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MULTI-VARIATE ANALYSIS OF NEIGHBORHOOD DESCRIPTORS: A HEURISTIC STUDY

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MULTI-VARIATE ANALYSIS OF NEIGHBORHOOD DESCRIPTORS: A HEURISTIC STUDY

By

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AN ABSTRACT OF A DISSERTATION

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ABSTRACT

MULTI-VARIATE ANALYSIS OF NEIGHBORHOOD DESCRIPTORS:

A HEURISTIC STUDY

The objective of this research is to determine how selected categories of data resources used in public planning relate to each other and how they interact in measurement of a broad range of community and neighborhood types. Based on a comparative study of seventy-four neighborhood blocks randomly selected from census tracts in the Detroit Metropolitan Area, the research analyzes the ways community attitude information, aggregate data from census reports and judgments of trained observers have been used in the past, and by use of cluster analysis techniques the study investigates the extent to which these measurement domains are inter-related.

The findings of this research indicate that use of multiple sources of data provides more comprehensive descriptors of neighborhood conditions than single sources of data and that multi-variate analysis can help to overcome many of the

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problems which have arisen out of incomplete research in the past. The study shows how exclusive reliance on single sources of data will give planners an incomplete and possibly biased picture of neighborhood conditions.

The relevant value of community attitude surveys, census data and observational reports is investigated with the result that census data--particularly in combination with other forms of aggregate data--are found most effective in providing dependable information about neighborhood types. Community attitude data are found moderately effective, and observational data are found to be least effective.

Extenuations and applications of this research to current data-gathering methods and to issues in public planning are presented in Chapter 4, "Implications of Research Findings." Part Two, combining a literature review, discussion of the development of the research design and forms developed in the course of the research, provides a recapitulation of the research methodology and documentation of the analytical apparatus employed in the field-tested exercise.

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CHAPTER 1

FORMULATION OF MULTI-VARIATE RESEARCH

RESEARCH OBJECTIVE AND PURPOSE

Every decision requires a fund of information which will enable decision makers to render valid judgments. The more complex the decision the more important the need for substantial and reliable information. As obvious as that fact may be, it is surprising how many individuals, and how many planning agencies, ignore the critical relationship between good decisions and good supportive documentation. Decisions which are not based on sound informational resources are little more than guesswork, and no responsible agency can afford to operate at that level.[1]

The objective and purpose of this research is to take a broad look at the various sources of information which are available to planners, to examine them empirically, then, by administration of a field-tested information gathering exercise and correlational computation, to examine these

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information sources in relation to their application to planning issues. Further, this study offers evaluations of the inter-relationships of information sources, noting areas in which they are mutually supportive as well as where they conflict. Some conclusions are then made concerning the application of particular factual resources to planning projects and the extenuations of these applications.

Since most items of information produced by planning research can be rendered numerically, statistical computations provide a convenient basis for the analytical investigation of data sources.[2] Through the application of statistical methods, and particularly through the comparative and predictive capacities of computer technology, vast amounts of information may be stored, retrieved and manipulated as "resource data". On the basis of these data, highly complex analytical and comparative procedures may be applied to validate findings. In the past agencies have used such methods for fiscal impact analyses which measure costs of public improvements against municipal taxation and, simultaneously, produce estimates of probable land use in each of several zone classifications. Regression analysis of transportation information and volume of traffic is another common procedure, as are prediction of growth or deterioration of neighborhoods based on physical social and economic patterns and the routine procedures of land use inventory, determination of land use capacity and population mapping of capital improvements.[3]

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However, the success or failure of agency decision making in the past can have no real bearing on the dramatic need for new and compatible research methodologies to cope with the growing complexity of contemporary planning issues. A liability of previous planning has been the tendency to rely on static information resources or to make do with available data when the actual planning situations have demanded the generation of specific issue-oriented information. In one highly publicized case, in Dallas, Texas, voters overturned a three-million dollar bond proposal for capital improvements when the public agency's research was shown to be incomplete and incorrect.[4] In this age of public involvement, consumers are quick to challenge policy makers and community leaders on the issues which affect their manner of living.[5] To prevent the waste of manpower, as well as the loss of public confidence, which will inevitably follow the overthrow of agency research, planners and public decision-makers must be more inventive than ever before in determining meaningful planning goals, evaluating planning alternatives, incorporating citizen input, and in validating planning proposals through timely and meaningful informational research.

RESEARCH METHODOLOGY

The field-tested method of planning research presented in this study was developed at Michigan State University by the author, with the advice and direction of members of the

planning and social sciences faculties. During the early stages of discussion, it was the conviction of this group that a practical application of information gathering techniques would help to clarify much of the theorizing which surrounds planning research and provide a substantial basis for discussion of planning methodology. Rather than to simply fabricate a framework of textual borrowings and truisms, this study could build an original evaluation of multi-variate research techniques by subjecting established field-administered methods to the test of actual usage. From a broad perspective of interview, data collection and observational methods, the fundamental and most independently distinguishable research operations were to be selected, adapted to actual use and then evaluated by a series of precise statistical measurement procedures. By reduction of data from multiple sources, through techniques such as cluster analysis, the problems of manipulating masses of data would be relieved.[6] By considering a small number of empirically defined cluster domains, the number of discreet variables could be reduced and those data issues with the greatest reliability, which emerged through cluster analysis, could be weighed against each other.[7] The end result of this research would be two-fold: 1) to determine the specific usefulness of each type of research, and 2) to determine the value of correlation of research methods and suggest

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possibilities for future application. In general, this has been the foundation of this methodology. To achieve these objectives, seventy-four neighborhood blocks of the Detroit Metropolitan Area chosen by a controlled method of random selection, were used as the test community. Issues which emerged from multi-variate analysis were labeled "neighborhood descriptors" and then correlated to determine strength and reliability, and finally to suggest potential areas of planning concern.

PLANNING RESOURCES

In order to arrive at the precise combination of fundamental research techniques, an extensive literature review was undertaken which also helped to uncover a number of planning concerns and to reveal the degree to which researchers are insecure in the selection of data sources. According to Holleb,

> There is little concensus about ways to incorporate into the planning process meaningful information about the residents of planning areas. Yet it is increasingly evident that the tastes and values of the people directly affected by physical planning proposals are critical components. Established guidelines are also lacking about the ways to anticipate the often unwanted secondary effects of physical development programs.[8]

Particularly notable, in most of the planning literature, are the concerns of planning and zoning organizations which must be responsible to their communities for a host of policy decisions.[9] Before authority for public projects can be granted, commissioners must ask themselves, How will the

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proposed project affect existing business? How will it affect residents? Will it enhance land values, or harm them? How will the development affect crowding, traffic flow, noise levels and other environmental factors? Who will profit? Who will suffer? How will changes affect the growth of the city and the region over the next twenty-five years? And to what extent shall zoning restrictions be imposed on the types of growth urban areas may undergo?[10]

To answer such questions agencies have employed dozens of methods, with varying degrees of success. One widespread practice is statistical modeling. By this process, figures relating to population, economy, zoning and commercial patterns are fed into formulae which attempt to elicit predictions of the probable effects of proposed regional changes.[11] Zellner and Evan have discussed the shortcomings of modeling in their works, suggesting that such models lack the vitality of real life situations and smell too strongly of the archives.[12] Yet, while modeling has been generally unsuccessful to date, the method holds some promise.

Some agencies operate on a more intuitive level, often deciding the future by "educated guess."[13] One planner notes,

> Urban information systems produce masses of data on our immense complex urban areas. Yet with equal regularity, planners by-pass the fact books and act on intuitive concepts of neighborhood types: suburbs, aging or transitional areas, the inner-essential city, ghettos, and so forth. Rather than showing the planners are perverse or

> lazy, this could show that old-fashioned residential typologies are useful in summarizing vast amounts of data about residential characteristics. Developing these common sense images into more precise classifications may help to provide data that planners can and will use.[14]

Another method which offers promise for increasing the basis of testable substance in planning research is the process of "factoring," a statistical method--and a forerunner of cluster analysis--which describes patterns of social and economic variation within communities.[15] By accumulation of widely diverse information, factoring can reveal characteristics of urban areas to the extent that particular neighborhoods can be logically defined and identified statistically. Within certain limitations, factoring allows direct comparison of districts within a city or region on any of several critical points. By studying maps of these factors, the analyst can assemble a statistical picture of the area in question and render more reliable predictions.

Over the years, public agencies have accumulated a variety of informational resources which are routinely available to researchers. To appreciate the scope of this information, it is helpful to examine the following lists of commonly stored programs compiled by the Public Administration Service in cooperation with the International City Managers Association.[16]

PLANNING

Land use data and analysis
Location and geographical indexing
Assessment and sales ratio analysis

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Area and percent of vacant land analysis
Land use by area and number of units
Land use by geographical location
Parking survey and analysis
Public properties by geographical location
Land use and zoning compliance analysis
Capital expenditures projections
Public services projections

POPULATION DATA

Income and employment class by geographic unit
Place of work and means of transit projections
Transportation facility projections
School area and facility projections
Population movement and turnover

TRANSPORTATION NEEDS STUDIES

Roads and streets inventory
Origin and destination studies
Highway, roads and streets planning
Mass transportation projections
Parking area projections
Vehicle registration correlation analysis
Service area projection

ECONOMIC AND EMPLOYMENT BASE INDICATORS

Industrial production by geographic area
Employment levels by type of work
Dwelling occupancy by geographic area
Personal income by geographic area
Labor force analysis and projections
Bank clearings and financial data by area
Income levels by household by area
Gross sales by lines of business by area
Indebtedness of overlapping jurisdictions by area
Common carrier and transportation statistics
Utility meter services
Governmental expenditures and contract analysis

Much of this type information is locally generated and represents broad, general categories of data. Other locally produced information relates to census-type data, such as the following:

POPULATION AND HOUSEHOLDS

A. Basic population characteristics
   Age, sex, national origin, marital status, employment status, % non-White (Negro), % non-White (other)
B. Educational attainment
C. Personal income (family and individual)
D. Households
   Type household, children, characteristics of head of household, percent of income spent on rent, tenure of household in dwelling unit, size of household, space needs of household
E. Migration, mobility and population change
   Size, intercity changes, intra-city changes, social mobility, components of population change

HOUSING, NEIGHBORHOOD, COMMUNITY

A. Housing or dwelling unit data
   Occupancy, vacancy, tenure (rent/own), condition, value (rental/payments), supply or stock, overcrowding, size and type, age
B. Environmental conditions, neighborhood facilities and organization
   Physical/environmental conditions, design factors, recreation facilities, cultural facilities, religious institutions, parks/playgrounds/tot-lots/etc., community organizations, community services. Proximity to various facilities and major traffic arteries, topography-geography, historical status

SPECIAL TOPICS

A. Social problems
   Crime, juvenile delinquency, police, welfare, health problems, infant mortality, school dropouts, suicide
B. Labor force
   Employment by industries, employment by occupations, unemployment
C. Minority groups
   As a cross-classification variable--Negroes, dwelling occupants other than Negro, restrictions in housing market to minority groups
D. Causes of blight
E. Code enforcement patterns and violations

F. Community patterns
G. Attitudinal data and social surveys
H. Schools and education

This broad sampling of types of data which may be developed by agencies suggests the wealth of resources which can be applied to planning problems; however, the fact remains that in the majority of planning situations researchers often base judgments on no more than one information source. It would be rare for the typical agency to employ even as many as three different sources of information in gathering data on a particular planning issue.[17] As an example, to evaluate the need of public recreation facilities in a particular area planners might research population density, land use and age of residents but ignore other factors such as social problems, cultural patterns, population mobility, income levels, educational attainments and public attitudes, all of which could have bearing on the potential success of the proposed facility. Obviously, the more information that can be brought to light in reference to a particular public issue, and the more exhaustive the comparison and analysis of the findings, the more likely the planning decisions rendered will be acceptable to the community. But more effective means of information usage and comparison are needed in order to encourage planners to make use of a broader base of data. It is not always possible to exhaust every souce of data, but methods by which normally available data can be incorporated into the research

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design must be developed in order to lift planning research above the level of intuitive guesswork which has hampered its effectiveness in the past.[18] The decision to employ census data, public records, opinion research, observational reports, or any other resource, will affect the results of the actual research. Possibly, each subsequent permutation, or combination, of sources will render functionally different results. Outside the range of empirical data, there are also psychological factors which color the issues; but the burden of the researcher is to determine which informational resources apply most directly to the issues at hand, to insure that the research tools which are selected are broad enough and capable of rendering accurate and objective findings, and to manage and manipulate the findings with scientific precision in order to clarify the issues and account for all applicable social, physical, environmental and economic considerations which will affect the ultimate decision of the planning agency.

RESEARCH CRITERIA

Many criteria have been suggested for setting up resource data. Scholars have suggested that data must be "internally consistent, logical, repetitive, capable of reproduction," and technologists prescribe that such information be "mathematically replicable and capable of statistical manipulation."[19] Fortunately for the sophistication of the statistical methodology,

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theoreticians of both pure and applied sciences have participated in the refinement of the analytical process. Cantanese writes,

> Problems of urban systems are near, if not past, a critical mass. With more and more attention being paid to these problems, it is natural to expect a call for new approaches to problem-solving within an increasingly technological society. The result has been an infusion of new methods of analysis, as well as modification and improvement of classical methods, from the scientific disciplines. Such fields of pure and applied science as mathematics, general systems research, decision theory, operations research, and comprehensive planning have lent their existing methods and developed new methods for urban analysis.[20]

Out of this inter-disciplinary concentration, the principles of measurement, which are essentially "rules for assigning numbers to objects to represent quantities of attributes," have been largely clarified. In his work on psychometric theory, Nunally states that "measures" must be rendered mathematically, be capable of quantification, be capable of communication and be capable of reduction within discreet combinations.[21] These principles specify further that measures should be capable of analytical manipulation so that deductive mathematical logic can be applied to the computations. This process, defined by "inferential statistics," concerns probability statements and the relationship of observable sample values to population parameters. Since the field itself is peripheral to this study, no further elaboration will be undertaken here. However, the principles of measurement theory

and the procedures of statistical analysis have been observed in this study with particular emphasis on computer manipulation of raw data and the correlation of findings from each of the selected information resource areas.

SELECTION OF DATA SOURCES

In narrowing the universe of informational resources for this study, it was determined that the majority of the research methods employed by planning agencies, as well as all of the categories of information found in the tables of commonly stored programs, could be grouped under three distinct subject headings. They are 1) issues related to population and public attitudes, 2) social and economic data, and 3) data concerning buildings, public facilities, upkeep, deterioration, appearance, environment and uniformity. The first, covering population and public attitudes, is best measured in planning practice by development of opinion questionnaires to measure attitudes and reactions of metropolitan residents concerning neighborhood status and proposed improvements.[22] While population and public attitude data are temporal, the information they provide are of critical value to the planner and can be gathered and manipulated effectively according to existing social science sampling procedures.

The second area, social and economic data, is based on government produced census records, public records, police reports and other tables which classify a broad spectrum of

social, economic and residential characteristics. Data from such records and reports can be readily assimilated and condensed by researchers and they provide a substantial basis of objective material for further application. The third area, centering primarily on observable conditions, may be measured by the cooperation of a group of skilled specialists trained to render advised judgments on physical appearance and general neighborhood characteristics.[23]

In each of these three categories of information, a concerted effort must be made to render observations and issue statements as objective and value-free as possible.[24] In gathering public attitude data this is done by incorporation of Likert scaling techniques, developed by Rensis A. Likert in his work on measurement of attitudes, which provide formulation for objectification of attitude data by providing informants with a pre-determined range of value responses.[25] Because of its statistical basis, the second category is essentially value free. The third, or observational category, is the most potentially subjective, but may be rendered more objective by detailed orientation of field workers and by use of established techniques for establishment of specific categories of response, such as those described by the Delphi method.[26]

Since each of these categories of information is relatively distinct and represents obviously different types

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of information gathering techniques, they were selected as the fundamental data sources to be measured, computed and compared in order to test the theoretical and practical bases of multi-variate analysis. In the actual research operation they were labeled

1. Community Attitudes
2. Aggregate Data
3. Observational Data

and were developed for implementation according to the following implementational considerations.

DATA SOURCE: COMMUNITY ATTITUDES

From a broad point of view, planning may be described as "identifying the public interest, translating it into plans, and then implementing the plans."[27] Although there is a great diversity of opinion as to what methods are best for identifying the public interest, the gathering of community attitude information is the most obvious way of obtaining direct citizen input. At present, community attitude data are normally gathered through neighborhood meetings.[28] By this method, citizens are notified of the meeting, the doors of the meeting hall are opened to all comers and a general moderator calls for discussion from the floor on a wide range of weakly controlled subjects related to the planning issue or issues in question.[29]

There are numerous weaknesses in this system which should

be ennumerated briefly. First, Mancur Olson has pointed out in his volume on The Logic of Collective Action that many individuals participate in neighborhood meetings for personal gain.[30] Among the reasons for citizen participation suggested in other studies are 1) the fear that their homes may be torn down by a random change of policy, 2) the hope of gaining a seat on a city commission, committee or model city staff, or 3) the hope of personal financial gain by virtue of prior information or other advantages growing out of public participation.[31] In other cases, residents were willing to participate in public meetings simply because they had nothing else to do, or because they were curious.[32] Some researchers suggest that the community meeting, as it is generally used, is populated by prejudiced, misinformed and disinterested participants, and the results of neighborhood gathering techniques are far from suitable or reliable. Serious minded participants are the exception rather than the rule.[33]

Another weak element in the development of community information is economic and political pressure. For personal and financial reasons, pressure lobbies interfere in planning decisions to such an extent that development programs often serve only a small minority rather than the public as a whole.[34] Still, community input is vital for success in most plans and development programs, which means that planners must explore more reliable means of information gathering. The planning process is continually involved with goal-seeking

and goal-identification.[35] The clarification of goals is particularly important to the production of actual development plans. When goals are sound and defensible, they may be transformed into planning objectives and development criteria. At that point, the soundest vehicle for testing of different plans is discussion, debate and consensus at the grass roots level, through formal and informal meetings where planners, city officials and citizens can discuss critical issues.[36] The inclusion of community input of this type will help to insure the success of different kinds of plans and will help further to solicit the good will of citizens, public leaders and officials at all levels.

The missing element in this proposal is the incorporation of citizen input during the goal seeking and criteria development stages. If public meetings are unreliable, the application of a community survey instrument designed to measure attitudes across a range of topics related to the particular planning issue would seem to be the most reliable solution to the problem. A simple questionnaire carried to randomly selected households in target neighborhoods can be designed to approach a broad range of issues without specifying the particular project or arousing fears in any way. Planning researchers can be trained in the use of such instruments, and information produced by this research can provide enormous amounts of useful raw material for further analysis.

This research study is based on the results of such a survey instrument. Discussion of the survey instrument, pre-testing, qualification of field researchers and operative procedures are considered in greater depth in Chapter 2, "Methods and Procedures," as well as in Part II, dealing with development of the research design.

DATA SOURCE: AGGREGATE DATA

Demographic information, provided by the United States Department of Commerce, Bureau of the Census, is one of the most common information resources relied upon by planning agencies.[37] Approximately seventy percent of existing aggregate data in some cities are primary census data or data which have been modified from census tapes.[38] While extensive aggregate data are available from police statistics, public works reports, board of education records and public health service files, none of these sources is as widely used as census data.

The number of problems involved in gathering original census-type data often means that planners are limited in their pursuit of this information resource. Developing original data can be an expensive and prohibitive process. Also, completeness requires surveying large metropolitan areas. In most cases, processing and recording complete listings of census data is cumbersome, demanding that computer census tapes be employed for information retrieval.[39] Even then

the task remains weighty. Without additional programming, listings are difficult to interpret, and even after analysis of printouts, there is the further need for summaries and breakdowns according to specific research interest.

As a result, planners normally use the demographic and other census information collected by the U.S. Department of Commerce, Bureau of the Census.[40] Up to a point, the government census figures are valuable and convenient; however, they are not easily manipulated beyond the scope of their original purpose--which is simply counting and totaling--and their accuracy fades as each year and decade passes, since the federal census is compiled only every ten years. Obviously many neighborhoods change rapidly and statistics compiled nearly a decade earlier can have only modest value. For these reasons it is imperative that planners develop creative means of applying aggregate data to development plans. Locally produced records, police statistics, zoning data, records of building permits issued and other resources can be used to update straight census information. Annual school census and public health service records, along with statistical yearbooks, Polk directories and municipal summaries are other valuable resources.

In measuring neighborhood characteristics and regional variation, most studies in public planning have been restricted to the single source of aggregate data from decennial census

records.[41] This has been done with some success in characterizing spatial patterns of social and economic distribution within cities and with analysis of residential patterning.[42] However, there has been frequent criticism of this one-sided reliance on census based data. Spokesmen, such as Horton and Louviere, suggest that raw census data demands inclusion of locally developed aggregate data in order to validate and update findings.[43] Nevertheless, the nationwide uniformity of census statistics, the relative affordability and the ease with which they can be used for population forecasts, for projecting the need for community facilities, for social and economic inventories and for determining characteristics and distribution of property ownership will no doubt keep this data source in the forefront of planning research.

In this light, it is important that the use of census information, as aggregate data, be tested empirically and evaluated statistically for its overall reliability. In order to test and analyze the application of census-based aggregate data, this study has employed the 1970 Census of Housing Characteristics[44] for the Detroit Metropolitan Area. The complete table of statistical information used in this research, and the methods of rendering the data for incorporation into "variable clusters" for factor analysis and cluster analysis, will be dealt with in greater detail in Chapter 2.

DATA SOURCE: OBSERVATIONAL DATA

Underlying the use of this resource is the assumption that experienced observers will have judgmental skills that are more accurate and more reliable than the average person.[45] In planning, trained observers are commonly used in group or team-administered surveys of physical conditions. Land use surveys, appearance and maintenance reports, aerial photo interpretation and other surveys demanding "expert" opinion are other uses.

