2. Wiring below code requirements

Address: 622 North Main Street
Description: 2-Story, woodframe with basement
Tenancy: Single-family

Violation noted August, 1963

1. Litter in backyard

Address: 626 North Main Street
Description: 2-Story, woodframe with basement
Tenancy: Single-family with 1 rented room

Violations noted October, 1963

1. Infestation with rodents
2. Litter in front yard

Address: 706 North Main Street
Description: 2-Story, woodframe with basement
Tenancy: Single-family

Violation noted November, 1959

1. Building condemned for occupancy, unsafe

Address: 707 North Main Street
Description: 2-Story, brick with basement
Tenancy: Single-family

Violations noted March 15, 1960

1. Plumbing not insulated according to building code
2. Wiring unsafe

Address: 708 North Main Street
Description: 2-Story, woodframe with basement
Tenancy: Single-family with studio apartment

Violations noted February, 1952

1. Combustibles in cellar
2. Electrical wiring not installed according to building code

Address: 711 North Main Street
Description: 2-Story, woodframe with basement
Tenancy: Single-family with 1 rented room

Violations noted August, 1956

1. Rented room not suitable for rent--no outside window
2. Wiring installed below building code
3. Plumbing installed below building code

Address: 712 North Main Street
Description: 2-Story, woodframe with basement
Tenancy: Single-family with studio apartment

Violations noted August, 1950

1. Electrical wiring installed below code
2. Front porch steps need replacing
3. Combustibles stored in cellar

Address: 717 North Main Street
Description: 2-Story, woodframe with basement
Tenancy: Single-family

Violation noted September 5, 1960

1. Gas space heater needs safety valve

Address: 718 North Main Street
Description: Woodframe garage
Tenancy: Single-family

Violation noted June, 1950

1. Structure not suitable for habitation

Address: 800 North Main Street
Description: 2-Story, woodframe with basement
Tenancy: Single-family

Violation noted March 17, 1954

1. Rubbish in front yard

Address: 448 North Fifth Avenue
Description: 1-Story, woodframe with basement
Tenancy: Single-family

Violations noted August 18, 1959

1. Plumbing must be brought up to code requirements
2. Electrical wiring must be brought up to code requirements

Address: 602 North Fifth Avenue
Description: 2-Story, woodframe with basement
Tenancy: Single-family with 1 apartment

Violation noted February 17, 1960

1. House contains a cellar apartment--illegal housing unit (apartment must be vacated)

Address: 306 North Fifth Avenue
Description: 2-Story, w-odframe with basement
Tenancy: Single-family with 4 rented rooms

Violations noted September 3, 1958

1. Kitchen sink needs to be replaced
2. Rented rooms require a separate toilet
3. Fire escape needed for upstairs rented rooms

Address: 310 North Fifth Avenue
Description: 2-Story, woodframe
Tenancy: Single-family

Violation noted August 10, 1952

1. Trash and litter in front yard

Address: 448 North Fifth Avenue
Description: 2-Story, woodframe with basement
Tenancy: Single-family

Violation noted January 10, 1955

1. Plumbing must be brought up to code requirements

Address: 501 North Fifth Avenue
Description: 2-Story, woodframe with basement
Tenancy: Single-family with 1 apartment

Violations noted May 21, 1960

1. Combustibles in cellar
2. Electrical wiring installed below code requirements
3. Closet under front stairs

Address: 502 North Fifth Avenue
Description: 2-1/2-Story, brick with basement
Tenancy: Single-family

Violations noted June 12, 1951

1. Bedroom less than 300 cubic feet in volume
2. Downstairs floor must be replaced (unsafe)
3. Plumbing installed below code requirements

Address: 505 North Fifth Avenue
Description: 1-Story, woodframe without basement
Tenancy: Single-family

Violation noted June 10, 1962

1. Trash in backyard

Address: 508 North Fifth Avenue
Description: 2-Story, woodframe with basement
Tenancy: Single-family

Violations noted June 10, 1953

1. Chimney is unsafe and must be repointed
2. Plumbing must be brought up to code requirements
3. Electrical wiring must be brought up to code requirements

Address: 512 North Fifth Avenue
Description: 2-Story, woodframe with basement
Tenancy: Single-family with 3 rented rooms