When work teams are assembled in planning agencies, rules are normally developed to control the ranking and scoring of variables. These regulatory procedures normally induce certain types of uniformity, with the assumption that uniform scoring will enhance the reliability of the findings.[46] Evaluative panels are another derivation of the observational resource.[47] Technical and professional staffs of such bodies as planning and zoning commissions normally have some training in evaluative criteria and are assumed to be more reliable than individual assessment because of the demand for consensus and comparability of results.[48]

Trained observers are also widely used for data interpretation, for development of arguments and official positions on zoning changes, for normative planning sessions involving city interests, and in other situations which call for expert opinion. Observational skills are taught to students in the

design professions and in certain other disciplines, but the degree to which socialization and acculturation affect the planner's ability to render unbiased judgments is still unknown.[49] The field of social psychology has little empirical research of this type--most related investigations are studies of conformity. There are studies based on experiments which show that existing systems for use of observational reports tend to be arbitrary and ambiguous. According to some reports, agency methods are suspected of being self-serving, concerned primarily with lubricating the workflow and reducing upsets in established routines. Young observers learn their jobs, not by being exposed to relevant theories, but by observing and imitating the practices of older employees.[50]

Intensive training and orientation of field researchers appears to be the most efficient method of qualifying observers in the use of judgmental skills. Strict limitation of the categories to be recorded, as well as the range of variance within categories, helps to eliminate bias. In establishing the criteria for testing the use of observational data for this study, nine observation categories were determined for neighborhood descriptors. The selection was based on models provided by researchers such as Lipman, Kuhn and Nisbett.[51] These neighborhood indicators include, 1) serviceability of physical structures, or age and building conditions, 2) social symbols, or visual indicators of social class, 3) aesthetic

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quality, or appearance of buildings, 4) degree of industrialism and/or crowding, 5) social engineering indicators, or apparent social modification features, such as recreation facilities in single family housing tracts, 6) public relations indicators, or visible cultural indicators such as automobile styles, landscaping, quality of housing, etc., 7) professionalism indicators, such as evidence of blue collar, white collar or executive neighborhoods, 8) visibility of social indicators, characteristics of income, ethnicity, etc., and 9) residual categories related to physical design and other human needs. This last catch-all set refers to people as users of the space they occupy. As an example, some people sit on their front porch alone, others socialize while gardening, still others regularly bicycle on neighborhood bike trails. A list of questions based on these objectives was developed, discussed by the research team and tested by the group of trained observers, then applied to the research within the guidelines of the research design.

RELATIONSHIPS BETWEEN DATA SOURCES

Despite the richness of data available to planners, little information is available in current planning literature about the relationships between data sources. Data are considered as a single agglomeration without a clear concept of how they may be divided for use in planning. Likewise, commentary on applications of data resources to planning tasks

is scarce.[52] As a result, planners tend to make decisions on the basis of incomplete research and, predictably, a significant number of policy decisions are rejected each year by dissatisfied citizens.[53]

As a brief restatement, then, in gathering community attitude information planners depend on neighborhood meetings for gathering information of uncertain quality. When community surveys are employed, the instrument itself is often poorly developed, or administered to a non-random sample, thereby leading to invalid conclusions.[54] Aggregate data offers fewer problems, since the source has been refined by years of application; nevertheless, the temptation is great to use this resource in instances when another resource would be superior, simply because the census data are available and are less trouble to develop. Difficulties in the use of observational data arise from lack of standardized ranking and scoring procedures and the tendency to rely on instinctive judgments.

This research is concerned with determining the empirical relationships between these data sources. Implicit in this study is the idea that multiple data sources can be used in a multi-variate manner to develop "neighborhood descriptors" beyond the typings produced by a single data source. While the actual development of an empirical methodology is beyond the scope of the present study, the long term goal is in that

direction. The first concern, however, is to consider the relationships, or lack of them, between these three data sources.

In order to establish a relationship between data sources, this investigation utilizes results from field work conducted in the seventy-four randomly selected census blocks used as representative epi-centers of neighborhoods of the Detroit Metropolitan Area. Through applied research, by holding all variables constant, comparisons can be made between each of the three information sources with uniformity. Random sampling enables important conclusions to be drawn which can be generalized to the metropolitan area.

Potentially, there were as many neighborhood types as there were neighborhoods surveyed. However, based on computer assimilation of data, using a process of V-analysis, only a small number of distinct neighborhood types emerged from the design. As the following chapters describe in greater detail, items of information were keyed as "variables" and analyzed by programming methods as "cluster units". Affinities and uniformities were explored, and the reliability of each source was examined on the basis of the tendencies for duplication and replication of results. Those variables which showed the highest relationship between data sources received high "oblique factor coefficients" in the resulting printout analysis. Conversely, variables which showed little relation-

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ship, or little general reliability, had low coefficients. Had all information sources been uniformly reliable, these statistical indicators would have been fairly consistent. However, as the following documentation reveals, this was not the case. Relationships between frequency distributions, factor loadings, communality and other principles of measurement theory will be presented in their appropriate contexts.[55]

CHAPTER 2

METHODS AND PROCEDURES

SAMPLING METHODS

The seventy-four neighborhood blocks chosen for use in the research application were selected at random from the Detroit Metropolitan Area by matching tracts from Wayne, Oakland, Macomb and Washtenaw Counties with numbers from the Rand Corporation's volume, A Million Random Digits.[56] Within each selected census tract, one block was selected in a similar random manner. Since there is no clear definition of a neighborhood which is universally accepted, the neighborhood block was used as the epi-center of a neighborhood around which different kinds of artificial boundaries might be drawn to construct an actual neighborhood. What form these neighborhoods might take is unpredictable, but they might be defined by groupings such as those in residential strips which surround small business areas, by typing of areas affected by traffic artery noise, or by considering

areas of mixed zoning where dwellings are intermingled with light industry, small business or hotel/entertainment zones, as a designated neighborhood. Nevertheless, provided that the definition of a "neighborhood" holds that all blocks within the boundaries of the neighborhood comply with the identifying aspects of that neighborhood, any selected block will, for sampling purposes, provide a valid test area. Out of the sampling method used in this study, a range of areas was selected with a wide diversity in income groups, ethnicity, housing, terrain characteristics and other features. The resulting pattern of studied blocks can be seen in the "Map of Detroit Metropolitan Area and Sampled Neighborhoods" which follows.

DEVELOPING THE COMMUNITY SURVEY

A multi-stage method was undertaken to develop the community survey instrument to be administered to residents in the selected neighborhood blocks. Through a graduate seminar in Urban Planning, a pool of 146 issue statements was compiled. These statements were formulated as attitude indicators representing pertinent issues pinpointed by review of contemporary planning literature. Statements were worded so that respondants could respond on a fixed scale ranging from "I strongly agree" to "I strongly disagree". To provide a balance of agree and disagree statements, odd-numbered statements were negative in tone, even-numbered

statements were positive in tone.

As a result of pre-test sessions, employing some 300 undergraduate respondants, the initial pool of statements was considerably revised. Items which produced an inordinate number of responses at one end of the response scale were discarded or rewritten.[57] The revised version was subsequently administered to 200 students (150 freshmen and sophomores and 50 random volunteers), then the two pilot data sources were collapsed for further analysis.

At this point a process of direct data reduction was implemented. Using cluster analysis, the original pool of 146 items was reduced to several cluster domains which accounted for most of the variance observed. From each of the clusters, questions were extracted which had the highest factor loadings. These questions "captured" the theme of the various clusters. By this process, the 146-item questionnaire was reduced to a nine-item instrument which was to be used in the neighborhoods.

The instrument used a six-point scale for scoring, based on the Likert scale, with boxes marked "I strongly agree," "I agree," "I somewhat agree," "I somewhat disagree," "I disagree," and "I strongly disagree."

ADMINISTRATION OF THE SURVEY

Members of the research team, made up of 100 university students, were divided into groups of two and directed to travel to specified neighborhood blocks during daylight hours.

Upon arrival at the first block, the teams were instructed to omit the corner property and to begin at the second dwelling unit. Researchers distributed community survey forms to the adult, 18 years old or older, answering the door at every third dwelling. If no one answered the door, the student team proceeded to the next dwelling unit in their path of travel, resuming stops at every third dwelling unit until they had covered two city blocks, or about 800 feet. At the end of the second block, if all 60 survey forms had not been distributed, the team crossed the street and walked to the next street corner. Following the same procedure as before, they omitted the corner house and proceeded with the distribution to every third dwelling unit, traveling back toward the street intersection where they began. After distribution was completed, the teams re-tracked their original path to pick up the completed forms.

In presenting the forms, the spokesman for each team was instructed to follow the prepared dialogue, which stated,

> Hello, my name is _____, I am a student at the University of Detroit (STUDENT SHOWS STUDENT I.D. CARD). Would you be kind enough to complete this brief questionnaire for a student project? I will leave it with you and return to pick it up within the hour. If you wish, you may leave it sticking out of your mail box and I needn't disturb you.

Once the introduction and request had been made, the student was free to offer any further information demanded by the dwelling occupant. Team members were instructed to be as

polite as possible and not to insist that forms be completed when residents preferred not to take part. In general, however, residents were thoroughly cooperative and provided full and sufficient information.

After these data were combined from each neighborhood block, items were collapsed across individuals and mean scores were obtained for the neighborhood block. These scores became the data points for the actual analytical work. Thus, for each of the seventy-four neighborhood blocks, nine mean scores, representing each of the nine survey questions, resulted from the data aggregation procedures.

DEVELOPING AGGREGATE DATA

For development of the aggregate data domain, the 1970 Census of Housing Characteristics, providing block statistics for the Detroit Metropolitan Area, was used as the exclusive source of data.[58] Although, as noted above, it is advisable to use combined aggregate data sources in planning research, the decision to use only census data reflected the researcher's intent to test the validity and applicability of the single source as it is commonly used. A total of 23 variables characterizing ethnicity, mean age groups, dwelling status, property value, dwelling size, renter/owner status and degree of deterioration were used. The actual list is presented in Part II of this study.

The list of data includes information on population,

socio-economic conditions and physical development. While there is no hard data to characterize ground forms or design factors, these matters were not considered critical, since they are not a normal category of census records. The list of variables which was produced was considered comprehensive.

DEVELOPING OBSERVATIONAL DATA

In order to develop the universe of items for the observational data source, small groups of masters-level students conducted directed research using modified Delphi techniques and consensus methods.[59] First, the groups consulted an assortment of planning texts, reports, independent studies and other documentation related to development of observational criteria.[60] After a number of theoretical categories was produced, additional items were developed by members of the group. As an example, economic issues were extracted from the various literature until no further categories could be discovered. At that point, the research group discussed economic issues, exploring further extenuations and modifications of existing categories, in order to insure that no critical element of observable characterization had been overlooked.

When the list was complete to the point that nothing further could be added to a specific information category, the group moved on to the next subject area. This process was continued until the list of observable data items was

considered complete. At that time the entire list was analyzed for duplication or weakness. Redundant and weak items were eliminated. Items which might appear ambiguous were either eliminated or restructured for clarification. Finally, the list of variables was structured to provide objective and value-free responses over a wide range of observable data.

While the number and range of observable conditions were deliberately limited in order to avoid complications created by the general similarities between neighborhoods, the ultimate number of observational variables was surprisingly small. The list includes,

1. Height of housing
2. Proximity of housing to stores
3. Proximity of housing to schools
4. Proximity of housing to parks/playgrounds
5. Proximity of housing to churches
6. Visual assessment of building deterioration
7. Land form characteristics (flat, hilly, etc.)
8. Landscape characteristics (amount and quality of planting)
9. Quality and maintenance of streets, alleys, yards and common areas

For each of these variables, a limited range of response options was developed. The scales of response were designed to vary according to the nature of the particular aspect observed. For example proximity to public facilities could be graded on a two-point scale, either yes or no; however,

factors such as landscape characteristics would require much more extensive description, depending on the amount of trees, bushes, upkeep and other considerations.

After two training sessions, field workers were taught how to score the instrument. Examples were given by use of photographs, and lectures were given explaining procedures for judging and recording observable differences. In this manner, by illustration, discussion and training for the particular types of observation, it was hoped greater commonality of response would be insured. Individual questions were answered and field workers were instructed about the need to reach consensus with their co-workers. Consensus methods were discussed in depth.

The same research team which had distributed and collected the community attitude instrument administered the observational data instrument. This research team, made up of 100 university students, was divided into groups of two and they were directed to travel to specified neighborhood blocks. Upon arrival, the groups were instructed to drive and walk the area observing the designated physical differences. At that point, they reviewed the observational data instrument and attempted to reach consensus on each area of measurement. Sufficient time was taken to observe differences over a number of streets and from a number of viewpoints.

Consensus of both of the individual team members was

required prior to scoring, and these data became the data points for the actual data analysis. According to this procedure, each of the seventy-four neighborhood blocks was given ratings on the nine areas of measurement.

DATA ANALYSIS

The data collection procedures in each of the three data sources produced nine community attitude variables, twenty-three aggregate data variables and ten observational data variables for a combined total of forty-two variables to be subjected to data analysis.

The principal analytical technique used was cluster analysis. Developed by Tryon and Bailey from Thurstone's system of factor analysis, cluster analysis is a convenient method for sorting empirical data into groups based on criteria of colinearity and communality.[61] The method involves the construction of a correlational matrix and the initiation of a systematic search process to identify composites of variables that cluster together. In contrast to most factor analysis procedures, the solution obtained is oblique and allows the researcher to determine the proximity of clusters in geometric space.

When all of the research data had been gathered and coded, they were compiled into a suitable format for computer analysis using the BC-TRY V-analysis program.[62] During the discussion and analysis of correlational data, considerable

attention was given to cluster structure, similarity between the ten highest rated correlations for each variable and the extent to which the clusters drew variables from the three separate domains of measurement.

CHAPTER 3

MULTI-VARIATE ANALYSIS

In order to reduce the various combinations of variables produced by the V-analysis into distinct cluster groups, a number of iterative steps was involved. From the initial pool of forty-four variables, twenty-four variables emerged in the early stage of computer manipulation. Subsequent "pre-set" V-analyses served to sharpen and define these cluster domains and to enhance overall cluster reliability. According to the descriptions obtained by high factor loadings, three final clusters were obtained, 1) Racial Characteristics; 2) High Density, High Rent, High Cost neighborhood descriptors; and 3) Appearance and Open Space descriptors. The first cluster was composed of variables from all three data sources. The second cluster was made up entirely of variables drawn from aggregate data. The third cluster was formed of variables from community attitude data and observational data. The following charts reveal the precise cluster structures.

TABLE I

VARIABLES BY CLUSTER

Variable	Issue	Data Source*	OFC**
	CLUSTER 1: BLACK NEIGHBORHOODS		
+D 18	Nearest whole % Negro	AG DATA	.99
D 35	% Negro of total renter-occupied units	AG DATA	.95
D 30	% Negro in owner-occupied housing	AG DATA	.94
D 44	Different kinds of crime are causing problems in my neighborhood	COM ATT	-.55
D 24	% of units in one-unit structures	AG DATA	-.53
D 3	Height of housing	PRO JUG	.52
2	Ownership status	PRO JUG	.45
33	Average number of rooms in renter-occupied housing	AG DATA	.42
29	Average dollar value of housing unit	AG DATA	-.41
	CLUSTER 2: HIGH DENSITY, HIGH RENT, HIGH COST		
D 22	Total housing units that are year-round	AG DATA	.97
D 17	Total population of block	AG DATA	.83
D 34	Average contract rent in dollars	AG DATA	.82
D 28	Average number of rooms in owner-occupied housing	AG DATA	-.70
D 25	% of units in structures of 10 or more units	AG DATA	.60
21	Nearest whole % 62 years and over	AG DATA	.48
26	% of total housing that is owner-occupied	AG DATA	-.46
31	% of total units that are renter-occupied	AG DATA	.45
	CLUSTER 3: APPEARANCE AND OPEN SPACE		
D 40	The overall appearance of my neighborhood is attractive	COM ATT	.85
D 41	Well-located, well-equipped and well-supervised parks and playgrounds are available . . .	COM ATT	.81

* COM ATT = Community Attitudes; AG DATA = Aggregate Data; PRO JUG = Professional Judgment.

** OFC = Oblique Factor Coefficient (a measure of correlation)

\+ D = Definer--a variable whose OFC is rated higher than ±.50

TABLE I (CONT'D)

Variable	Issue	Data Source	OFC
	CLUSTER 3: APPEARANCE AND OPEN SPACE (CONT'D)		
D 43	The civic (or local) pride of my neighborhood makes it easy for me to feel at home around here.	COM ATT	.72
D 16	Quality of landscaping/appearance	PRO JUG	.65
6	Housing within walking distance of parks	PRO JUG	.49
45	The appearance of my neighborhood affects the attitude and outlook of our residents	COM ATT	.45
5	Housing within walking distance of schools	PRO JUG	.31

TABLE II

CLUSTERS AND NUMBER OF SOURCES

Cluster	Data Source	Number of Variables per Source
1. Black	Aggregate Data	6
	Professional Judgment	2
	Community Attitudes	1
2. High Density, High Rent, High Cost	Aggregate Data	8
3. Appearance & Open Space	Community Attitudes	4
	Professional Judgment	3

CLUSTER DESCRIPTIONS

Cluster Number 1, Racial Characteristics: This cluster is composed of variables from all three data sources. One variable is drawn from community attitude data, six variables are from aggregate data and two come from observational data. The emergence of this cluster from the research design suggests that multiple data sources are helpful in describing the racial composition of neighborhoods. Oblique factor coefficients are fairly strong on all issues in this cluster, with a range of from .99 to .41. The highest ratings are from aggregate data, followed by observational data and community attitude data. The inter-relatedness of data characterizing racial characteristics was surprisingly consistent. The highest rated variables related to ethnicity and type of dwelling; the lowest characterize dwelling size and property value.

Cluster Number 2, High Density, High Rent, High Cost: This cluster is made up solely of aggregate data. The highest rated oblique factor coefficients, which are definers of the cluster, range from .97 to .60. The fact that no community attitude or observational data variables appear in the cluster suggests a number of hypotheses. First, there may be no clear visual identity of considerations such as cost, density and rent values. If so, observation cannot adequately assess the range of differentiation within such areas.

Secondly, the fact that no community attitude variables appear in the cluster may suggest that there is no uniform attitudinal basis in such communities. Feelings about one's neighborhood, at least in this cluster, are not related to indices of the cost of the dwelling, rent value or population density. High density, high rent, high cost neighborhoods may tend to represent apartment and condominium dwellers who maintain independent identities, find most of their associates through employment and organized social activities, and spend little or no time maintaining their property or communicating with neighbors. If such were the case, neither observation nor the application of the survey instrument would be as reliable as strictly statistical data.

The emergence of this combination of variables as a coherent cluster came as a surprise to the research team. No special consideration was given, either during the development of issues or in application of the research instruments, to dimensions of multiple dwelling units and the like. However, the fact that this cluster emerged would indicate that block units characterized by density, rent and cost should be recognized as independent community elements which can provide meaningful neighborhood descriptors.

Cluster Number 3, Appearance and Open Space: Of the seven variables in this cluster, four are from community attitude data and three are from observational data. Ratings

of oblique factor coefficients range from .85 to .31 with high scores in the definers of from .85 to .65. These findings characterize an attitude of civic and local pride, attractive appearance and the availability of parks and playgrounds. The fact that aggregate data variables do not appear in the cluster, while aggregate data have been essential to both of the first two clusters, may indicate that measurement of "appearance" and "open space" involves inherently subjective aspects of neighborhoods that are difficult to incorporate into census type information. If nothing else, the appearance of this cluster provides some support for the aesthetic/observational component of planning.

RELATIONSHIPS BETWEEN CLUSTERS

Examination of Table III, "Correlation of Cluster Scores," indicates that each cluster is relatively independent. Some relatedness may be seen between Cluster 1 and Cluster 3, with a correlation coefficient of .3291, and between Cluster 2 and Cluster 3, with a coefficient of .2916, but this is marginal correspondence. These low correlations combined with high reliabilities, at .9268, .8964 and .8486, demonstrate that each cluster taps a clearly different domain of measurement. Among the implications of these figures are the facts that 1) census data is virtually independent of other data sources, and 2) observational distinctions between neighborhood blocks may have much less impact upon social and economic issues than

previously assumed.[63] In general, physical appearance shows little statistical correlation with attitudes and demographic information. This finding may suggest that improvement in physical conditions alone will not improve the social or economic well-being of neighborhood residents.

TABLE III

CORRELATION OF CLUSTER SCORES

	Cluster 1	Cluster 2	Cluster 3
Cluster 1, Racial Characteristics	.9268	.0730	.3291
Cluster 2, High Density, High Rent, High Cost . .	.0730	.8964	.2916
Cluster 3, Appearance and Open Space	.3291	.2916	.8486

TABLE IV

CORRELATION OF VARIABLES WITH OBLIQUE CLUSTER DOMAINS

	Variable	Cluster 1	Cluster 2	Cluster 3
Observational Data	2	.45	.08	.30
	3	.52	.13	.24
	5	-.15	.09	.31
	6	.16	.05	.49
	16	.31	-.24	.65
Aggregate Data	17	-.03	.83	-.23
	18	.99	-.08	.30
	21	-.02	.48	-.15
	22	-.06	.97	-.25
	24	-.53	-.40	-.16
	25	.03	.60	-.27
	26	-.42	-.46	-.12
	28	.16	-.70	.32
	29	-.41	-.37	-.30
	30	.94	-.09	.34
	31	.42	.45	.13
	33	.42	.23	.21
	34	-.10	.82	-.25
	35	.95	.02	.39
Community Attitudes	40	.39	-.28	.85
	41	.16	-.27	.81
	43	.27	-.22	.72
	44	-.55	.17	-.51
	45	.43	-.16	.45

EVALUATIONS

In determining which data sources have the highest degree of inter-relation between clusters, a comparison of variables with the oblique cluster domains, as illustrated in Table IV, showed that aggregate data had the greatest number of related variables. Eight out of fourteen aggregate data variables related to more than one cluster. Three of five community attitude variables had multiple relation, while only two of five observational data variables relate between clusters.

Of the eight aggregate data variables, one, which describes property value, has marginal attachment to the three clusters. These various combinations indicate that aggregate data provides the most universal indicator of the essential differences between neighborhoods. Community attitudes has the second most reliable indicators, and observational data is largely independent of other data sources with little testable relationship.

Indications of these figures suggest that exclusive dependence on observational research in planning decisions is a questionable practice which may lead to invalid and insubstantiable conclusions. Only in one cluster, Number 3, in which observational data provided three of seven variables, did the trained observers offer measurable input, and only one of those had a relatively high loading.

From the standpoint of this research, the best and most consistent descriptors of neighborhoods were produced by the use of multiple data sources. In particular, some findings appeared which could not have been anticipated and which would not have been generated without the correlation of multiple data sources. If all sources had been equal, the structure of each cluster would have included equal numbers of variables from each data source. But the fact that three clusters emerged from the research design with different structures and with two of them made up of variables from two or more sources would seem strong evidence in favor of multi-variate research for planning in metropolitan areas.

CHAPTER 4

IMPLICATIONS OF RESEARCH FINDINGS

In assessing some of the implications of these research findings, consideration should first be given to the applicability of each data source, and then to the applicability of the combined sources. Before doing so, however, it should be mentioned that the particular questions and issues raised by this research were not intended to have specific application to current planning problems or specific public issues. In the process of testing, analyzing and correlating data sources hopefully some challenging findings will have been made, but since these are only incidental to the project at hand, they can only be considered as peripheral findings. Later research will take advantage of some of these issues to develop viable approaches to specific urban problems, but at present the method itself is the issue.

One of the most notable findings of this research is the capacity of community attitude data to supplement and validate

statistical information about social interaction. In Cluster 3, which relates to neighborhoods characterized by appearance and open space, community attitude data provided four of the seven variables and the top three of four definers. Observation provided the remaining three variables and aggregate data, which had provided the basis of both of the previous clusters, was not present. Whatever the reasons for this breakdown--whether the census figures are dated, or whether some type of modified response had produced unreliable data in the first place--the fact remains that community attitude data provided the most conclusive descriptors of neighborhood blocks in Cluster 3. These descriptors were also supported by the observational data.

In general the application of the community attitude survey instrument seems most suitable as an alternative to census-type information, or other forms of aggregate data. The range of values measured by the instrument extends into issues related to pride, fears, expectations and other social and economic concerns of residents. In the racially grouped neighborhoods covered by Cluster 1, community attitude data helped to reveal a consistent concern with crime. Among the lower rated variables which do not appear in the final grouping, attitude variables indicated that residents of these neighborhood blocks were pleased with the overall appearance and outlook of their communities. It is doubtful

if aggregate data alone could have predicted these attitudes. The awareness of this attitude stratum within the community can be of value to planners in several ways. For one example, the determination of socially weighted issues, and the degree of variance among residents on them, can help planners to isolate both social and environmental hot spots. Surveys containing a wide range of perceptual issues may help to predict resident unrest and potential emotional issues which demand immediate attention by public officials. As another example, anticipation of undercurrents of public opinion, such as community pride in Black neighborhoods, may help planners to avoid the embarrassment of leaping to the intuitive assumption that residents are unhappy in their neighborhoods. In some neighborhoods community attitude data would seem to be a necessary counterpart to other research methods.

Aggregate data has long been one of the most widely used and most reliable data sources. Based on a general picture of neighborhood types, income levels, resident status and distribution patterns, planners often relate communities to old stereotypes or other typologies developed by academicians, and bypass any degree of original research or even the simultaneous consideration of locally generated statistical materials which could strengthen and enliven their analyses. There is no doubt that United States Census Reports have great value, but this study suggests that aggregate data in general, and census data in particular, is incapable of the

subtle manipulations necessary for the characterization of certain neighborhood types. Some planners may counter that their own standards of judgment, supported by observation, provide the flexibility missing in census data. But in light of the findings of this study concerning the reliability of observational data, that hardly seems a worthy argument.

One of the most meaningful tasks accomplished by aggregate data in this research has been the discovery of a neighborhood type characterized by "high density, high rent, high cost" dwelling units. In the early stages of this research, when reasonable expectations and possible outcomes were explored, no such neighborhood type was anticipated. Because such dwelling units, which are largely mid and high-rise apartments, normally fall along major thoroughfares and in sectioned-off areas specifically zoned for structures of this type, they are not generally thought of as "neighborhoods." The fact is, such neighborhoods, as they appear in Cluster 2, are among the most visible in any community. They are directly involved in landscaping, recreation, traffic and zoning decisions, and probably influence a host of related community and public welfare issues. The strength of aggregate data in defining and describing this neighborhood type overpowered all other data sources in this regard.

Since neighborhoods such as those in Cluster 2 cannot be cataloged or classified on the basis of neighborhood grouping, patterns of relationship can be established to account for

the affinities and diversities of neighborhoods on the basis of multi-variate descriptors. Such areas, which may be termed "technical neighborhoods," may be miles apart on the city map, yet offer one to one predictability on both statistical and attitudinal issues. While neither observational data nor community attitude data offered any worthwhile substance in describing the neighborhood blocks in Cluster 2, neither should be ruled out in such "technical neighborhoods" for that reason. The overall value of these sources in providing cogent information seems profound enough to suggest that, with particular survey issues geared to specific planning tasks, data can be produced which will accurately reflect the appearance and attitudes of high density, high rent, high cost neighborhoods.

On the basis of strict numerical reliability, observational data appears to be the least successful of three data sources in rendering workable neighborhood descriptors. Although the educated guess has served under the guise of "expert opinion" for many years as one of the principal elements in rendering planning decisions, this research maintains that subjective judgment is a critical aspect of multi-variate analysis but is patently inadequate as the sole basis of planning research. In the three neighborhood types described by Clusters 1, 2 and 3, observational data was limited to the role of physical description and validation of statistical data. In this

capacity, the ability of the trained observer to confirm trends and locate issues for closer investigation were highly successful, as illustrated in Cluster 3 by the observers' confirmation of resident pride in landscaping and neighborhood appearance. However, in attempting to produce original information or assess size of residence or property value, the observers were largely unsuccessful.

The general conclusion then is that multiple data sources provide consistently more reliable results than any single source. While in some neighborhoods, and with regard to certain planning issues, single sources may be adequate, in the end no one information source is so secure that it can stand entirely alone. It would be ambitious to presume that planning agencies might be expected to undertake a correlational analysis of multi-variate data with the same scope as the present research for every major planning project, but it seems entirely reasonable to suggest that metropolitan agencies develop similar resource materials for some type of modified analysis and evaluation of public issues in their communities at least once, with subsequent annual or semi-annual updates. In light of some of the controversies which have arisen out of planning decisions in major cities in recent years, it seems a modest proposal.

APPLICATIONS OF THE RESEARCH TO PLANNING

There are a number of suggestions for further research

as well as a variety of possible applications for multivariate analysis in the planning process resulting from this research. One of the most challenging possibilities relates to the current concern with redevelopment and revitalization of inner-city neighborhoods.[64] Using available data on transitional neighborhoods as a springboard, community attitude data, aggregate data and observational data could be applied to an assessment of urban life cycles, historical patterns of change and the types of modification required in central business districts and/or inner-city neighborhoods in order to encourage renewed growth. First of all, a survey of attitudes of inner-city residents would uncover both existing socialization patterns and susceptibility to change. Statistical analysis from census data, combined with public records, would measure fiscal stability, owner/tenant relations and other indicators. Research teams could evaluate social and spatial patterns with an eye to estimating the feasibility of particular development programs. Included in the results of this correlation study might be a further survey of other urban and suburban residents who are potential users of the inner city and central business district in order to predict to what degree these citizens would be willing to utilize the services and facilities of the new development. Can the area be revived? If so, How? What will it take to make these areas more attractive to the public? To residents?

Manipulation of these three data sources could make it possible to define fiscal and residential patterns, validate trends by observation, and determine to what degree the city stands behind the aims of revitalization.

In a similar vein, and using some of the same techniques employed in uncovering the "technical neighborhoods" of Cluster 2, city planners might evaluate other clusters of data produced by multiple source research in order to uncover other technical relationships between neighborhoods in the hope of tapping new information sources or new perspectives on existing sources.

Other possibilities include a cataloging of neighborhood types in specified districts and continual updating of data relating to specific neighborhood types. Those neighborhoods represented by the sampled census blocks could be mapped and their specific variables--the characteristics which define their neighborhood type--listed in the legend. On a regular basis, perhaps bi-annually, data sources could be updated and neighborhoods re-mapped and legends revised to indicate patterns of growth or reduction in size. Changes over time could be noted in the same manner.

As a manageable unit for analysis, the neighborhood block can be useful to the planner. Understanding of the psychological, social or economic factors affecting neighborhood groupings could have impact on a wide range of planning

procedures, from goal-seeking to successful implementation of planning directives. In order to improve predictability, planners might measure the relationship of planner/citizen participation in goal-seeking and in formulation of plans. Is citizen input essential to the success of the plan? Are planners capable of working without input from the community? To what degree does economics affect the outcome of planning? All these issues could be approached by the various combinations and permutations of multi-variate analysis of neighborhood descriptors.

The importance of research in capital improvements budgeting is long established in local government.[65] However, since there are no fixed methodologies of data application in such matters, "hearsay," "convincing arguments" and "emotional appeals" have been as effective in influencing community budgeting in the past as the use of precise statistical findings.[66] To avoid ineffective application of funds, and to make it more difficult for persuasive special-interest minorities to draw funds away from important projects which affect the welfare of all citizens, documentable research should be a requisite part of the budgeting process. To insure that this research is both diverse and representative, collateral research of community attitudes, observational reports and various forms of analytical and statistical data, which can be correlated for reliability by appropriate statistical methods, would be the most substantial basis of documentation. In this manner

attitudinal data might be compared to observational data (about building conditions, for example) to determine an empirical basis for responding to citizen requests. Budget data could be included as a supplement to census data, and results analyzed to insure equity.

Some neighborhoods are perenially under transition from one socio-economic type to another.[67] Since neighborhood classification affects a large number of economic and welfare factors, planners may be able to make use of comparative analysis techniques to predict residential and commercial patterns which will affect classification. It is possible that particular factors, or combinations of data variables, may lead to the discovery of specific predictive characteristics. For example, if residents' concerns for lack of open space and recreation facilities consistently correlates with low-family-income, or with middle-income multiple-dwelling-unit zones, procedures for development of more open space and recreation facilities may 1) provide an immediate basis of communication with residents, and 2) become a natural first step in implementing plans for such neighborhoods. Along the same lines, if certain attitudinal patterns consistently relate to specific combinations of variables (rendered by multi-variate analysis), planners may establish procedures to flag such factors when they emerge in data correlation so that both the attitudes and the variables may be recognized as political indicators which will allow both planners and local government to approach

and resolve potential conflict before it becomes an issue.

This kind of multi-variate analysis can be further extended to classify neighborhoods within a metropolitan area. Through cluster analysis, empirical neighborhood types can be constructed using the combined sources of research data through O-analysis.[68] In this statistical computer subroutine, variation in response are manipulated for all neighborhoods to form groups with common sets of attributes. This extension of multi-variate research to develop groups of neighborhoods for an entire urban area can be useful to planners. Types of neighborhoods are empirically constructed, labeling neighborhood blocks, or census areas, with common attributes. Graphic display of these neighborhood blocks may indicate a scattering of types throughout some metropolitan areas, and previously unsuspected families of neighborhoods could be related. Through O-analysis, sets of neighborhoods may be accurately conceptualized on the basis of their multi-variate descriptors. Target neighborhoods may then be investigated more closely, and by consistent typing and map identification planners could have greater assurance that no relevant neighborhood would be inadvertently omitted. For example, if Chicago wishes to initiate a new "Open Space Plan," multiple sources of data related through O-analysis could produce groupings according to descriptors of neighborhood conditions for more accurate linking to capital improvements budgeting. Neighborhoods could be grouped according to

important pre-set variables from many sources. By mapping these neighborhoods, researchers will gain a better understanding of the differences throughout a particular metropolitan region, and the planning impact of these various descriptors would then be better understood.

Other applications of this research can enable planners to test their own theoretical concepts of neighborhoods against the empirically defined descriptors. In certain cases planners may classify certain neighborhoods according to one, or several, distinguishing features. If a descriptor such as "deteriorating buildings" is used, it may be very difficult to conceptualize or classify the entire metropolitan area without the aid of an empirical classification. Some neighborhoods which may be inadvertently omitted in the intuitive grouping may suddenly appear in the data printout, at which point they could be added in. Similar neighborhoods could be displayed in list format or through computer graphics. Through various runs, concepts of neighborhoods may be expanded to include previously undetermined variables. For example, physically deteriorating neighborhoods may be found to include the variable "fear of crime" or "middle-income residents" which may have been unconnected previously.

By developing empirical types of neighborhoods, residents can benefit by being better able to understand the actions of municipal planning agencies. The knowledge which planners gain from multi-variate analysis should provide insights into

neighborhood conditions and, for that reason, better communications. When planners speak of conditions which residents can verify by their own experience, the residents are more likely to understand and trust the planners. And on the basis of shared understanding and agreement on goals, residents may lend greater support to the planning agency and the proposed development.

Planning theory stipulates that land use plans need to be thorough. To be thorough, transportation, social, economic, cultural and many other factors should be incorporated into the plan. When the land use plan is thorough and expansive, it becomes an important part of the region's "comprehensive plan." Among others, Stuart Chapin, in his volume Urban Land Use Planning, has stressed the need for consideration of multiple variables in land use studies.[69] Through multi-variate analysis of neighborhood descriptors, land use inventories, attitudinal data and qualitative estimates based on observational reports of physical conditions, empirical sets of data can be established for setting up planning criteria.

In some situations general information may tell planners that there is an abundance of commercial land in a given area for new development during the next fifteen years. However, residents may not want more stores or offices to be built in their area. If planners proceed with development plans without a proper study of community attitudes, they risk a public

battle as well as obstruction of development plans. With a basis of research, however, covering attitudinal patterns, aggregate data and observational reports, planners will be able to 1) anticipate public reaction and 2) provide a development strategy which both satisfies the aesthetic interests of residents and opens up suitable zones for commercial growth.

By developing comprehensive sets of variables from multiple data sources in municipal or government computer data banks, planners can have regular access to complete descriptors of neighborhood conditions. Applications of the research methodology presented in this study can be used by planners to manipulate selected variables, extracting needed data, and eliminating errors often caused by reliance on intuitive assumptions or incomplete information. The value of computer-stored data may be assured by having the public planning agency responsible for periodic updating of this information. Through this function, the planning agency may gain more credibility and status, both among citizens and other professionals. Storage and retrieval of information from multi-variate research can be incorporated with original data analysis to test theories based on single sources of data. Likewise, previous concepts of social realm, physical edge definers and neighborhood units may be reevaluated in the light of multi-variate analysis and new concepts of neighbor-

hoods grouped by technical affinities.

FURTHER RESEARCH POSSIBILITIES

At this point, some further research possibilities related to the more theoretical issues of planning and social science may be worthy of consideration. Such issues would relate specifically to research beyond the scope of the single community. For example, a comparative analysis of metropolitan areas could be structured on the basis of a fixed set of variables. Chicago could be compared with Dallas, Denver or Detroit. Statistical comparisons could relate existing patterns in these cities, contrasting neighborhood types, and determining to what extent attitude changes correlate with differences in census and observational data. There may be similarities which could lead to important empirical revelations about patterns of cities in general. It would be interesting to see what conditions might cause attitudinal and observational patterns to change from city to city while census based aggregate data remains the same. More important, the strength of correlation of the different sources might be compared to the patterns observed in this study to give a better indication of the independence of data sources.

Other research efforts might be developed to test the numbers of categories of data. In this study only three sources of data were determined, but there may be others.

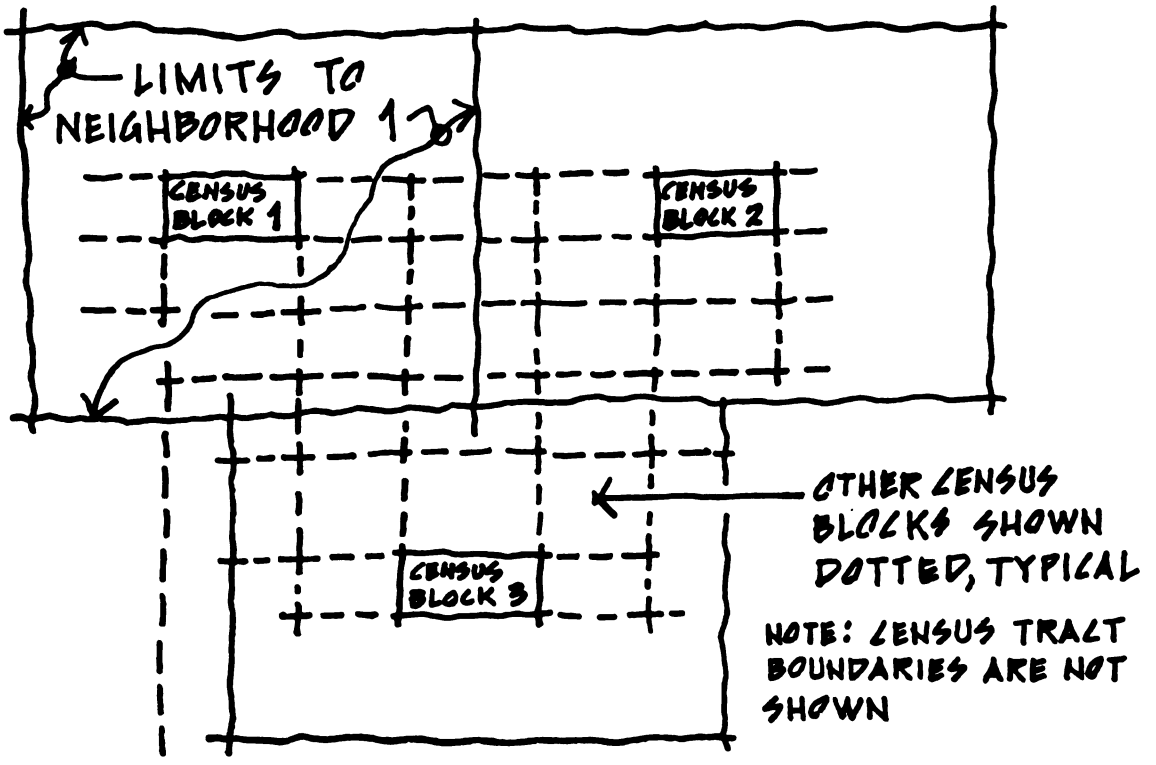
Some research might be directed toward adding different kinds of aggregate data, such as police statistics or public health information. It would be worthwhile to determine whether this new grouping would show greater relationship to aggregate data or to the other sources. Other data could also be added to community attitude and observational data. Comparisons and analysis could be established to see what other sources of data appear.

In regard to this particular study, the Detroit Metropolitan Area could be re-analyzed after the 1980 Census. A new, or updated, community attitude instrument might be constructed and the results of any changes carefully noted and analyzed. It would be important to replicate the study to determine if neighborhood classifications remain static or if new classifications are generated. Perhaps the most significant possibility of this kind of postdate would be the indication that regular monitoring of changes in the various sources of data is important to planning. At the conclusion of such an update, there may be a better indication of the frequency with which a multi-variate analysis of neighborhood descriptors should be run.

During the course of this research the concept of bounded rationality has been applied to the construction of the numerous attitudinal variables.[70] A list of research items was generated which was deemed "satisfactory." The more issue

statements generated during initial research, the more likely planners can be reasonably sure of being all-inclusive and not missing important issues. Lists of all issue statements should be stored for future use and supplemented frequently. When new lists are generated, older lists should be updated. It might be useful to consider the potential of future issues that develop as a result of changes in public or environmental conditions. For instance, the current problem of pollution may no longer exist in the cities of 1990, or "walking distance to churches" may be altered by public conveyance or other changes. There is need to establish a systematic pattern within the research operation which includes monitoring the lifespan of issue statements.

Boundaries of neighborhoods became an important concern during the course of this research. Most planners define neighborhoods by referring to boundaries established by physical features. However, this research supports the concept of a neighborhood "realm". This realm, as conceived here, reaches from the epi-center of the neighborhood block to the mid-point between that epi-center and the epi-center of the adjoining neighborhood.[71] See the attached map, "Concept of Neighborhood Realm." Further research needs to compare previously conceived physical neighborhoods to social realms, technical neighborhoods and other constructions based upon statistical and attitudinal affinities. Single metropolitan regions might be used so that overlays of neighborhood realms



CONCEPT OF NEIGHBORHOOD REALM

could be easier to visualize. This kind of elaboration could help to create a more precise concept of neighborhoods.

When neighborhoods have been studied closely on the basis of multiple data research, planners will be in a position to validate or disprove a number of common stereotypes held by government, the public and planners themselves. Planning decisions which affect school districts, traffic patterns, zoning boundaries and welfare issues can be rendered in relation to the needs of the district or neighborhood zones

which are directly affected. Reference to the planner's catalog of neighborhood factors will significantly reduce extremes of under or over-reaction, will help to establish realistic budgeting procedures and relate planning directives to the citizens and communities who need and want them. Neighborhoods will not be determined simply by their immediate physical boundaries, but by analytical factors which relate attitudes, statistics and observable conditions to districts, however widespread they may appear on the map. Pockets of variance may be pinpointed within communities so that general planning directives will not be watered down by dissenting reactions and, at the same time, directives will not neglect the interests of individuals who differ in opinion.

Perhaps in the long run neighborhoods themselves will become less isolated than they have been under previous typologies, and less restricted by arbitrary physical or political boundaries.[72] Individuals within neighborhoods, social needs, fiscal trends and physical appearance will establish criteria which, when rendered by statistical correlation with the range of neighborhood types within the community, will provide a more absolute basis for public planning and urban development.