Violations noted July 19, 1960

1. Kitchen has to be replastered
2. Electrical wiring must be brought up to code requirements
3. Plumbing must be brought up to code requirements
4. Dwelling has to have new eave troughs
5. Interior walls have to be repaired
6. Chimney must be repointed

Address: 515 North Fifth Avenue
Description: 2-Story, woodframe with basement
Tenancy: Single-family with 1 apartment

Violations noted February 10, 1960

1. Dwelling needs front porch replaced
2. Kitchen floor in apartment must be replaced
3. Electrical wiring must be brought up to code requirements
4. Plumbing must be brought up to code requirements

Violation noted August 3, 1954

1. Garage is unsafe and has to be razed

Address: 520 North Fifth Avenue
Description: 2-Story, woodframe with basement
Tenancy: Single-family with 1 apartment and 1 rented room

Violations noted April 12, 1957

1. Electrical wiring must be brought up to code requirements
2. Plumbing must be brought up to code requirements
3. Closet under central stairway

Address: 527 North Fifth Avenue
Description: 2-Story, brick with basement
Tenancy: Single-family

Violations noted September 19, 1960

1. Foundation has to be replaced
2. Water pressure is inadequate
3. Shed in rear of property must be razed
4. Chimney has to be repointed
5. Electrical wiring must be brought up to code requirements

Address: 601 North Fifth Avenue
Description: 1-Story, woodframe with basement
Tenancy: Single-family

Violation noted April 2, 1964

1. Trash in rear yard has to be removed

Address: 605 North Fifth Avenue
Description: 1-Story, woodframe without basement
Tenancy: Single-family

Violation noted April 12, 1964

1. Trash in backyard

Address: 613 North Fifth Avenue
Description: 1-Story, woodframe without basement
Tenancy: Single-family

Violations noted December 21, 1964

1. Front and rear porches must be replaced
2. Electrical wiring must be brought up to code requirements

Address: 615 North Fifth Avenue
Description: 2-Story, brick with basement
Tenancy: Single-family

Violations noted August 19, 1960

1. Electrical wiring must be brought up to code requirements
2. Plumbing must be brought up to code requirements
3. Dwelling needs new floors throughout
4. Dwelling needs central heating system
5. Dwelling needs new eave troughs
6. New floor joists needed on first floor

Address: 620 North Fifth Avenue
Description: 1-1/2-Story, woodframe with basement
Tenancy: Single-family

Violations noted July 13, 1960

1. Electrical wiring must be brought up to code requirements
2. Plumbing must be brought up to code requirements

Address: 702 North Fifth Avenue
Description: 2-Story, woodframe with basement
Tenancy: Single-family with 1 apartment

Violations noted August 12, 1955

1. Wiring must be brought up to code requirements
2. Plumbing must be brought up to code requirements
3. Cellar apartment must be vacated--illegal

Address: 703 North Fifth Avenue
Description: 2-Story, woodframe with basement
Tenancy: Single-family with 1 apartment

Violations noted June 26, 1960

1. Attic apartment must be vacated--illegal
2. First floor sagging--must be replaced
3. Plumbing must be brought up to code requirements

Address: 708 North Fifth Avenue
Description: 1-Story, brick with basement
Tenancy: Single-family

Violation noted May 10, 1955

1. Refuse in backyard

Address: 724 North Fifth Avenue
Description: 2-Story, woodframe with basement
Tenancy: Single-family

Violations noted April 10, 1955

1. Garbage strewn about backyard
2. Electrical wiring below code requirements
3. Plumbing must be brought up to code requirements

Violation noted May 12, 1960

1. Premises are filthy

a Number 5, Ann Arbor (no deterioration)

Address: 615 Oswego Drive
Description: 3-Story, woodframe
Tenancy: Rooming house (Gamma Alpha Fraternity)

Violation noted November 13, 1954

1. Litter in rear yard

Address: 2200 Vinewood Road
Description: 2-Story, brick with basement
Tenancy: Single-family

Violation noted April 19, 1963

1. Tree blight (orange beetle) in rear yard

Address: 2101 Hill Street
Description: 3-Story, woodframe
Tenancy: Rooming house (Alpha Epsilon Phi Frat.)

Violation noted March 18, 1960

1. Beer cans in front yard

ea Number 6, Ann Arbor (no deterioration)

violations noted for this area.

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