In the process of creating the instruments which will make these manipulations a reality, planners must explore beyond the boundaries of previous research methods. Researchers must look beyond the traditional applications of community

attitude assessment, beyond observational reports and census data toward newer and more reliable means of testing their results and expanding their sources of input. The usefulness of any of these instruments in the past has been limited by poorly developed guidelines, poorly organized community research and non-random samples. New techniques must be developed in each of these areas, and new instruments must be explored. The potential rewards of expanded research are vast in contrast with the additional expense of time and money. The need, the opportunity and the apparatus are there, but how these goals will be achieved remains to be seen.

PART TWO

CHAPTER 5
LITERATURE REVIEW

During the past decade, quantitative methods have become so widespread in the field of urban planning, and its related disciplines, that many researchers have come to the general agreement that project planning can be accomplished most effectively by an open, systematic, self-conscious and empirical approach to the problems and the resources involved. Illumination of the entire planning process to determine who is doing the planning, who should be doing the planning, and the nature of specific goals and objectives, is considered superior to, and more useful than, any other form of review and analysis based on hypothetical planning theories. One planning researcher notes that

> planning involves determination through research and political methods--including citizen participation--of the goals sought by various sectors of the population, philosophical-political evaluation of alternatives, choice among alternatives, and their translation into operationally feasible objectives which can then be fed back into the political process. Conversely, planners who work for the nongovernmental agency, private, or special interest groups will formulate and operationalize the goals of their clients and, of course, criticize the goals of the particular establishments they oppose.[73]

The planning process can be undertaken by any individual or group, but certain problems of goal identification are inherent in different planning situations. The methods of information collection, and management attitudes toward work teams, will be conceptualized in different combinations. The planning agency can develop its own planning goals in-house, it can send out a planning team to collect information, or it can simply react to the demands of residents who want to make changes. In effect, then, there are three possible planning situations which may be employed by any agency: central agency

planning (with technical expertise), resident planning (no technical expertise) and neighborhood planning teams (mixed conditions).

In the central planning agency, planning administrators seldom venture out of their offices into actual neighborhoods. Goals are formulated inside the agency. Only on occasions when factors emerge which may jeopardize the plan do many of these agencies seek the advice of citizens, send out questionnaires by mail, or hire a research consultant to infiltrate a sample of residents. Under such conditions, goal seeking and attitudinal identification are restricted by staff size and work load. Limited budgets also hinder thorough research. With federal support, principally under HUD's 701 planning grant program and the HUD urban renewal program, some agencies have developed comprehensive transportation and renewal plans and, thereby, planned themselves into a state of caretaking and administration of previous plans.[74] As an on-going activity, planning does not always consider horizon dates for updating of previous plans. With the reduction of federal funds, staff members hired to complete master plans and urban renewal plans have been terminated. The remaining planners may be considered the "hardiest" stock of planners, those politically capable of keeping their positions despite economic recession and cutback. As residuals, these individuals may develop attitudes of self reliance which permit them to assume they are capable of understanding and interpreting neighborhood goals and values without access to the residents themselves.

From another point of view, some planners have had frequent contact with residents, and previous experiences often bias their beliefs and judgments of residents' goals. In some cases, planners have done battle over their interpretations of citizen goals, only to be contradicted and, eventually, defeated by the citizens themselves. There are also documented cases of battles between local and regional planning agencies, and

between planners within a single agency over differences in perception of the same data.[75] It might be argued that the source of the planner's training--the particular viewpoints and biases of the school or university where he was educated--act strongly upon the planner and determine, in large measure, the nature of his responses to planning issues. The length of training, or the scarcity of it, can render certain bents and distortions in the individual's manner of perception.

Such problems, and their relationships to goal identification, are not unrecognized by the agencies themselves.[76] Some agencies have become self-conscious and indrawn as a result of similar debilities, lapsing into a sort of caretaking role rather than aggressively seeking means of restoring balance and concern to public planning. The interactions which the professional planner must take between elected and appointed officials, pressure groups, citizens, planners and his own unique understanding of the issues, demands flexibility and resolve. His awareness of the responsibilities of planners in such a pluralistic, democratic society often leads the planner to the conclusion that the urban decision-making process must be restructured. He wants to ease the process of decision making, while at every turn the issues demand arbitration.

> The market and political bargaining and processes depend on the assumptions that only individuals have goals, that these normally conflict, and that the mysteries of bargaining yield the best results possible for men. The planner cannot rely on a hypothetical invisible hand; he must validate his claim to negotiate. Planners cannot claim to arbitrate on the basis of their own views of the public interest. If there are important conflicts of interest in a society that cannot be resolved to the advantage of all parties, then planners require the guidance of a strong political arbitrator.[77]

By even token recognition of the diversity of community goals, the planning agency contributes to an effective urban democracy in which citizens play an active role in the process of policy decision. So the solution to the problems of

multiplicity, bias (whether by training or acculturation), limited resources, competition, and conflicting citizen and official reports, is a technical solution. The planner must clarify the goal-seeking process, clarify the issues, submit the issues to analytical analysis, and test the results of that analysis against both public and private opinion.

ATTITUDES AND BEHAVIOR

Before one can fully understand attitudes, goal structure and value systems which affect the decision making process, one must consider some of the background of attitude formation.

According to contemporary social science theory, human behavior depends on an image concept which is built upon past and present experiences. Images are formed, reinforced or revised by their interaction with other images. Particular mental messages, formed by structured experiences, also enter the picture. Images tend to be formalized by their relationship to these messages, and the resulting fusion dictates behavior. In the normal individual there is a continuous bombardment of messages and images, both shared and private, and the greater the number of shared experiences between individuals and groups, the greater the likelihood that group interaction will be compatible. Group interaction, per se, tends to reinforce similarities of perception and discourage diversity.[78]

In order to explain the behavioral process, Miller (et. al.) state that

> any correlations between stimulation and response must be mediated by an organized representation of the environment, a system of concepts and relations within which the organism is located. A human being . . . builds up an internal representation, a model of the universe, a scheme, a simulacrum, a cognitive map, an image.[79]

It is according to these images--how and what a person thinks of himself and his environment--that he consciously and

unconsciously formulates plans. By building on various images, and by reinforcement of beliefs based on positive responses to the use of particular plans, individuals develop strong attachments to particular actions and attitudes. Education, both formal and informal, can restructure or broaden certain pre-conceived ways of perceiving. When an individual attains professional status in one field or another, he will likely have undergone considerable expansion and modification of his previously held beliefs. This is one of the aims of education. However, this process may also create a certain distance between individuals who do not share a common experiential or educational or professional background. It tends to allow, perhaps even encourage, conflict in situations such as those which constitute the public planning process.[80]

When professional planners meet with non-professionals to discuss goals and criteria for neighborhood development, any situation may lead to direct conflict. For either side to give up or compromise on a particular position, means the invalidation of beliefs, or spontaneous reactions, based on one's prior experience.[81]In turn, the individual's self-image is affected. In order to avoid outright conflict, a process of rationalization and coalesence must take place. Ideally this leads to a mutual give and take so that neither party is wholly victorious, nor the other wholly defeated. In regard to this interaction, the theory of cognitive dissonance is helpful. This theory holds that human beings try to establish internal harmony, consistency or uniformity among their own beliefs and values; that is, there is a drive for consonance among cognitions. The presence of dissonance gives rise to pressures to eliminate the disturbance. The strength of the pressure to reduce dissonance is a function of the magnitude of the disturbance.[82]Morals and customs may be considered as established collective habits, with consonance among them. Collective habits can be spread between individuals by a

number of common disseminators, and through this dispersion of habits, beliefs and acceptable patterns of response, entire social structures can, and do, evolve. The structure is flexible enough to tolerate change, and to induce change laterally through the entire complex. But there are strict patterns of resistance to change, face-saving, curiosity, and possibilities of modification by education or exposure which affect the nature of the structure.[83]

In attempting to understand why people cling to those beliefs to which they have commited themselves, we should consider the process of motive evaluation. Intellectual capacity, syndromes of temperament, unconscious motives, social attitudes, ideational schemata, interests and values, expressive traits, as well as stylistic and pathological traits and other factors, can be studied for their relationship to motivation. When individuals invest their ideas, time and energies in planning, they may strongly believe that they are making an investment of themselves and their most sacred beliefs. Through participation, people are exercising motives with long-term implications. And the process of commitment and investment itself implies a willingness to defend one's position against modification or invasion by others. This situation has direct bearing on the interaction of the planner with his community.

Groups of people may be considered as neighborhoods of shared images. From a social viewpoint, neighborhoods may be best understood by looking at inter-personal relations. From an economic viewpoint, the neighborhood may be defined as a trading area, or an area defined by particular income and/or spending habits. From the physical viewpoint, a neighborhood may be classified by uniformity of appearance. At one time or another, each of these definitions has been applied as the central characteristic of neighborhoods. At least one planning authority, Doxiades, advocates the "human dimension" as the

essential characteristic of neighborhoods.[84] Advocates of the use of small, cohesive physically-related neighborhoods hold that focusing on the local human element helps to combat alienation and instability and encourages close, informal social ties. Opposing this point of view is another school of thought which states that neighborhoods are merely the overlap and intertwining of a vast number of social, economic, moral and political forces, and that the neighborhood concept, as employed by physical planners, is reactionary in effect, sentimental in concept and it ignores trends of modern society.[85] Beyond the arguments of either side in these debates, the principal remaining element is the fact that urban residents do congregate in residential groupings and patterns which suggest a broad diversity of interactions and attachments.

As a manageable unit for analysis, the neighborhood can be a useful grouping. Much existing data can be broken down into areas which are delimited by housing of similar design and appearance, public school districts, and political precinct boundaries. Certain kinds of neighborhoods can foster better planning through resident goal-seeking and participation in general planning sessions. Experimental manipulation of neighborhood Aggregate Data offers approaches to many of the recurrent problems in public planning: among them, consideration of the efficacy of resident planning, the need for professional direction of neighborhood goal-seeking, and the comparison of physical, social and economic factors in neighborhoods which contribute to better community involvement and effective urban and suburban planning decisions. Although there is little empirical knowledge of the precise factors which might work to produce commonality of thought or cooperation in goal-seeking, much of the current thought and methodolgy of public planning lends itself to these investigations.

In contrast to the public planning agency's determination of planning criteria or the independent development of planning

initiatives by laymen, there seems to be an obvious need for cooperation between the professional, on one hand, and the resident, who will be served by the planning development, on the other. This interaction of planner and layman, known as "citizen participation," is held in high regard by planners, if for no other reason than the fact that citizen input offers a sort of guarantee, or utilitarian value. According to Beck,

> participation in the decision making process by recipients of the decision often leads to greater acceptance of the decision, and hence, more successful implementation . . .[86]

Still, whatever the motivation for this spirit of cooperation, citizen participation assures that planning professionals and technicians do not design or implement programs or policies with "either disregard for citizen interest or simply for the interest of certain power groups . . ."[87]

Actual application of citizen participation has been slow in coming to many agencies, and has been ineffectively implemented in others. One difficulty has been the distrust which many central agency planners have for field staff. Some planners refuse to rely on the data or the forms of communication established by their field researchers, while others are negatively influenced by failures of citizen participation in some model cities or OEO experiments, even though their own researchers have had no firsthand corroboration of such failures.[88]

Social psychology field research related to determining the degree of professional leadership needed for successful operation of community subsystems suggests that there is great need for further testing of alternative leadership situations in order to produce realistic criteria for community participation in the planning and decision making processes.[89] The implanting of comparative subsystems within larger social organizations--whether in neighborhoods, institutions or both--

empirical study and the testing of hypotheses may lead to a better understanding of the pluses and minuses of actual planning situations, and in turn, expedite the planning process and improve both the structure and the credibility of the planning agency.

To what extent survey instruments may be employed as a basis of community input is not entirely clear. While this method tends to offer greater objectivity and the possibility of a perfectly randomized sample which avoids the biases of curious, greedy or ambitious citizens such as one might find in called neighborhood meetings, it should be recognized that both the survey instrument and the neighborhood meeting offer perceptibly different advantages. In the end, each must be weighed for both positive and negative effects, suitability to specific planning situations, ease of application, relative cost in terms of both time and money, and the degree to which each may be rendered in standardized format for application in a broad range of public planning situations. A tested methodology and a dependable method of generating useful information on community attitudes and opinions is one of the foremost needs of the planner today.

USES OF AGGREGATE INFORMATION

Important studies concerning the uses of aggregate information, such as those by Shevky, Eshrev, and Bell, Social Area Analysis (1954)[90] and Tryon's Identification of Social Areas by Cluster Analysis (1955)[91] are often quoted with regard to census data, and form a strong basis for application of this resource. G. G. Roy states in his work on the subject that quantifiable variables are a necessary component of wide-scale research in regional planning.[92] In general, the authorities agree that aggregate data is essential for spotting social, physical and economic relationships over a large geographic area.

At present, there is some interest among planners in

exploring differences and affinities between neighborhoods within metropolitan areas, or regions. This interest is exhibited by the broad range of recent studies related to the development of research designs using multi-variate analysis. Among the suggestions of this research is the fact that multi-variate analysis enables the planner to isolate specific variables or factors forming neighborhood descriptors, and then to compare and contrast these findings over large areas which may have been previously characterized by U. S. census data. As particular areas are identified within a region, the planner begins to detect other breakdowns and permutations within the larger units. During the planning process, sub areas may be called out of the data, by means of classification by some designated typology, and then contrasted within regions or even larger geographical areas. This method allows the researcher to validate findings by comparison, to spot previously unseen factors, or to test for overall realiability of results. This type of investigation is currently used in taxonomy. In collapsing variables into smaller combinations of hypothetical or conceptual factors, group types may be identified. Each group may be labeled, or sampled by other methods, and employed as a test element. In general, such applications employ a base of aggregate data.

Cluster search methods based on correlation matrices, developed from the output of some prior factor analysis, are preferable to some researchers. On the other hand, if one is interested in developing an understanding of both the structure of geographic systems and basic causal structures within a region, then factor analysis is essential. Research by King and Jeffrey indicates that classifying of cities and regions, using oblique factor analysis of time series data, has had important results in the past which suggest continued reliability.[93] Rees states that the following steps should be considered in developing a sound classification system:

1. The purpose of the classification must be well thought out.
2. The individual, or subject, must be defined. And the universe or population to be classified must be delimited.
3. The differentiating characteristics, or criteria, on which the classification is to be based must be selected for the method of classification to be used.
4. Logical division, or methods that use grouping or clustering procedures, should be chosen.
5. There needs to be restrictions set on the classifications.

Rees states further that most factorial ecologies stop short of applying their dimensional findings to the problem of classifying residential areas within regions and cities.[94] For this reason, the most significant research remains Tryon's work of the 50's. In replicating Tryon's study of the San Francisco SMSA using census data, Kendig has reached conclusions about the Los Angeles SMSA which largely support Tryon's analysis.

Most studies rendered by planning agencies have used the single source of aggregate data, drawn from U.S. census reports, in assessing regional variation. Some of these studies have focused on the spatial patterns of the principal social dimension--reflecting various ethnic, social and economic patterning--while other more recent studies have approached theories of open residential patterning which can be detected in census data. With city classifications based on correlational data rather than structural characteristics, a much broader analysis of complex systems--such as state areas within a city--is possible. Horton and Louviere stated in their 1974 report that too strong an emphasis is now being placed on collecting aggregate data based solely on the federal census, and that specific behavioral, drawn from local and regional reports, should be jointly manipulated as a data source.[95]

Ranney states that there are few adequate commentaries on the methodology of applying, or developing, aggregate data research. He states, further, that comprehensive analyses of aggregate data comparable to those on survey methodology are particularly hard to find.[96]

Another problem in manipulating aggregate data is the lack of suitable models for assessment of neighborhood change on all the societal dimensions over an extended period of time. Johnson suggests that the problem arises from a lack of basic data, and a lack of appropriate study by planning researchers.[97] Two recent studies have attempted to assess neighborhood change over time and have led to somewhat different findings. In Toronto, Murdie used both 1951 and 1961 census data to uncover six societal dimensions. They were: suburbanization, ethnic change, urbanization, changes in residential mobility, changes in employment characteristics, and Eastern European ethnic changes.[98] In Chicago, Brown and Horton used 1950 and 1960 census data to uncover occupational polarization, occupancy tenure, income profile, lay-cycle profile and ethnic structure of neighborhoods.[99] The success of each of these studies in delimiting specific data related to a large number of social changes is a remarkable indicator for researchers in developing compatible forms in other cities. However, the differences between the two studies help to point out that each different city will produce distinctively different aggregate data, which will, in turn, produce different statistical combinations and different factors. In addition, particular physical, social and political concerns will lead researchers to extract data and analyze results in widely different ways from one city to the next. The range of these findings may only be determined by actual empirical testing and observation, but the differences in the findings of the Toronto and Chicago reports suggests the degree of variation may be high.

Another test, by researchers at the Chicago School of

Urban Geographers, has attempted to investigate spatial structure of residential populations, the distribution of social pathology and the segregation of social groups. The various theories underlying the development of each of the categories were sketched out and tested against actual field data. The findings of the study stress that researchers in the past have failed to develop a substantial base of theory related to urban geography, relying, instead, on some rather hasty conclusions drawn from their investigations. The study demands more substantive empirical experimentation using aggregate data; particularly the sort of experimentation which might lead to the formulation of meaningful theories that can be applied in collection and analysis of this type of data.[100] The results of this research have had impact on many academic disciplines. Not only is urban geography affected, but sociology, economics and political science as well. Each area of study must eventually come to see that, without a substantial base of theory which can be tested and adapted according to specific empirical findings, most current research is subject to hasty guesswork and personal bias. One of the difficulties in aggregate data research, as expressed by Muhlin and Milcarek, is the difficulty of selecting what is theoretically relevant from that which is available.[101] Indeed, there are large amounts of data to be considered, however, each application and analysis of specific data contributes to a better knowledge of specific forms of information. And the only way to develop dependable theories from the data is to successively limit and refine each source and each type of data for its usefulness in development of such theories.

A study by J. Brand indicates that there is a growing politics of social indicators within cities and regions, emerging from the competition for scarce funding dollars.[102] Planners and policy makers, including elected officials, are now trying to relate social indicators to policy goals: that

is, use of statistical measurement to relate planning criteria to the highest priorities of public issues. To develop such indicators, researchers attempt to relate neighborhoods or census tracts by statistical comparison. By determination of specific layers within communities and reliable bases, high and low statistical factors can be allied with popular issues. Current interest in Zero-Based Budgeting is related to this demand for improving social indicators. Other demands are being made to improve social reporting in general. In his SSDS program, Richard Stone states,

> Social indicators relate to some areas of social concern, and they may serve the purposes of curiosity, understanding or action. They may take the form of simple data series, or they may be synthetic series obtained by applying a greater or lesser amount of processing to data series . . . social indicators form a subset of the data series and constructs actually or potentially available and are thus distinguished from other statistics only by their suitability and relevance for one of the purposes mentioned.[103]

Kendig's study, "Cluster Analysis to Classify Residential Areas: A Los Angeles Application," suggests that cluster analysis has substantial advantages over more frequently used methods of classifying residential areas and summarizing areal data. Manipulation of aggregate data is important in order to uncover more purposive aspects in city planning. He says,

> City planners will increasingly recognize that they deal mainly with distribution and flows of activity, with physical forms and flow systems and with their interrelations; and their basic focus is on a large scale physical environment of the city and the region, its nature and characteristics, the forces that shape this environment, the effect it may have on society, the way it changes, and the way they may guide these changes to serve our purpose.[104]

Reiss states that one of the failures in community research is that the scientific comparative approach and the techniques

of multi-variate analysis are not generally applied to the design of community studies.[105] Labovitz states that data have meaning only in terms of the interpretation made by researchers.[106] Social researchers have much data, including census data, and these must be reduced to some statistical measure before meaningful interpretation can be rendered. Bross continues with the same line of reasoning in stating that three criteria are needed for good data: relevance, freedom from bias, and repeatability.[107] In the instance of the use of aggregate data, these criteria are relatively controllable.

APPLICATIONS OF OBSERVATIONAL CRITERIA

Literature suggesting the reliability of observational criteria as a data source in obtaining planning criteria has been widely diffused throughout the intellectual community in recent years. In many such reports, scholars have attempted to show that both individuals and work teams are capable of rendering sound and uniform judgments. From the cultural standpoint, Kuhn discusses the concept of paradigms and the passing of beliefs from one person to another within professional and academic disciplines. Often, he maintains, these beliefs begin to transcend cultures and achieve a true zeitgeist, or spirit of relationship.[108]

Related to this literature of scientific theory is the literature of social psychology. Recent research by Nisbett states that judgmental capabilities, or decision-making potential, is related to the amount of training the individual possesses in the use of consistent rules. His studies were focused upon accountants and clinical psychologists and their work performance. He found that those who have very strict rules for deciding have better ideas about the cause of their decision-making behavior.[109] Previous successes in decision-making provide anchors for future decisions, building confidence.

Other studies show that there is strong influence upon judgments by the frequency of the occurence of a situation. Repetitive tasks produce a somewhat conditioned reflex and reinforce learning.[110] Learning then helps to produce more uniform judgments. From these research efforts, it may be seen that professional judgment is also a function of professional socialization. Acceptance of a system of common beliefs may provide a useful, pragmatic basis for peer communication. Commonly accepted methods of task completion and common causal assignment patterns tend to lead to similarities of judgment and a certain security for the task of rendering observational data.

As specific skills, judgmental functions are taught in the design professions, as well as in other disciplines. However, since personal and cultural values impinge on the types of judgments rendered, clear value-free judgment and ways to obtain it, are absent in most planning literature. The field of social psychology has little empirical research in this areas. Most related investigations are studies of conformity. The related topic of professional acculturation is frequently absent.

In evaluating the various aspects of the judgment, or evaluative process, the analyst may consider a number of interrelated factors in order to determine which aspect of the act of judgement takes first priority. Some aspects are (1) the observation of boundary conditions, (2) variables outside the range of the experiment which influence decisions but are difficult to isolate, (3) professional acculturation which affects the individual's outlook and range of response, and (4) the frequency of the judgment task and effect of repetition. Whether or not any one factor can be said to bear the greatest responsibility in the judgment process, opinion is a critical aspect of judgment, and a host of personal factors are bound to interact with each of the other forms of preparation and

acculturation by which the professional operates. For one thing, subjective assessment of physical qualities, such as distance or size, depends on object clarity. One's own eyesight, time of day, weather conditions, field of view, and applicability of the subject of view to the specific research project all weigh upon the observations rendered.

In considering opinions which express a subjective appreciation for, or dislike for, specific variable aspects, one's evaluations may be based on other criteria. In such instances, personal factors come into play. The observations made by any other individual may vary widely unless some form of isolation of variables is established so that extraneous, or personal, criteria are restricted or controlled.

Another problem in the judgmental process is related to the processing of information. Experiments show that judges respond in highly predictable ways to the information made available to them.[111] The structure of the judgment situation is an important determinant of information usage. From this research, it appears that the subject matter of the decision has strong relatedness to its capacity for a clear, uncontested judgment. For example, a problem occuring in judging the quality of specific physical features is the intrusion of personal and professional bias. Even when given standards of judgment and comparison of physical features, judges who were given photographs of land features for comparative analysis responded according to the particular bent of their background and occupation.[112] Results of this kind of testing were consistent, indicating that each individual sees the same objects with different eyes.

In another study, use of skilled observers in forming evaluation panels for the visual assessment of landscape was found to be the most reliable method of judgment.[113] Researchers felt that more comprehensive sets of aesthetic value judgments could be developed and prepared by skilled observers. Through

the formation of an evaluation panel, this experiment showed that observers who have been trained in specific categories of response were able to establish a greater range of visual qualities with a higher degree of discernment than any other group of judges tested. The test group developed a greater range of sensitivity for landscape qualities, they assessed the effects of change more clearly, and they achieved a greater degree of interest and, thereby, creating greater support within the group itself.

In another test, in the State of Texas, common training sessions were developed which were intended to make any field worker a trained observer with uniform judgment capacity.[114] By group training, common response patterns were developed so that variation among field workers was minimized. Attempts at assessing preferences for natural landscapes resulted in two major dimensions which individuals use in their subjective assessment of natural scenery. One dimension is natural scenic beauty--ranging from "beautiful" to "ugly." The other is a natural force factor with tranquil or powerful dimensions, representative of urban experiences such as walking among dense buildings in downtown areas. This study was accomplished with photographs rated on each of twenty-one semantic differential scales by various subjects. Studies like this try to reduce affective variables to a minimum in order to produce responses with as little "experimental noise" as possible. Judgments are based on observations alone. By contrast, novice professional employees were only partially taught observational techniques and the argot of institutions. They interviewed and diagnosed inmates of correctional institutions and then passed along their training to their successors. By carrying out an extended operation of this type, researchers were able to discover that novices approached their various tasks without agreed upon positions on corrections, or without agreed upon or reliable techniques for assessing criminality of offenders.[115]

While the first experiment was relatively successful in training observers because of the depth and repetition of the training experience, the second failed because the training was neither deep nor consistent.

Despite the findings of such experiments, there is still disagreement among certain authorities as to the possibility of adequately training professional employees in observational skills. Some hold that operational categories used in public agencies tend to be arbitrary, ambiguous and ad hoc. Shover established that many current programs in public agencies are self-serving, concerned primarily with lubricating the workflow and reducing the upsets in established routines.[116] Such methods attempt to perpetuate present belief systems, leading to a forced standardization of professional responses which may be neither adequate nor accurate.

Another empirical study shows that experiment subjects who know in advance what kinds of judgments have been rendered by their peers will tend to respond to issue statements in conformity with the judgments of their peers.[117] Task difficulty also affected judgments. This study indicates that individuals charged with judgmental responsibilities need uniform training and uniform levels of skill in order to render uniform judgments.

Studies by Vigier indicate that training in visual analysis may be largely responsible for the designer's ability to conjur tentative images on the basis of fewer cues than non-designers.[118] The experimental method by which the researcher arrived at his conclusions employed a number of scenes flashed on a projection screen. Background, middle distance and foreground were evaluated, along with left-center and right-hand areas. Two groups of subjects were used: one trained in design, the other untrained, non-designers. When accuracy and perception of urban environmental factors were determined simply by the

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identification of major components, Vigier found no marked difference between the responses of the two groups. However, when accuracy was related to having a broader perceptual pattern, designers performed better. The results of this study showed that design training had an advantage in helping respondents to recognize forms and offer opinions more quickly than the untrained observers. The trained observers also needed fewer variables and less information for rendering sound judgments. This experiment tends to support the concept of commonality of response among trained observers.

Lipman explores the professional architectural perspective of those social variables associated with community participation and how they are affected by architects' decisions.[119] His data was from selected comments, articles, conference reports and responses to interviews. In his findings, an underlying subcultural value-orientation seems to exist, supporting Kuhn's earlier description of value paradigms in ethnic, social and political communities.[120] Lipman states that architects, as professionals, share related beliefs about social consequences and the benefits and liabilities of professional activities.

By transferring these results to the concept of professional judgment as a data source, we may derive nine separate objectives which attempt to clarify and control the use of observational criteria for judgment. They are, (1) servicability of physical structures, (2) social symbols, (3) aesthetic quality, (4) degree of industrialism and/or crowding, (5) social engineering indicators, (6) public relations indicators, (7) professionalism indicators, (8) visibility of social science indicators, and (9) residual categories related to physical design and other human needs.[121] Since a number of the studies discussed above suggest that commonality of research opinion exists, the use of professional judgment criteria and standardized patterns of physical assessment would seem to be a natural resource for incorporation into the research design for contrast of multiple data sources. If training of experts or other methods of

rendering uniform judgments of neighborhood factors can provide meaningful input to the planning and goal-seeking processes, further study of the individual differences among those performing data collection surveys and analysis of the reliability of the resource, in conjunction with other forms of data, must be an imperative of any research related to the applicability of multi-variate analysis.

Specific methods to be employed in this testing of multiple data sources are presented in the following chapter, "Development of Research Design."

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CHAPTER 6

DEVELOPMENT OF RESEARCH DESIGN

Planners who have worked in and with public planning agencies are aware of many of the difficulties involved in obtaining dependable research data.[122] They are also generally aware of the researchers' tendency to rely on single sources of information and some of the problems which arise out of this one-sided approach to planning analysis. Extensive review of the literature of planning confirms observations of this type, about the lack of breadth in planning research, and indicates that further study is needed into the sources of information and the ways in which they may be applied through multi-variate analysis.

In formulating an approach to this investigation of multiple data sources, several different methods of research were considered in order to determine which of them were most basic to contemporary planning issues and which offered the most convenient forms of inter-relation for manipulation by multi-variate analysis. The three forms which were delimited from this review were:

1. Community Attitude Research
2. Aggregate Data Research (founded principally on census reports)
3. Observational Data Research

In addition to the fact that these three sources were largely different in form and application, they were also highly representative of actual research programs in current use and cover the full extent of information gathering techniques represented in "commonly stored programs" in public planning agencies today. The techniques developed for testing each of these sources and for testing their correlation were produced in accord with current social science criteria, augmented by the principles of measurement theory and computer technology. The following documentation covers, in brief and concise form,

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the development and application of the research design.

LIMITATION OF VARIABLES

Initially a list of 178 variables was developed from the three data sources. 146 were issue statements for possible use in the Community Attitudes survey instrument, 23 were Aggregate Data issues drawn from the 1970 Census of Housing Characteristics from the Detroit Metropolitan Area, and the remaining 9 were Professional Judgment issues. The complete list of variables is as follows:

TEST UNIVERSE FOR CLUSTER ANALYSIS

COMMUNITY ATTITUDE ISSUES:

1. My children's education is inadequate.
2. I feel that my neighbors and I have had a good education.
3. High School dropouts have a noticeable bad effect on my neighborhood.
4. Police protection is adequate in my neighborhood.
5. There is much crime (rape, alcoholism, narcotics, murder, vandalism) in my neighborhood.
6. The youth in my neighborhood do not generally commit street crimes.
7. Drug traffic in my neighborhood makes me feel very insecure. (I fear for my children's and my own safety.)
8. Racial discrimination does not occur in my neighborhood.
9. Neighbors move a lot, and this frequent change of neighbors is a detriment to the character and social order of my life.
10. There is a clear sense of belonging in my neighborhood.
11. Mental and physical exercise are not essential to my daily life.
12. I would ride a bicycle because there is little danger from cars in our streets.
13. It is unsafe to walk the streets, even during the day.
14. My landlord usually fixes anything that is broken.
15. I feel that I cannot have any privacy in my house/apartment.
16. I seem to relate well to others in my neighborhood.

17. The social status of the family next door is affecting my self-image.
18. Generally, my neighbors and I seem to agree on things.
19. I can't seem to persuade others in my neighborhood to do things my way.
20. There is a sense of civic or local pride among my neighbors.
21. There are too many people living around me. (I always feel crowded.)
22. There are enough day-care centers for working mothers in my area.
23. The family should do some things together.
24. There are no shopping areas within walking distance of my house.
25. Houses are very close together limiting light and air circulation in my neighborhood.
26. Investigating companies have not invaded my privacy.
27. Many people have been divorced around here.
28. There are good educational opportunities for adult and children in my neighborhood.
29. Recreational facilities for families are not adequate. (Either no equipped, not enough, or not located conveniently in my neighborhood.)

REGIONAL ISSUES:

30. Local public health services suit my family's needs.
31. If there were more cultural opportunities offered, I would take advantage of them.
32. The poorer families do not generally have more children than they can manage.
33. Today's society is much too mobile.
34. People always seem somewhat calm and tension-free.
35. Police do not have enough authority.
36. I cannot see racial and sex discrimination in all facets of life.
37. The downtown area doesn't interest me anymore.
38. I feel that I do have a choice in the kind of housing that I might be able to move to in the Detroit Metro Area.
39. My interaction with neighbors and friends is adequate.
40. It seems that everyone is aggressively for himself in traffic and shows no courtesy toward others.

41. I would not want a lower class of people as my neighbors.
42. I think talking with neighbors is a good thing.
43. I would like more cultural, educational and recreational facilities to serve my needs.

POLITICAL ISSUES:

44. I would like my neighbors to have the same political beliefs as myself.
45. I see no need to participate in governmental decisions or to be heard loudly.
46. I would like governmental planning to anticipate problems.
47. I don't think public officials care much about what people like me think.
48. The way people vote is the main thing that decides how things are run in this country.
49. Voting is the only way that people like me can have any say about how the government runs things.
50. People like me don't have any say about what the government does.
51. Sometimes politics and government seems so complicated that a person like me can't really understand what's going on.
52. The most rewarding organizations a person can belong to are local clubs and associations rather than large nation-wide organizations.
53. Despite all the newspaper and TV coverage, national and inter-national happenings rarely seem as interesting as events that occur right in the local community in which one lives.
54. No doubt many newcomers to the community are capable people; but when it comes to choosing a person for a responsible position in the community, I prefer a man whose family is well established in the community.
55. There is a large degree of graft and corruption as an everyday part of politics.
56. The city government should swiftly make all necessary public improvements, such as street repairs, lighting, flood damage repairs, etc.
57. Big cities may have their place but the local community is the backbone of America.
58. I have greater respect for a man who is well established in his local community than a man who is widely known in his field but has no local roots.

59. The values of people should be strongly based on history and strict adherance to our laws.
60. There is no need for change to be made for its own sake.
61. Poor planning and poor zoning (laws) have decreased the value of my home.
62. Many community problems can be solved through proper planning.

ECONOMIC ISSUES:

63. Unemployment does not appear to be a problem in my neighborhood.
64. The area merchants do not tend to overcharge for their merchandise.
65. Soaring food prices and the high cost of living has caused people in my neighborhood to steal and cheat.
66. My own career is supported, not hindered, by my neighborhood.
67. The city won't keep up and maintain the area's playgrounds.
68. Trash collection is acceptable in my neighborhood.
69. I would like my life to be recreation oriented (at no cost).
70. Most of the time the water I drink tastes terrible.
71. The cost of maintaining and operating an automobile is not that expensive, nor is it a real burden to my income.
72. I would not walk to work or the store, even if they were closer to home.
73. Loans can be easily obtained to make necessary repairs to my home.
74. The planning of my neighborhood does not reflect concern for economic and commercial growth.
75. There do appear to be attempts to assist failing commercial establishments by local government.
76. Not enough public funds are spent on urban renewal in my neighborhood.
77. There is a lack of parking space in commercial areas near my home.
78. Public transportation (train or bus) serves the needs of citizens in my city.
79. I can't make improvements on my house because I can't afford the tax increases.
80. Public services, such as water supply, sewer and street repairs, are inadequate.

81. I would like to see new industry re-locate in the city next to old industry, and not in my neighborhood.
82. Proximity to one's job is a very important factor in choosing a place to live.
83. Gasoline prices and car insurance costs almost keep me from driving.
84. Extensive bus service improvements are not necessary in my neighborhood.
85. There are too many controls put on wages and prices.
86. There appears to be no lack of low cost housing for the poor and moderate income.
87. High mortgage rates have deprived people of home ownership.
88. Inflation is a fact of life, and is not seriously affecting the way I live.
89. I pay too much in taxes for what I get in return.
90. I believe in an economy which provides a high and rising level of income for its residents.
91. Medical care is too expensive for me to afford.
92. Sense of civic responsibility goes with pride of ownership and is important.
93. I believe in the orderly redevelopment of areas which no longer seem to compliment the urban pattern.
94. I would like new public facilities to be located so as to stimulate private development and growth in desired areas.
95. The public library system is adequate.
96. It would be good to have a grouping together of businesses in high density residential areas complimenting each other in order to reduce travel time.
97. There should be mandatory coordination of planning among city officials and among city departments.
98. I think we should restore and/or create a few natural landscape features in the metro area, even if we have to tear down some buildings.
99. I would like a maximum of one-half mile walk to schools.

PHYSICAL ISSUES:

100. There is a poor level of street lighting in my neighborhood.
101. We have a maximum of natural light and fresh air in our neighborhood.
102. There are unsightly abandoned storefronts in my neighborhood.
103. There are few, if any, old deteriorating houses in my

neighborhood.

104. People living in my neighborhood find it hard to sleep because of noise outside.

105. Air pollution does not noticeably occur in my neighborhood.

106. Water pollution is evident in my neighborhood.

107. My neighborhood has a strong physical identity and unified appearance.

108. There is need for a regular program of neighborhood beautification.

109. I would like mostly low buildings in my neighborhood.

110. Architects could have made the houses around me look better.

111. Police and fire stations need to be build in my neighborhood to give faster and more efficient service.

112. More trees and bushes are needed to take away the barren appearance of my neighborhood.

113. We have a complete, comprehensive shopping center within walking distance.

114. Cars are not clearly separated from pedestrian ways.

115. There is too much deteriorating housing in my neighborhood.

116. I have a pleasant view when I look out of my window at home.

117. Visitors to my house/apartment have a choice of parking spaces.

118. Side streets are heavily traveled by persons other than local residents.

119. There is hardly any truck traffic on my streets.

120. The streets in my area are in need of repair.

121. The city street repair program is adequate and effective.

122. I cannot walk to all necessary shopping areas.

123. There are short distances between our social buildings such as churches and recreation buildings.

124. The area around my home is very drab in appearance.

125. There are many areas of traffic congestion close to my house.

126. Many parks and playgrounds are available within reasonable walking distance.

127. There are many vacant lots which are a detriment to the appearance of my neighborhood.

128. Every building in my neighborhood looks the same, and appears monotonous.

129. The building uses around my neighborhood appear disorganized and somewhat incompatible.

130. Nobody seems to care or do anything about the physical condition and appearance of my neighborhood.

131. Some houses are poorly maintained and/or have poor plumbing making for unsanitary neighborhood conditions.

REGIONAL PHYSICAL ISSUES:

132. Roads are crowded when I go to work and when I come home.

133. Public offices and facilities are reasonably located so that I know where to go for help.

134. There is hardly ever the smell of pollution or factory exhaust in the air.

135. The streets are never plowed, nor salted, and are always icy in the winter.

136. My driving vision is hardly ever blocked by large obstructions like trees, signs, buildings and the like.

137. The distance I have to travel to work is too great.

138. There is a variety of appearance to most of the neighborhoods of the Detroit Metro Area.

139. The Central Business District of the Metro Area should hold most all Metro administrative, financial, governmental and cultural activities.

140. Scattered development has been eliminated by planned compact bands and corridors of growth.

141. We have attractive and readable street signs.

142. I like rolling, scenic countryside (or water views).

143. I think we should preserve wildlife (animals and birds) as much as possible.

144. I would like commercial areas to integrate visually with housing areas with transition of landscape materials.

145. The Metro Area is pleasing to look at.

146. Noise levels of people, cars and businesses should be reduced.

AGGREGATE DATA ISSUES:

147. Total population of block.

148. Nearest whole % Negro.

149. Nearest whole % in group quarters.

150. Nearest whole % under 18 years.

151. Nearest whole % 62 years and over.

152. Total housing units that are occupied year-round.
153. % of total year-round lacking some or all plumbing.
154. % of units in one-unit structures.
155. % of units in structures of 10 or more units.
156. % of total housing that is owner-occupied.
157. % of total owner-occupied housing that is lacking some or all plumbing.
158. Average number of rooms in owner-occupied housing.
159. Average dollar value of housing units.
160. % Negro in owner-occupied housing.
161. % of total units that are renter occupied.
162. % of total renter-occupied units lacking some or all plumbing.
163. Average number of rooms in renter-occupied housing.
164. Average contract rent in dollars.
165. % Negro of total renter-occupied units.
166. % of total number of household units with all plumbing facilities.
167. % of total number of household units with one-person households.
168. % of total number of household units with female head of household.
169. % of total number of household units with roomers, boarders or lodgers.

PROFESSIONAL JUDGMENT ISSUES:

170. Height of housing.
171. Proximity of housing to stores.
172. Proximity of housing to schools.
173. Proximity of housing to parks/playgrounds.
174. Proximity of housing to churches.
175. Visual assessment of building deterioration.
176. Land form characteristics (flat, hilly, etc.)
177. Landscape characteristics (amount and quality of planting).
178. Quality and maintenance of streets, alleys, yards and common areas.

In order to develop an effective testing instrument for use in actual neighborhoods, it was necessary to limit the number of variables to be included in the final test. Too many issue statements might tend to bias the responses of some respondents, it might reduce the number of respondents willing to attempt the questionnaire, or limit the scope or geographic range of the survey due to time and complexity factors. During the early test stages, the various issue statements were divided into two groups--in order to accommodate the storage capacity of Michigan State University computers--and prepared for subsequent reduction through cluster analysis. Consideration was given to the structure of each issue statement and the range of reference during the coding operation. The broad division of issues was according to their social, economic, political and physical relationship. The principal areas of concern were the neighborhood and the region. City concerns were omitted because metropolitan and neighborhood boundaries have been found to have greater influence on shaping residents' perceptions of their environment, their belief structures and proprieties than other boundaries. Issues of national concern were also omitted because researchers found, from the literature review, that regional concerns provide more concrete data, are more directly related to individual socialization and provide a fairly reliable microcosm of national concerns.[123]

For pretesting and developing the Community Attitudes instrument, subjects were randomly selected from University of Detroit freshman and sophomore students, from local residents, university faculty, local churchgoers and businessmen. In the testing of the university students, pretests were conducted during classroom sessions in Architecture, Environmental Studies, Political Science, Biology, Sociology, Social Psychology and Mathematics. Class members were assumed to be representative of many socio-economic backgrounds and ethnic groups from many neighborhoods in Detroit. University of Detroit registration

data shows that 65 per cent of the undergraduate students were natives of the Detroit Metropolitan Area. It could be further assumed that one-half year of university life had not significantly altered their native perspectives about the issues, and that the views of students would echo, to some degree, the beliefs of their parents.[124]

In order to properly analyze the Test Universe, each response of the 200 original subjects was recorded and programmed for package program BC-TRY on the MSU computers. The results of that cluster analysis are given in the following table:

TABLE V

PRE-SET V-ANALYSIS OF TEST UNIVERSE

Variable	Issue	Oblique Factor Coefficient
CLUSTER 1: OPEN SPACE AND RECREATION		
29	Playgrounds and parks for family use are neither equipped nor located conveniently in the neighborhood.	-.91
126	Many parks and playgrounds are available within reasonable walking distance.	.67
119	There is no truck traffic on my street.	.41
105	There is little air pollution in my neighborhood.	.36
67	The city won't keep up and maintain the playgrounds in the area.	-.40
13	It is unsafe to walk the streets, night or day.	-.39
129	The building uses around my neighborhood appear disorganized and somewhat incompatible.	-.38
CLUSTER 2: APPEARANCE AND OUTLOOK		
124	The area around my home is very drab in appearance.	-.66
107	My neighborhood has a strong individual appearance and looks unified.	.66
141	We have attractive and readable street signs.	.48

Variable	Issue	Oblique Factor Coefficient
CLUSTER 2: APPEARANCE AND OUTLOOK (CONT'D)		
18	Generally, my neighbors and I seem to agree on things.	.46
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1	The education of children is barely adequate.	-.30
30	Local public health services and clinics suit my family and their needs.	.35
128	Every building in my neighborhood looks the same.	.34
71	The costs of maintaining and operating an automobile are not that expensive, nor are they a real burden to my income.	.33
16	I seem to relate well to others in my neighborhood.	.48
15	I have little privacy in my house/apartment.	-.35
145	The Metro Area is attractive in appearance and quite pleasing to look at.	.41
112	More trees and bushes are needed to take away the barren appearance of my neighborhood.	-.41
129	The building uses around my neighborhood appear disorganized and somewhat incompatible.	-.32
CLUSTER 3: POLLUTION		
105	There is little air pollution in my neighborhood.	.36
134	There is hardly ever the smell of pollution or factory exhaust in the air.	.34
1	The education of children is barely adequate.	-.30
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13	It is unsafe to walk the streets, night or day.	-.39
CLUSTER 4: SOCIALIZATION		
95	The public library system is providing somewhat poor service.	.67
39	It is not especially important to talk with neighbors.	.49
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Variable	Issue	Oblique Factor Coefficient
CLUSTER 4: SOCIALIZATION (CONT'D)		
131	Very few homes are poorly maintained (and/or have poor plumbing) making for unsanitary conditions.	-.33
113	We should have a complete shopping center with many kinds of shops within walking distance.	-.35
CLUSTER 5: CRIME		
7	Drug traffic in my neighborhood makes me feel somewhat uneasy.	.53
13	It is unsafe to walk the streets, night or day.	.39
5	There is crime (rape, alcoholism, narcotics, murdern, vandalism, etc.) in my neighborhood.	.50
CLUSTER 6: POLITICAL		
47	I don't think public officials care much about what people like me think.	.60
55	All or most politicians in local government are crooked.	.53
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50	People like me don't have any say about what the government does.	.30
27	Many people have been divorced or separated around here.	.37
89	I pay too much in city taxes for what I get in return.	.43
CLUSTER 7: PRIDE		
10	There is a clear sense of belonging in my neighborhood.	.52
141	We have attractive and readable street signs.	.45
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121	The city street repair program is adequate and effective.	.36
20	There is a sense of civic (or local) pride among my neighbors.	.45
140	Scattered groupings of buildings have been eliminated by planned compact bands and corridors of newly built buildings.	.33

In reviewing the various cluster combinations, patterns which suggested particular relationships or which offered apparent conclusions about urban residents were given further study, and issues which appeared strongest in each cluster were used in labeling the cluster as a whole. Thus, the titles of the clusters, "Appearance and Outlook," "Socialization," "Pollution," etc., reflect the strength of particular issue statements which were selected by the computer. In general, the response patterns indicate a broad range of dimensional reactions similar to patterns to be expected from the Detroit Metropolitan Area as a whole.

In converting the various preliminary clusters into survey questions for neighborhoods, those items having the highest factor loadings for each cluster were selected. Since over 90 items were used in the cluster analysis, which was beyond the range of MSU's computer capability, an additional cluster not appearing in the second run was selected from the first computer run and added to the shortened item list for the Community Attitude survey.

A six-point Likert scale was used in scoring, with boxes entitled "I strongly agree," "I agree," "I somewhat agree," "I somewhat disagree," "I disagree," and "I strongly disagree." In this manner, the Test Cluster was reduced to its final form with nine dependable, highly rated, issue statements. They are:

1. The overall appearance of my neighborhood is attractive.
2. Well-located, well-equipped and well-supervised playgrounds and parks are both available and an important part of my neighborhood.
3. I don't think public officials care much about what people like me think.
4. The civic (or local) pride of my neighbors makes it easy for me to feel at home around here.
5. Different kinds of crime are causing problems in my neighborhood.
6. The appearance of my neighborhood reflects the attitude and outlook of our residents.

7. Talking and spending time with neighbors is just not as important as going to places and doing interesting things in my spare time.
8. Pollution and its relation to my family's health is a great concern.
9. Personal action (such as voting or talking with people and groups, etc.) is needed to change some neighborhood problems.

In order to clarify the inter-relationships of the Test Cluster questions to the survey apparatus as a whole, data analyses are necessary to characterize each issue statement. The items in each cluster have particular factor loadings which help in conceptualizing the various dimensions of residents' concerns.

In Cluster 1: Open Space and Recreation, the highest loadings are found on items 29, 126 and 119, in which the convenience, availability and quality of maintenance of parks is a major issue. These items are related to absence of truck traffic, revealed by variable 119. The other variables in the cluster have lower oblique factor coefficient ratings, but have high enough loadings to appear in the empirical cluster. These lower factor loadings relate to air pollution, crime in the streets, and mixed land use.

Cluster 2: Appearance and Outlook, has highest loadings in street and neighborhood appearance, street furniture, and agreement with and relating to neighbors. The definers, variables 124, 107, 141 and 18, have coefficients of -.66, .66, .48 and .46, respectively, which indicate moderate to high reliability. Related to these definers are quality of residents' children's education, level of public health services, privacy, commuting, relating to others, and homogeneity of housing appearance. The coefficient ratings of these variables, ranging from -.30 to .48, indicate that several of the issue have a marginal, and tenuous, attachment to the cluster. There appears to be a level of resident satisfaction with the appearance of their neighborhoods, which suggests an overall healthy disposition.

Cluster 3: Pollution, has loadings which indicate the inter-relation of crime with sub-standard education. In contrast with these negative factors, respondents in this grouping felt their neighborhoods were relatively pollution free. All the loadings and related coefficients in this cluster are erratic and insubstantial, with the marginal range of -.39 to -.30.

Cluster 4: Socialization indicates residents' concern with poor library service, neighborhood relationships, health and sanitary conditions, building maintenance and the availability of convenient shopping facilities. In general, the cluster seems to suggest a residential type in which citizens are fairly independent, live in well-maintained housing, are concerned with both the availability of useful information and shopping facilities. Coefficients ranging from -.33 to .67 indicate a varying reliability reaching from marginal to strong attachment to the cluster.

Cluster 5: Crime, is a perceived-crime-rate cluster. Feelings of insecurity due to unsafe streets, drug traffic and other crime are apparent from the three issue statements which compose the cluster. Coefficient rating from .39 to .53 indicate moderate reliability and inter-relatedness.

Cluster 6: Political, has variables which indicate general alienation from the community and concern with the residents' inability to communicate with City Hall. Coefficients, ranging from .30 to .60 are marginal to moderate, and indicate a striking consistency of concern for socio-political problems. Respondents suggested public officials are unconcerned with their opinions, politicians are crooked, citizens have little voice in government and pay too much tax for what they get in return. Variable 27, which indicates frequent divorce in neighborhoods of this type, seems unrelated to the cluster as a whole, but does further the overall image of alienation and non-communication.

Cluster 7: Pride, has variables indicating a sense of belonging among residents, adequate to superior maintenance by the City, effective planning and general feelings of pride. Coefficients range from a low of .33, indicating marginal agreement on the efficiency of planning and structure modification, to a high of .52, which shows moderate agreement on the existence of a sense of belonging among residents.

DEVELOPMENT OF TEST INSTRUMENTS

The seven clusters obtained from the Community Attitude issue statements were subsequently submitted to methods of reduction and compacting in order to arrive at a final grouping of 9 Community Attitude issues for use in the test instrument. Eventually these data were combined with the 23 Aggregate Data variables and 10 issues from Professional Judgment to produce the 42 items for the final stage of testing.

In administering the Community Attitude instrument in the Detroit Metropolitan Area, approximately 888 residents were sampled from the 74 selected neighborhoods selected by matching census tract numbers to a table of one-million random digits. Adult respondents were assumed to be residents and representative of the population of the surveyed census block.

Members of the research team, made up of 100 university students divided into teams of two, were directed to travel to specified census blocks during daylight hours. Upon arrival at the first census block, the teams omitted the corner property and began at the second dwelling unit. They distributed Test Cluster forms to any adult 18 years or older answering the door of every third dwelling. If no resident answered the door, the student team then proceeded to the next dwelling unit in their path of travel, resuming stops at every third dwelling unit until they had covered two city blocks, or about 800 feet. At the end of the second block, if all 60 Test Cluster forms had

not been distributed, the team crossed the street and walked to the next street corner. Following the same procedure as before, they omitted the corner house and proceeded with the distribution to every third dwelling unit, traveling back toward the street intersection where they began. After distribution was complete, the teams then re-tracked their original path to pick up the completed forms.

In presenting the forms, the spokesman for each team was instructed to follow the following dialogue:

> Hello, my name is _____, I am a student at the University of Detroit (STUDENT SHOWS STUDENT I.D. CARD). Would you be kind enough to complete this brief questionnaire for a student project? I will leave it with you and return to pick it up within the hour. If you wish, you may leave it sticking out of your mail box and I needn't disturb you.

Once the introduction and request had been made, the student was free to offer any further information demanded by the dwelling occupant. Team members were instructed to be as polite as possible and not to insist that forms be completed when residents preferred not to take part. In general, however, residents were thoroughly cooperative and provided full and sufficient information.

DEVELOPMENT OF OBSERVATIONAL VARIABLES

In order to develop the universe of items for the observational research data source, research was conducted by small groups of masters-level students using modified Delphi techniques and concensus methods. First, planning texts and planning reports were consulted in conjunction with other independent studies and documentation related to goals of judgmental evaluation.[125] After a number of intuitive categories were uncovered, new items were developed by members of the group. By example, economic issues were extracted from the literature review until no further items could be discovered. At that point, group

members roundtabled economic issues in order to develop further extenuations or modifications of existing items. When the list was complete to the point that nothing further could be added, the group moved on to the next subject area. This process was continued until the observational report was complete. At that point the entire list was approached for duplication or weakness, and weak items were eliminated. Items which might appear ambiguous or have more than a single suggested response were either eliminated or were restructured. And finally, variables were ennumerated as clearly as possible, structured to provide as objective and value-free responses as possible to the general range of observable data recorded.

In using the checklist method of recording professional observations, there is still room for discrepancy between individual researchers on the ranking of specific qualities. Even when particular forms of check lists are mandated for public use (such as the State of Texas Department of Public Health method for measuring neighborhood deterioration), there may be serious differences between the findings of novice field workers and experienced workers, and between workers of different economic backgrounds, or from different educational backgrounds. This research maintains that a part of the problem is the lack of substantial research on standardized methodology, and the absence of meaningful criteria in planning literature. Nevertheless, every effort was made, in developing the universe of test items, to produce as objective a list as possible and to provide a system for ranking and scoring which could be adequately replicated by each member of the observational research team. There is still need for study in the area of observational research, as pointed out by the "Implications" section of this report, and need for standardized methods of ranking and scoring of observable neighborhood conditions.

CHAPTER 7

FORMS

TABLE OF CONTENTS

COMMUNITY ATTITUDES SURVEY INSTRUMENT

	1 strongly agree	1 agree	1 somewhat agree	1 somewhat disagree	1 disagree	1 strongly disagree
1. The overall appearance of my neighborhood is attractive.	☐	☐	☐	☐	☐	☐
2. Well-located, well-equipped and well-supervised playgrounds and parks are both available and an important part of my neighborhood.	☐	☐	☐	☐	☐	☐
3. I don't think public officials care much about what people like me think.	☐	☐	☐	☐	☐	☐
4. The civic (or local) pride of my neighbors makes it easy for me to feel at home around here.	☐	☐	☐	☐	☐	☐
5. Different kinds of crime are causing problems in my neighborhood.	☐	☐	☐	☐	☐	☐
6. The appearance of my neighborhood reflects the attitude and outlook of our residents.	☐	☐	☐	☐	☐	☐
7. Talking and spending time with neighbors is just not as important as going to good places and doing interesting things in my spare time.	☐	☐	☐	☐	☐	☐
8. Pollution and its relation to my family's health is a great concern.	☐	☐	☐	☐	☐	☐
9. Personal action (such as voting or talking with people and groups, etc.) is needed to change some neighborhood problems.	☐	☐	☐	☐	☐	☐

_____

	1 strongly agree	1 agree	1 somewhat agree	1 somewhat disagree	1 disagree	1 strongly disagree

University of Detroit
School of Architecture and Environmental Studies

ct _____
sub _____
con _____

OBSERVATIONAL DATA INSTRUMENT

1. Housing Type: _____Single Family (1) _____Multi Family (2)
2. Observed Ownership Status: _____Ownership Unit (1)_____Rental Unit (2)
3. Height of Housing: ___1 story(1) ___2 story(2) ___3 story(3) ___4 story(4)
   ___5 story(5) ___6 story and over
4. Is housing within walking distance to stores? ____Yes(1) ____No(2)
5. Is housing within walking distance to schools? ____Yes(1) ____No(2)
6. Is housing within walking distance to parks? ____Yes(1) ____No(2)
7. Is housing within walking distance to churches? ____Yes(1) ____No(2)
8. Building Deterioration:
   _____standard (1) _____slight deterioration (2)
   _____deteriorating (3) _____dilapidated (4)
9. Neighborhood Landform Characteristics:
   _____rolly or hilly (1) _____flat land, with some slight hills (2)
   _____flat land (3) _____other_____
10. Landscaping Characteristics: lots and lots of trees ___Yes(1)___No(2)
11. Landscaping Characteristics: lots and lots of bushes ___Yes(1)___No(2)
12. Landscaping Characteristics: lawns predominant;hardly any trees___Yes(1)___No(2)
13. Landscaping Characteristics: front lawn ___Yes(1)___No(2)
14. Landscaping Characteristics: rear lawn or garden ___Yes(1)___No(2)
15. Landscaping Characteristics: less than 20ft between each SF/MF building ___Yes(1)___No(2)
16. Quality of Landscaping Appearance:
    _____well maintained (1)
    _____average maintenance (2)
    _____poor maintenance - or careless, sloppy (3)

CENSUS TRACT #_____

NAME_____

DATE_____

CODING SHEET

COLUMN	VARIABLE	CODING
1-4	1. tract no.	0938, etc.
5-7	2. block no.	204, etc.
8	3. housing type	1= single family 2= multi-family
9	4. observed ownership status	1= ownership unit 2= rental unit
10	5. height of housing	1= 1 story 2= 2 story 3= 3 story 4= 4 story 5= 5 story 6= 6 story and over
11	6. housing within walking distance of stores	1= yes 2= no
12	7. housing within walking distance of schools	1= yes 2= no
13	8. housing within walking distance of parks	1= yes 2= no
14	9. housing within walking distance of churches	1= yes 2= no
15	10. building deterioration	1= standard 2= slight deterioration 3= deteriorating 4= dilapidated
16	11. neighborhood landform characteristics	1= rolling or hilly 2= flat, with some slight hills 3= flat land
17	12. neighborhood has lots & lots of trees	1= yes 2= no
18	13. neighborhood has lots & lots of bushes	1= yes 2= no
19	14. neighborhood has lots & lots of lawns predominant	1= yes 2= no

COLUMN	VARIABLE	CODING
20	15. neighborhood has lots & lots of front lawns	1= yes 2= no
21	16. neighborhood has lots & lots of rear lawns or gardens	1= yes 2= no
22	17. neighborhood has lots & lots of less than 20 feet between each SF/MF building	1= yes 2= no
23	18. quality of landscaping appearance	1= well maintained 2= average maintenance 3= poor maintenance (or careless, sloppy)
24-27	19. total population of block	1095, or 0195, etc.
28-30	20. nearest whole % negro	100, or 098, etc.
31-33	21. nearest whole % in group quarters	100, or 098, etc.
34-36	22. nearest whole % under 18 yrs.	100, or 098, etc.
37-39	23. nearest whole % 62 years and over	100, or 098, etc.
40-42	24. total housing units that are year-round	100, or 098, etc.
43-45	25. % of total year round lacking some or all plumbing	100, or 098, etc.
46-48	26. % of units in one unit structures	100, or 098, etc.
49-51	27. % of units in structures of 10 or more units	100, or 098, etc.
52-54	28. % of total housing that is owner occupied	100, or 098, etc.
55-57	29. % of total owner occupied housing that is lacking some or all plumbing	100, or 098, etc.
58-59	30. average number of rooms in owner occupied housing	99,05, etc.
60-64	31. average dollar value of housing unit	99,000, etc.
65-67	32. % negro in owner occupied housing	100, 062, etc.
68-70	33. % of total units that are renter occupied	100, 062, etc.
71-72	BLANK	BLANK
73-78	IDENTIFICATION	CEN001, etc.
79-80	CARD NO.	01, etc.

C A R D N U M B E R T W O

1-3	34. % of total renter-occupied units lacking some or all plumbing	100, or 098, etc.
4-5	35. average no. of rooms in renter occupied housing	99, 03. etc.
6-8	36. average contract rent in dollars	999, 150, etc.
9-11	37. % negro of total renter occupied units	100, or 098, etc.
12-14	38. % of total number of household units with all plumbing facilities	100, or 098, etc.
15-17	39. % of total number of household units with one person households	100, or 098, etc.
18-20	40. % of total number of household units with female head of family	100, or 098, etc.
21-23	41. %of total number of household units with roomers, boarders or lodgers	100, or 098, etc.
24-25	42. question 1 mean score	35 (no decimal, implied 3.5)
26-27	43. question 2 mean score	35 (no decimal, implied 3.5)
28-29	44. question 3 mean score	35 (no decimal, implied 3.5)
30-31	45. question 4 mean score	35 (no decimal, implied 3.5)
32-33	46. question 5 mean score	35 (no decimal, implied 3.5)
34-35	47. question 6 mean score	35 (no decimal, implied 3.5)
36-37	48. question 7 mean score	35 (no decimal, implied 3.5)
38-39	49. question 8 mean score	35 (no decimal, implied 3.5)
40-41	50. question 9 mean score	35 (no decimal, implied 3.5)
42-72	BLANK	BLANK
73-78	IDENTIFICATION	CEN001
79-80	CARD NO.	02

IBM FORTRAN Coding Form

Tract No.	Block No.	Hsg. type / Ownership / Height / Walk to stores / schools / parks / churches / Parked autos / Landforms / Trees / Bushes-shrubs / Lawns / Front lawns / Rear lawns-garbage / Less than 20' betw. / Landsc. quality	Total block pop'n.	% Black/Negro	% in group quarters	% under 18	% 62 + over	% tot. hsg. units year-round	% tot. year-round lacking plumbing	% of units in 1-unit struct.	% of units in 10 or more units	% of total units owner-occupied	% of tot. owner-oc. lacking plumbing	Avg. no. rms. in owner-oc. hsg.	Avg. dollar value of hsg. unit	% Negro in owner-oc. hsg.	% tot. units renter-occ.	Blank	Identification	Card No.
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0059	405	2221111221121111	0208	000	000	035	015	070	001	066	000	070	001	57	11100	000	027		CEN002	01
0041	208	2231122421222213	0150	098	000	045	012	41	000	049	000	051	000	57	08000	056	044		CEN003	01
0263	401	112121322222213	0160	092	000	040	006	[illegible]	000	021	000	063	000	57	16100	010	035		CEN004	01
0611	105	222122222211212	0243	000	000	034	013	[illegible]	000	053	[illegible]	051	000	56	11800	[illegible]	043		CEN005	01
0304	404	111111132222111	0090	079	000	031	007	32	000	100	[illegible]	100	000	56	19600	[illegible]	000		CEN006	01
0003	110	2221214222211 13	0329	008	000	046	009	095	003	031	004	022	001	72	14400	005	073		CEN007	01
0559	206	1121121122211113	0029	100	000	028	017	01	000	055	000	055	000	68	-----	100	027		CEN008	01
0949	903	111121232222 1123	0018	000	000	061	000	003	---	---	---	---	---	--	-----	---	---		CEN009	01
0833	301	-12111222222 1112	0121	000	000	033	016	039	003	062	000	056	000	60	23100	000	044		CEN010	01
0807	109	1-21212222221 22	0040	100	000	036	010	012	008	033	000	050	000	45	-----	100	050		CEN011	01
0918	203	1-11112222211 12	0215	000	000	048	003	056	000	100	000	100	000	53	21800	000	000		CEN012	01
0411	112	12221113211211 21	0068	000	000	028	015	022	000	100	000	095	000	67	30700	000	000		CEN013	01
0040	304	22322224322221 12	0105	035	000	031	016	039	018	044	000	044	003	64	09100	024	049		CEN014	01
2018	301	12111213222211 22	0149	000	000	044	005	037	000	095	000	092	000	51	17000	000	008		CEN015	01
0006	101	2-21111422222213	0087	047	000	038	018	023	000	065	000	043	000	64	38000	050	052		CEN016	01
0062	104	2232221221222223	0122	000	000	072	019	047	000	070	000	064	000	5[illegible]	09800	000	036		CEN017	01
0657	106	2122122221221111	0128	002	000	012	020	053	000	055	000	074	-	54	14500	000	025		CEN018	01
0795	204	2221121121221112	0123	063	000	055	003	040	000	043	000	030	000	63	10500	058	048		CEN019	01
0456	403	1111121321122211	0089	000	000	049	001	023	000	100	000	096	000	56	22600	000	004		CEN020	01
0601	202	111122222221 112	0035	000	000	049	009	009	011	100	000	067	000	45	11700	000	033		CEN021	01
0947	111	111222242222 1113	0022	000	000	012	014	009	011	100	000	078	011	50	16100	000	022		CEN022	01
0554	105	2221111221221112	0086	081	000	047	011	030	003	027	000	017	[illegible]	70	-----	080	070		CEN023	01
0503	206	1121111223211121	0123	098	000	049	002	072	000	039	043	024	[illegible]	47	22500	074	025		CEN024	01

*A standard card form, IBM electro 888157, is available for punching statements from this form

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	TRACT NO.	BLOCK NO.	HSG. TYPE	OWNERSHIP	HEIGHT	WALK TO STORES	" " SCHOOLS	" " PARKS	" " CHURCHES	PARKED AUTOS	LANDFORMS	TREES	BUSHES-SHRUBS	LAWNS PREDOM.	FRONT LAWNS	REAR LAWNS-GARD.	LESS THAN 20'	LANDSC. QUALITY	24–27	28–30	31–33	34–36	37–39	40–42	43–45	46–48	49–51	52–54	55–57	58–59	60–64	65–67	68–70	BLANK	IDENTIFICATION	CARD NO.
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	0953	302	1	1	2	1	1	2	1	3	3	2	2	2	1	1	1	1	0114	005	000	022	014	056	025	009	025	025	000	61	-----	000	068		028	01
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	0211	106	1	-	2	1	1	2	1	4	2	2	2	1	1	1	1	3	0305	089	000	045	007	099	000	080	000	070	000	58	11200	078	015		CEN035	01
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	0793	103	1	2	-	1	1	1	1	3	2	2	2	2	1	2	1	2	0267	093	000	036	018	080	001	050	000	064	001	62	12300	088	035		48	01
.02	2042	301	1	1	2	1	1	1	1	2	3	2	2	1	1	1	1	2	0178	000	000	042	005	042	005	095	000	093	002	63	29720	000	005		CEN049	01

…Electro 888157, is available for punching statements from this form.

*Number of forms per pad may vary slightly

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PUNCHING INSTRUCTIONS: BLANK

Tract	% Renter lack plumbing (1–3)	Avg. no. rms in renter hsg. (4–5)	Avg. rent (6–8)	% Negro in renter oc. hsg (9–11)	% w/all 1.01 persons or more per rm. (12–14)	% 1-person hsehlds. (15–17)	% w/female head-family (18–20)	% w/roomer, boarders, lodger (21–23)	Mean score 1	2	3	4	5	6	7	8	9	Identification	Card No.
137	---	--	---	---	000	005	005	000	27	46	37	29	47	25	32	16	27	CEN001	02
51	000	51	082	000	001	013	004	004	32	34	32	38	32	28	34	20	20	CEN002	02
41	000	45	069	100	017	017	029	010	45	35	20	38	22	48	40	18	15	003	02
263	000	45	093	082	008	008	008	006	38	41	26	37	24	23	43	16	17	004	02
611	000	47	095	[illegible]	005	016	011	003	45	51	26	44	45	27	42	17	19	CEN005	02
302	000	[illegible]	[illegible]	[illegible]	003	007	013	003	14	20	24	19	39	16	57	14	13	006	02
3	002	[illegible]	[illegible]	015	015	015	018	008	41	50	26	35	25	47	40	39	33	007	02
[illegible]	---	--	---	000	009	027	027	018	42	57	18	37	20	32	22	33	43	008	02
[illegible]	---	--	---	---	---	---	---	---	28	40	34	30	48	20	32	18	14	009	02
833	00[illegible]	49	.6	000	008	015	010	003	20	10	50	14	46	24	40	24	34	CEN010	02
801	008	47	067	100	008	025	033	000	33	47	22	33	33	30	37	25	27	011	02
918	---	--	---	000	005	004	013	000	23	32	27	43	28	28	37	40	35	012	02
411	000	0.	000	000	000	009	005	005	17	32	30	20	38	15	38	17	25	013	02
40	010	[illegible]	063	047	008	026	013	008	47	46	17	49	14	34	37	33	14	014	02
2018	---	--	---	000	027	003	011	008	50	50	17	43	35	17	35	13	18	CEN015	02
6	000	56	065	033	017	004	017	030	56	34	13	19	11	46	37	39	21	016	02
1.	000	54	075	000	000	023	011	004	33	55	22	43	28	25	27	15	22	017	02
657	000	45	090	008	002	021	013	000	22	40	32	27	30	25	35	38	28	018	02
795	000	50	068	068	015	010	020	005	32	42	32	47	20	36	30	13	15	019	02
456	---	--	---	000	009	009	017	000	18	32	42	18	42	17	20	22	18	CEN020	02
601	---	--	---	000	033	011	033	000	28	53	23	27	25	30	33	20	40	021	02
947	---	--	---	000	000	022	000	000	30	55	35	25	30	28	32	20	20	022	02
554	003	57	059	076	003	010	027	007	30	32	24	32	26	18	20	30	28	023	02
503	000	48	133	100	003	004	011	000	20	24	30	18	38	20	38	40	20	CEN024	02

*A standard card form, IBM electro 888157, is available for punching statements from this form

**Number of forms per pad may vary slightly

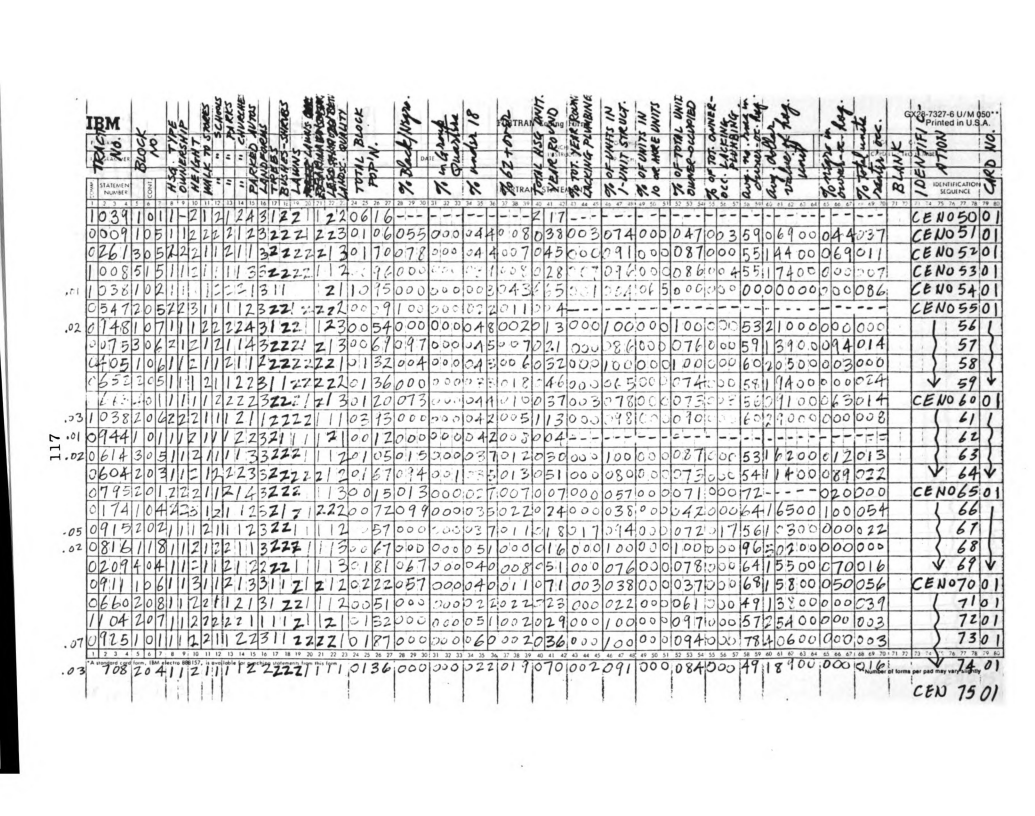
FORTRAN Coding Form

GX28-7327-6 U/M 050**
Printed in U.S.A.

PUNCHING INSTRUCTIONS — GRAPHIC / PUNCH: BLANK

	% Renter Lack'g Plumbing	Avg. No. Rms in Renter Hsg.	Avg. Rent	% Negro in Renter Oc. Hsg.	% w/All Plumbing 1.01 or More Per. Per Room	% 1-Person Hsehlds	% w/Female Head Family	% w/Roomer, Boarders, Lodgers	1	2	3	4	5	6	7	8	9	Identification	Card No.
15	---	--	---	000	013	005	008	003	25	28	28	22	45	27	23	27	25	CEN025	02
18	---	--	---	000	015	01[illegible]	004	000	20	37	28	25	37	23	22	28	32	26	02
63	000	48	088	000	005	021	008	000	25	33	42	22	42	20	47	25	22	27	02
53	034	32	049	005	004	014	013	005	27	33	28	25	25	30	30	22	23	28	02
13	000	46	077	077	014	014	007	002	55	60	35	18	10	45	40	15	13	29	02
05	000	57	147	03[illegible]	00[illegible]	018	008	005	27	40	30	30	23	24	30	27	11	CEN030	02
07	000	64	077	058	006	013	011	006	50	30	28	32	32	23	25	13	17	31	02
22	000	44	060	000	00[illegible]	035	006	004	41	53	23	41	26	30	39	33	30	32	02
16	000	50	175	000	005	007	009	004	27	38	20	20	38	18	32	23	28	33	02
42	---	--	---	---	---	---	---	---	57	58	17	53	29	22	22	14	25	34	02
11	00[illegible]	19	031	07[illegible]	007	013	015	004	50	56	32	48	30	32	36	22	20	CEN035	02
14	000	55	070	085	015	017	020	002	52	57	23	52	25	35	32	20	20	36	02
04	000	34	086	000	001	030	013	000	20	34	23	26	34	17	30	31	13	37	02
14	000	52	073	100	021	014	029	014	47	38	16	47	17	22	28	15	17	38	02
2	000	44	120	000	021	021	032	005	30	27	15	33	37	18	47	20	22	39	02
5	00[illegible]	00	000	000	002	002	000	002	22	25	28	25	38	18	35	20	20	CEN040	02
[illegible]	000	42	000	000	004	014	009	000	14	21	17	21	27	26	41	36	24	41	02
26	000	55	070	100	008	015	023	007	43	47	34	57	30	2[illegible]	41	19	21	42	02
57	000	51	072	095	009	015	014	008	31	34	16	26	21	44	30	24	34	43	02
75	002	41	068	091	011	011	023	008	32	37	32	35	20	28	35	23	20	44	02
015	002	20	146	000	014	038	004	004	28	25	23	27	41	22	48	17	22	CEN045	02
[illegible]	003	28	067	096	008	039	017	005	20	43	36	33	39	29	37	24	21	46	02
14	003	47	072	013	000	030	015	013	19	26	30	30	43	19	34	11	23	47	02
195	000	51	077	096	009	009	024	004	34	34	23	43	20	27	33	29	29	CEN048	02
.042	000	--	---	000	008	005	000	000	20	41	31	24	44	20	39	23	27	CEN049	02

**Number of forms per pad may vary slightly



IBM FORTRAN Coding Form

GX28-7327-6 U/M 050** Printed in U.S.A.

PUNCHING INSTRUCTIONS: BLANK

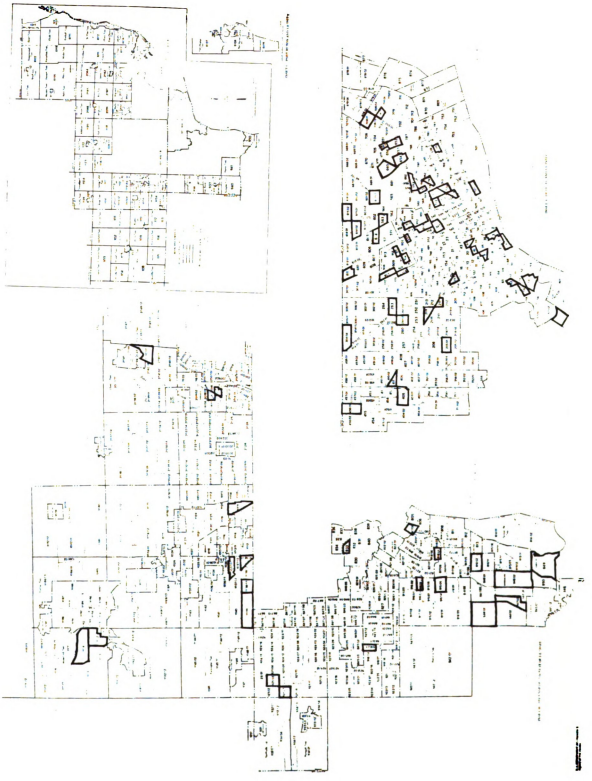
	% renter lacking plumbing	avg. no. rms in renter occ. hsg.	avg. rent	% negro in renter occ. hsg.	% w/all 1.01 persons or more per room	% 1-person households	% w/family head-family	% w/roomers, boarders, lodgers	1 MEAN SCORES	2	3	4	5	6	7	8	9	IDENTIFICATION	CARD NO.
39	---	--	---	---	---	---	---	---	30	35	20	27	33	17	45	18	22	CENO50	02
[illegible]	000	46	053	079	011	021	013	003	64	64	30	58	22	40	36	28	28	CENO51	02
61	000	44	---	080	013	004	020	002	5x	45	35	48	20	23	30	18	20	CENO52	02
08	---	--	---	000	007	000	[illegible]	004	30	27	38	30	38	17	27	20	18	CENO53	02
58	[illegible]	44	121	015	000	027	004	001	14	25	41	31	[illegible]	16	[illegible]	[illegible]	27	CENO54	02
47	---	--	---	---	---	---	---	---	[illegible]	27	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	3	CENO55	02
82	000	00	000	000	015	000	000	000	30	41	25	30	43	30	40	13	25	56	02
75	---	--	---	---	014	014	014	000	55	28	10	02	28	45	38	10	15	57	02
05	000	00	000	000	019	063	003	000	15	17	27	23	42	13	32	13	15	58	02
52	[illegible]	45	116	000	007	000	004	000	15	35	17	32	28	23	42	37	25	59	02
65	[illegible]	52	057	040	016	160	[illegible]	000	27	42	28	40	34	[illegible]	44	42	24	CENO60	02
38	[illegible]	47	157	000	004	030	[illegible]	000	20	25	25	24	32	17	32	18	18	61	02
44	---	--	---	---	---	---	---	---	55	50	23	46	29	23	24	17	20	62	02
14	---	--	---	---	010	017	017	007	22	30	27	33	27	42	33	25	22	63	02
04	[illegible]	42	078	100	008	100	100	002	31	30	23	30	13	24	26	16	19	64	02
75	[illegible]	[illegible]	[illegible]	[illegible]	014	014	000	014	17	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	18	18	CENO65	02
74	000	56	071	100	008	029	004	004	17	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	13	66	02
15	---	--	---	000	011	006	[illegible]	000	30	43	[illegible]	36	43	26	46	[illegible]	[illegible]	67	02
16	000	00	000	000	000	000	[illegible]	000	53	56	23	46	29	23	24	17	20	68	02
09	000	55	092	035	012	020	012	002	40	55	20	38	22	30	23	35	42	69	02
11	002	47	077	018	010	025	010	003	24	29	17	24	30	21	35	20	21	CENO70	02
60	000	38	027	000	004	035	017	[illegible]	[illegible]	[illegible]	17	32	28	[illegible]	42	37	25	71	02
04	---	--	---	000	014	000	007	002	17	34	37	29	47	21	40	40	19	72	02
25	---	--	---	[illegible]	003	000	003	000	24	36	39	23	30	14	39	27	23	73	02
08	000	47	130	000	002	014	015	000	17	25	30	20	41	20	38	21	29	74	02
																		CENO75	02

*A standard card form, IBM electro 888157, is available for punching statements from this form

**Number of forms per pad may vary slightly

TEN LARGEST CORRELATIONS FOR EACH VARIABLE

1	.6918	.4735	.3357	.3410	-.3331	.3357	.2993	.2933	-.2797	.2587
2	.5918	.5305	.3914	.3866	.3772	.3246	.2947	.2859	-.2753	-.2749
3	.5455	.5305	-.5388	.5035	.4735	.4525	.4046	-.3764	-.3634	.3239
4	.3079	-.3029	-.2995	-.2975	.2453	-.2354	.2253	-.2089	-.2065	.2019
5	.3440	.3171	.3124	.2642	.2475	.2263	.2039	.1964	.1918	-.1852
6	.5106	.3461	.3420	.3129	.2476	-.2117	.1972	-.1965	.1929	-.1839
7	.3352	-.3038	.2475	.2232	-.1341	.1774	.1755	.1756	-.1745	.1684
8	.2774	.2704	-.2617	-.2492	.2433	.2250	-.2141	.2039	-.1935	.1854
9	-.2720	.2591	-.2266	.1999	-.1397	.1912	.1965	.1944	-.1720	.1704
10	.3975	-.3297	-.2975	-.2879	.2231	.2149	.2135	.2115	.2051	.1938
11	-.4075	.3975	.3892	.3436	-.3390	-.2769	-.2695	.2429	.2325	.2097
12	-.3955	-.3453	-.3297	-.2542	-.2354	-.2278	-.2140	.1968	.1968	.1898
13	.4978	-.2122	.2116	.2042	.1354	-.1932	.1423	.1873	.1566	.1554
14	.4978	.4160	.3878	.3558	.3102	.2668	.2640	-.2586	.2582	.2552
15	-.4075	.3320	.3110	.3079	-.2983	-.2765	.2032	-.2510	.2042	-.2016
16	.5962	.4826	.4588	.4027	.3892	.3556	.3420	.3232	.3171	.3102
17	.9405	.6522	-.5158	.4555	.3349	.3045	-.2741	-.2534	-.2140	-.2119
18	.9937	.9023	-.5064	.5035	.4135	-.4136	-.3857	.3879	.3760	.3671
19	-.2310	.2151	.1918	.1854	.1734	.1715	.1584	.1494	-.1339	.1316
20	-.7712	-.5084	.4635	.4111	-.3482	-.3426	.3341	-.3324	.2964	-.2694
21	-.7712	.5725	.4776	-.4605	.4450	-.4348	-.4126	.3937	-.3762	.3349
22	.9405	.7022	-.6349	.5973	.4776	.3852	-.3771	-.3512	-.3426	-.2630
23	.8937	.5689	-.2580	.2434	-.2174	.2135	.1912	.1903	.1734	-.1683
24	-.8557	.8211	-.6166	.5255	-.5348	-.4768	-.4714	-.4126	-.4106	-.4100
25	.5973	-.5526	.5147	-.4714	.4555	.4504	-.4199	-.3955	.3767	-.3482
26	-.9670	.8211	.5867	-.5593	-.5326	-.4334	-.4048	-.4008	-.3771	-.3762
27	.5689	.2859	-.2753	-.2379	.2333	.2064	.1943	.1939	-.1767	.1662
28	-.6872	-.6349	.5184	-.5158	-.4348	-.4199	.4101	.3225	-.3338	.2941
29	-.6158	-.6144	.5807	.5255	.5184	-.5025	-.4025	-.4111	-.4061	-.3887
30	.9937	.8799	-.4779	.4526	-.4100	.3795	.3777	-.3667	.3604	.3558
31	-.9070	-.8557	-.6158	.5949	.4901	.4504	.4460	.4321	.4096	.4062
32	.8937	-.3885	.3780	-.3522	.2480	-.2342	-.2190	.1972	-.1955	-.1951
33	-.6144	.4901	.4820	.4773	.4429	-.4033	.3571	.3494	-.3492	.3249
34	.7022	-.6872	.6522	.5147	.4773	-.4344	.4301	.3937	-.3453	-.3390
35	.9028	.8799	.5455	-.5103	.4930	-.4708	.4429	-.4111	.4106	.4062
36	.4635	.3315	.3043	.3020	-.2373	-.2352	-.2573	-.2333	.2249	.2222
37	-.6100	.5949	.5725	-.5684	-.5533	-.5020	.3767	.3233	.2955	-.2168
38	.4936	.4820	.3760	-.3693	.3552	-.3544	.3504	.3043	.3021	.2984
39	-.4279	.4027	.3839	.3771	-.3691	.3350	-.3217	.3142	.3164	-.3111
40	.6703	.5462	.5504	-.5444	.4954	.3335	.3796	.3777	.3410	.3343
41	.6703	.6271	.5103	.4803	.3567	-.3522	.3440	.2410	-.2171	-.2071
42	.4032	-.3034	-.2825	-.2741	-.2740	-.2574	-.2354	.2333	-.2141	-.2140
43	.6271	.5809	.4599	.3816	-.3505	.3451	.3452	-.2548	.2355	-.2073
44	-.5528	-.5434	-.5103	-.5504	-.4779	-.4274	.4092	-.3759	-.3544	-.3625
45	-.5528	.4864	.4185	-.4061	.4047	.3957	.3777	.3667	.3652	.3556
46	-.2329	.2256	.1986	-.1814	-.1913	-.1673	-.1492	-.1459	.1431	.1383
47	.4214	.3176	-.2492	-.2379	.2232	.2157	.2147	-.1924	-.1339	.1750
48	.4214	.2406	-.2354	-.2122	-.1375	-.1935	-.1932	-.1781	.1757	-.1673



MAP OF DETROIT METROPOLITAN AREA CENSUS BLOCKS

COMPARATIVE CENSUS TRACTS

TRACT NUMBER	BLOCK NUMBER	TRACT NUMBER	BLOCK NUMBER
1037.01	204	1102	104
59	405	925.03	205
41	208	708.01	505
263	401	520	203
611	105	157	203
304.04	404	775	104
3	110	2015.04	312
559	206	521	205
949	903	54	403
833	301	793	103
807.01	109	2042.02	301
918.03	203	1039	101
411	112	9	105
40	304	261	305
2018.02	301	1008	515
6	101	1038.01	102
62	104	547	205
657	106	948.02	107
795	204	75	306
456.01	403	405	106
601.01	202	652	205
947.02	111	663	401
554	105	1038.03	206
503	206	944.01	101
615.02	110	614.02	305
818.01	208	604	203
563	207	795	201
953	102	174	104
663	308	915.05	202
205.01	107	816.02	118
907	204	209	404
522	205	911	106
916.01	202	660	208
948.02	902	1104	207
211	106	925.07	101
904	103	708.03	204
654	506		
514	101		

COMMUNITY ATTITUDES PRE-TEST ONE INSTRUMENT
TEST-UNIVERSE FOR CLUSTER ANALYSIS

AGE_____SEX_____

PLACE OF BIRTH_____
City State

PRESENT RESIDENCE_____
City

YEARS AT RESIDENCE_____

IF LESS THAN 2 YEARS, PREVIOUS RESIDENCE_____
City

	I Agree	?	I Disagree
1. It would be good to have a grouping together of businesses in high density residential areas complementing each other in order to reduce travel time.			
2. I believe in the orderly redevelopment of areas which no longer seem to complement the urban pattern.			
3. People always seem somewhat calm and tension-free.			
4. People like me don't have any say about what the government does.			
5. It seems that everyone is aggressively for himself in traffic and shows no courtesy towards others.			
6. Many community problems can be solved through proper planning.			
7. I would like a maximum 1/2 mile walk to schools.			
8. The downtown area doesn't interest me anymore.			
9. Proximity to one's job is a very important factor in choosing a place to live.			
10. I cannot see racial and sex discrimination in all facets of life.			
11. Unemployment does not appear to be a problem in my neighborhood.			
12. Neighborhood change need not be controlled by any other governments but the city.			
13. Loans can be easily obtained to make necessary repairs to my home.			

I Agree ? I Disagree

14. There are few if any deteriorating houses in my neighborhood.

15. Medical care is too expensive for me to afford.

16. There appears to be no lack of low cost housing for the poor and moderate income.

17. It is hard to sleep because of high noise levels outside.

18. Drug traffic in my neighborhood makes me feel very insecure.

19. I would not want a lower class of people as my neighbors.

20. If there were more cultural opportunities available, I would take advantage of them.

21. Trash collection is acceptable in my neighborhood.

22. I believe in an economy which provides a high and rising level of income for its residents.

23. I see no need to participate in governmental decisions or to be heard loudly.

24. There is much crime - - rape, alcoholism and narcotics, murder or vandalism - - in my neighborhood.

25. The youth in my neighborhood do not generally commit street crimes.

26. Many parks and playgrounds are available within reasonable walking distance.

27. Public transportation (train or bus) serves the needs of citizens in my city.

28. I feel that my neighbors and myself have had a good education.

29. We have a maximum of natural light and fresh air in my neighborhood.

30. I feel that I do have a choice in the kind of housing that I might be able to move to in the Detroit Metro Area.

I Agree | ? | I Disagree

31. The values of people should be strongly based on history and strict adherance to our laws.

32. Recreational facilities for families are not adequate (either not equipped nor situated conveniently in the neighborhood).

33. High school dropouts have a noticeable bad effect on my neighborhood.

34. I would like more cultural, educational, and recreational facilities to serve my needs.

35. I think we should preserve wildlife (animals and birds) as much as possible.

36. The planning of neighborhood does not reflect concern for economic and commercial growth.

37. There are poor levels of street lighting in my neighborhood.

38. Public services, such as water supply, sewer and street repairs, are inadequate.

39. I have a pleasant view when I look out of my windows at home.

40. I don't think public officials care much about what people like me think.

41. Sometimes politics and government seems so complicated that a person like me can't really understand what's going on.

42. Houses are so close together and there are so few windows that light and air circulation are almost absent in my house.

43. I would like new public facilities to be located so as to stimulate private development and growth in desirable areas.

44. Racial discrimination does not occur in my neighborhood.

45. I like rolling, scenic countryside (or water views).

46. Architects could have made the houses around me look better.

I Agree | ? | I Disagree

47. The city street repair program is adequate and effective.

48. Investigating companies have not invaded my privacy.

49. I would like my life to be non-commercial (at no cost) recreation oriented.

50. The most rewarding organizations a person can belong to are local clubs and associations rather than large nation-wide organizations.

51. I would ride a bicycle because there is little danger from cars in our streets.

52. All or most politicians in local government are crooked.

53. Poor planning and poor zoning (laws) have decreased the value of my home.

54. I pay too much in taxes for what I get in return.

55. Air pollution does not noticeably occur in my neighborhood.

56. I would like my neighbors to have the same political beliefs as myself.

57. My interaction with neighbors and friends is adequate.

58. There are too many people living around me - - I always feel crowded.

59. Many people have been divorced around here.

60. Water pollution is evident in my neighborhood.

61. My own career is supported, not hindered, by my neighborhood.

62. There is a sense of civic (or local) pride among my Neighbors.

63. The roads are crowded when I go to work and when I go home.

64. Soaring food prices and the high cost of living has caused people in my neighborhood to steal and cheat.

	I Agree	?	I Disagree
65. I would like to see new industry, and commerce relocated in the city where such functions already exist, and not in my neighborhood.			
66. Public offices and facilities are reasonably located so that I know where to go for help.			
67. The streets in my area are in need of repair.			
68. Cars are not clearly separated from pedestrian ways.			
69. Nobody seems to care or do anything about the physical conditions and appearance of my neighborhood.			
70. Too much money manipulation is going on in politics.			
71. Mental and physical exercise are not essential to my daily life.			
72. There are short distances between our social buildings such as churches and recreation buildings.			
73. There is hardly ever the smell of pollution or factory exhaust in the air.			
74. Gasoline prices and car insurance costs almost keep me from driving.			
75. Police and fire stations need to be built scattered in my neighborhood to give faster and more efficient services.			
76. Side streets are heavily traveled by persons other than local residents.			
77. My landlord usually fixes anything that is broken.			
78. We have attractive and readable street signs.			
79. There are no shopping areas within walking distance of my house.			
80. Voting is the only way that people like me can have any say about how the government runs things.			
81. There is lack of parking space in commercial areas near my home.			

	I Agree	?	I Disagree
82. The social status of the family next door is affecting my self-image.			
83. Extensive bus service improvements are not necessary in my neighborhood.			
84. Area merchants do not tend to overcharge for their merchandise.			
85. I have a greater respect for a man who is well established in his local community than a man who is widely known in his field but has no local roots.			
86. My driving vision is hardly ever blocked by large obstructions like trees, signs, buildings and the like.			
87. There are good educational opportunities for adults and children in my neighborhood.			
88. There are enough day-care centers for working mothers in my area.			
89. The water I drink tastes terrible.			
90. There are many unsightly abandoned storefronts in my neighborhood.			
91. There are many areas of traffic congestion close to my home.			
92. I cannot walk to all necessary shopping areas.			
93. There should be coordination of planning efforts among city (local) officials and among departments.			
94. Police protection is adequate in my neighborhood.			
95. I have to travel a great distance to work.			
96. The family should be a close-knit unit.			
97. Scattered development has been eliminated by planned compact bands and corridors of growth.			
98. There is a clear sense of belonging in my neighborhood.			
99. There is no need for change to be made for its own sake.			

		I Agree	?	I Disagree
100.	Sense of civic responsibility goes with pride of ownership and is important.			
101.	The area around my home is very drab in appearance.			
102.	Police do not have enough authority.			
103.	The city won't keep up and maintain the area's playgrounds.			
104.	Abandoned houses are dangerous and an eyesore.			
105.	I can't make improvements on my house because I can't afford the tax increases.			
106.	Inflation is a fact of life, and is not seriously affecting the way I live.			
107.	The public library system is adequate.			
108.	It is unsafe to walk the streets, even during the day.			
109.	My children's education is inadequate.			
110.	There do appear to be attempts to assist failing commercial establishments by local government.			
111.	Despite all the newspaper and TV coverage, national and international happenings rarely seem as interesting as events that occur right in the local community in which one lives.			
112.	There is need for a regular program of neighborhood beautification.			
113.	My neighborhood has a strong (physical) identity and unified appearance.			
114.	Local public health services suit my family's needs.			
115.	Generally, my neighbors and I seem to agree on things.			
116.	I think talking with neighbors is a good thing.			
117.	No doubt many newcomers to the community are capable people; but when it comes to choosing a person for a responsible position in the community, I prefer a man whose family is well established in the community.			

		I Agree	?	I Disagree
118.	Today's society is much too mobile.			
119.	Every building in my neighborhood looks the same.			
120.	The cost of maintaining and operating an automobile are not that expensive, nor are they a real burden to my income.			
121.	Neighbors move a lot, and this frequent change of neighbors is a detriment to the character and social order of my life.			
122.	High mortgage rates have deprived people of home ownership.			
123.	I seem to relate well to others in my neighborhood.			
124.	The local government should swiftly make all necessary public improvements, such as street repairs and lighting, flood damage, etc.			
125.	I can't seem to persuade others in my neighborhood to do things my way.			
126.	I would like mostly low buildings in my neighborhood.			
127.	There is too much deteriorating housing in my neighborhood.			
128.	I have no privacy in my house/apartment.			
129.	I would not walk to work and the store, even if they were closer to home.			
130.	Visitors to my house/apartment have a choice of parking spaces.			
131.	Big cities may have their place but the local community is the backbone of America.			
132.	The poorer families do not generally have more children than they can really manage.			
133.	The way people vote is the main thing that decides how things are run in this country.			
134.	I would like governmental planning to anticipate problems.			
135.	The metro area is pleasing to look at.			

		I Agree	?	I Disagree
136.	Not enough public funds are spent on urban renewal in my neighborhood.			
137.	I would like commercial areas to integrate visually with housing areas such as through landscape materials.			
138.	There are too many controls put on wages and prices.			
139.	The streets are never plowed nor salted and are always icy in the winter.			
140.	More trees and bushes are needed to take away the barren appearance of my neighborhood.			
141.	The building uses around my neighborhood appear disorganized and somewhat incompatible.			
142.	The central business district of the metro area should hold most all metro administrative, financial, governmental and cultural activities.			
143.	Noise levels of people, cars and businesses should be reduced.			
144.	There is a variety of appearance to most of the neighborhoods of the metro area.			
145.	There is hardly any truck traffic on my street.			
146.	Some houses are poorly maintained and/or have poor plumbing making for unsanitary neighborhood conditions.			
147.	I think we should restore and/or create natural landscape features in the metro area.			
148.	We have a complete, comprehensive shopping center within walking distance.			
149.	Many vacant lots are a detriment to the appearance of my neighborhood.			

END

COMMUNITY ATTITUDES INSTRUMENT
TEST-UNIVERSE FOR CLUSTER ANALYSIS

AGE _____ SEX _____

PLACE OF BIRTH _____
city state

PRESENT RESIDENCE _____
city state

YEARS AT RESIDENCE _____

IF LESS THAN 2 YEARS, PREVIOUS RESIDENCE _____
city state

	I Agree	Neither Agree, Nor Disagree	I Disagree	
People like me don't have any say about what the government does.				1.
I believe in building new buildings in old areas of the city to make a better complement to the urban pattern.				2.
Most of the time people seem somewhat calm and tension-free.				3.
It would be good to have a grouping together of businesses in high density residential areas complementing each other in order to reduce travel time.				4.
It seems that everyone is agressively for himself in traffic and shows no courtesy towards others.				5.
All community problems can be solved through proper planning.				6.
I would like a maximum 1/2 mile walk to schools.				7.
The downtown area doesn't interest me anymore.				8.
Nearness to one's job is a very important factor in choosing a place to live.				9.
I cannot see racial and sex discrimination in all aspects of life.				10.
Unemployment does not appear to be a problem in my neighborhood.				11.
Neighborhood change can be best controlled by city government.				12.
Loans can be easily obtained to make necessary repairs to my home.				13.

	I Agree	Neither Agree, Nor Disagree	I Disagree	
Medical care is too expensive for me to afford.				14.
There appears to be no lack of low cost housing for the poor and moderate income.				15.
Drug traffic in my neighborhood makes me feel somewhat uneasy.				16.
I would not want a lower class of people as my neighbors.				17.
If there were more plays, art shows or orchestra performances available, I would take advantage of them.				18.
Trash collection services are excellent in my neighborhood.				19.
I believe in government providing a high and rising level of income for all residents.				20.
I see no real need to participate in governmental decisions or to be heard loudly.				21.
There is crime -- rape, narcotics, murder, vandalism or other -- in my neighborhood.				22.
The youth in my neighborhood do not generally commit street crimes.				23.
Many parks and playgrounds are available within reasonable walking distances.				24.
Public transportation (train or bus) serves the needs of citizens in my city.				25.
I feel that my neighbors and myself have had an average education.				26.
There are very few buildings crowded close together in my neighborhood.				27.
I feel that I do have a choice in the kind of housing that I might be able to move to in the Detroit Metro Area.				28.

	I Agree	Neither Agree, Nor Disagree	I Disagree	
The values of people should be strongly based on history and strict adherance to our laws.				29.
Playgrounds and parks for family use are neither equipped nor located conveniently in the neighborhood.				30.
High school dropouts have a noticeable bad effect on my neighborhood.				31.
I think we should preserve wildlife (animals and birds) even at the costs of stopping new construction.				32.
The planning of neighborhoods does not show concern for future economic and commercial growth to the city at large.				33.
Street lighting is too dim in my neighborhood.				34.
Public services, such as water supply, sewer and street repairs, are inadequate.				35.
I have a pleasant view when I look out of my windows at home.				36.
I don't think public officials care much about what people like me think.				37.
Sometimes government (and politics) seems so complicated that a person like me can't really understand what's going on.				38.
I would like new <u>public</u> parks and public buildings to be located so as to stimulate the construction of <u>private</u> buildings.				39.
Racial discrimination does not occur in my neighborhood.				40.
Rolling, scenic countryside (or water views) are important to neighborhoods.				41.
The houses around me could have been made to look better.				42.
The city street repair program is adequate and effective.				43.
Credit companies and their investigations have not invaded my privacy.				44.

	I Agree	Neither Agree, Nor Disagree	I Disagree	
I would like many more no-cost recreational (non-commercial orientation) opportunities, such as parks, skiing, sports, etc.				45.
The most rewarding organizations a person can belong to are local clubs and associations rather than large nation-wide organizations.				46.
I would ride a bicycle because there is little danger from cars in our streets.				47.
All or most politicians in local government are crooked.				48.
Poor planning and poor zoning (laws) have decreased the value of my home.				49.
I pay too much in city taxes for what I get in return.				50.
There is little air pollution in my neighborhood.				51.
I would like my neighbors to have the same political beliefs as myself.				52.
My social contacts with neighbors and friends is adequate.				53.
There are too many people living around me -- I always feel crowded.				54.
Many people have been divorced or separated around here.				55.
Water pollution is evident in my neighborhood.				56.
My own job and career is supported, not hindered, by my neighborhood.				57.
There is a sense of civic (or local) pride among my neighbors.				58.
The roads are crowded when I go to work and when I go home.				59.
Soaring food prices and the high cost of living may have caused some people in my neighborhood to steal and cheat.				60.
Public offices and facilities are reasonably located in that I know where to go for help.				61.
The streets in my area are in need of repair.				62.

	I Agree	Neither Agree, Nor Disagree	I Disagree	
Cars are dangerously close to pedestrian sidewalks.				63.
Nobody seems to care or do anything about the physical conditions and appearance of my neighborhood.				64.
Physical exercise is not an essential part of my daily life.				65.
There are short distances between our social buildings such as churches and recreation buildings.				66.
There is hardly ever the smell of pollution or factory exhaust in the air.				67.
Gasoline prices and car insurance costs almost keep me from driving.				68.
Police and fire stations need to be built scattered in my neighborhood to give faster and more efficient services.				69.
Side streets are heavily traveled by persons other than local residents.				70.
My landlord usually fixes anything that is broken.				71.
We have attractive and readable street signs.				72.
More shopping areas should be built within walking distance of my house.				73.
Voting is the only way that people like me can have any say about how the government runs things.				74.
We need more parking spaces in shopping and office areas near my home.				75.
The lower-class social behavior of the family next door is affecting my self-image.				76.
Extensive bus service improvements are not necessary in my neighborhood.				77.
Area merchants do not tend to overcharge for their merchandise.				78.
I have a greater respect for a man who is well established in his local community than a man who is widely known in his field but has no local roots.				79.

	I Agree	Neither Agree, Nor Disagree	I Disagree	
My driving vision is hardly ever blocked by large obstructions like trees, signs, buildings and the like.				80.
There are very good educational opportunities for adults and children in my neighborhood.				81.
There are enough day-care centers for working mothers in my area.				82.
There are many unsightly abandoned storefronts in my neighborhood.				83.
There are many areas of traffic congestion close to my home.				84.
Police protection is average in my neighborhood.				85.
I have to travel a great distance to work.				86.
Scattered groupings of buildings have been eliminated by planned compact bands and corridors of newly built buildings.				87.
There is a clear sense of belonging in my neighborhood.				88.
There is no need for change to be made for its own sake.				89.
Sense of civic responsibility goes with pride of ownership.				90.
The area around my home is very drab in appearance.				91.
Police do not have enough authority.				92.
The city won't keep up and maintain the area's playgrounds.				93.
Abandoned houses are often dangerous and an eyesore.				94.
I don't make improvements on my house because I can't afford the tax increases.				95.

	I Agree	Neither Agree, Nor Disagree	I Disagree	
Inflation is a fact of life, and is not seriously affecting the way I live.				96.
The public library system is providing somewhat poor service.				97.
It is unsafe to walk the streets, night or day.				98.
The education of children is barely adequate.				99.
There are attempts to assist failing shop owners by local govemment.				100.
Despite all the newspaper and TV coverage, national happenings rarely seem as interesting as events that occur right in the local community in which one lives.				101.
There is need for a regular program of neighborhood beautification -- clean-up, paint-up, plant-up, and fix-up.				102.
My neighborhood has a strong individual appearance and looks unified.				103.
Local public health services and clinics suit my family's needs.				104.
Generally, my neighbors and I seem to agree on things.				105.
It is not especially important to talk with neighbors.				106.
No doubt many newcomers to the community are capable people, but when it comes to choosing a person for a responsible position in the community, I prefer a man whose family is well established in the community.				107.
Today's society is much too mobile.				108.
Every building in my neighborhood looks the same.				109.
The costs of maintaining and operating an automobile are not that expensive, nor are they a real burden to my income.				110.
Neighbors move a lot, and this frequent change of neighbors is a detriment to the character and social order of my life.				111.
High mortgage rates have deprived people of home ownership.				112.
I seem to relate well to others in my neighborhood.				113.

	I Agree	Neither Agree, Nor Disagree	I Disagree	
I can't seem to persuade others in my neighborhood to do things my way.				114
I would like most all low buildings in my neighborhood.				115.
I have little privacy in my house/apartment.				116.
I would not regularly walk to work and the store, even if they were closer to home.				117.
Visitors to my house/apartment have a good choice of parking spaces.				118.
Big cities may have their place but the local community is the backbone of America.				119.
The poorer families in my neighborhood do not generally have more children than they can really manage.				120.
The way people vote is the main thing that decides how things are run in this country.				121.
I would like governmental planning to anticipate most problems.				122.
The metro area is attractive in appearance and quite pleasing to look at.				123.
Not enough public funds are spent on urban renewal in my neighborhood.				124.
I would like shops and office areas to visually blend into housing areas; that is, appear to belong there.				125.
There are too many controls put on wages and prices, affecting my way of life.				126.
The streets are never plowed nor salted and are always icy in the winter.				127.
More trees and bushes are needed to take away the barren appearance of my neighborhood.				128.
The building uses around my neighborhood appear disorganized and somewhat incompatible.				129.

	I Agree	Neither Agree, Nor Disagree	I Disagree	
The downtown of our metro area should hold most all metro administrative, financial, governmental and cultural activities.				130.
Outdoor noise from people, cars and businesses should be reduced for the pedestrian.				131.
There is a variety of appearance to most of the neighborhoods of the metro area.				132.
There is no truck traffic on my street.				133.
Very few homes are poorly maintained (and/or have poor plumbing) making for unsanitary neighborhood conditions.				134
We should have a complete shopping center, with many kinds of shops within walking distance.				135
Many vacant lots are harmful to the appearance of my neighborhood.				136.

NOTES

1 H. T. Reynolds, The Analysis of Cross-Classifications (New York: Free Press, 1977), p. 1. See also, Irwin D. J. Bross, Design for Decision (New York: Free Press, 1965), p. 154, stating "Data may be regarded as the fuel of the Decision-Maker. This fuel must be of good quality if the mechanism is to function properly."

2 Nicholas Negroponte, The Architecture Machine (Cambridge, Mass.: MIT Press, 1972), p. 51.

3 Among sources who have elaborated on such procedures are: Donald Blumberg, An Executive Introduction to the Fiscal Impact Analysis System (Jenkintown, Penn.: Decision Sciences Corp., 1977); Walter Isard and Robert Coughlin, Municipal Costs and Revenues Resulting from Community Growth (Englewood Cliffs: Chandler-Davis, 1957); Francis Navin and Richard Wolsfeld, "Analysis of Air Passenger Travel in the Twin Cities Metropolitan Area," in Highway Research Record, vol. 369, 1971, pp. 26-38; Jerry B. Schneider, "Solving Urban Location Problems: Human Intuition versus the Computer," in Journal of the American Institute of Planners, vol. 37 March 1971, pp. 95-99; and William Goldner, "The Lowry Model Heritage," in Journal of the AIP,* vol. 37, March 1971, pp. 100-110.

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* All subsequent references to the Journal of the American Institute of Planners will be shown as Journal of the AIP.

4 This controversy has had its origins in different population estimates by the U.S. Bureau of the Census, the City of Dallas, Texas and the North Central Texas Council of Governments. The failure of the planning agency proposal was described in great detail by the Dallas Morning News in addition to local broadcast media, causing considerable embarrassment for the agency and for residents who had supported the agency's findings in good faith.

5 See especially, "People ex. rel. Younger v. County of El Dorado" (Supreme Court of California, In Bank, 1971), in Jacob H. Beuscher, et. al., Cases and Materials on Land Use, second edition (Saint Paul, Minn.: West Publishing Co., 1976), pp. 330-338.

6 In his colloquium presentation for the Department of Psychology at the University of Texas at Arlington, March 9, 1977, Richard Nisbett produced research showing the links between behavior and decision-making. His study indicated that people generally have no idea about the cause of their behavior, with the exception being those individuals who have very strict rules for deciding. In many evaluation procedures, success and constancy is achieved by training decision makers to use consistent rules.

7 George W. Fairweather, Social Psychology in Treating Mental Illness (New York: John Wiley & Sons, 1964), pp. 116-117.

8 Doris B. Holleb, Social and Economic Information for Urban Planning (Chicago: University of Chicago Press, 1974), vol. I, p. xvi.

9 Richard F. Babcock, The Zoning Game: Municipal Practices and Policies (Madison: University of Wisconsin Press, 1969), pp. 38-40.

10 Fred H. Bair, Jr. and Ernest R. Bartley, The Text of a Model Zoning Ordinance (Chicago: American Society of Planning Officials, 1966), sections 6 & 7, pp. 38-48.

11
Britton Harris, "Plan or Projection: An Examination of the Use of Models in Planning," in Journal of the AIP, vol. XXVI, 1960, pp. 265-272.

12
Arnold Zellner, "Estimation of Parameters in Simulation Models of Social Systems," pp. 137-157, and William M. Evan, "Cohort, Analysis of Attitude Data," pp. 158-182, in James M. Beshers, Computer Methods in the Analysis of Large Scale Social Systems, revised edition (Cambridge, Mass.: MIT Press, 1968).

13
In the Planning and Zoning Commission Meeting, City of Irving, Texas, June 26, 1977, the director of the city's planning agency testified that he "felt" that the Union-Bower neighborhood of the city would prosper if the residential area remained in a commercial and industrial zoning district. To the contrary, residents presented data conclusively proving that the city was overzoned for commercial and industrial land to a degree far exceeding any probable rates of absorption. Despite the residents' base of research, the planning and zoning commision accepted the testimony of the agency director, based on his "expert opinion," thus perpetuating thirteen years of inadequate and intuitive decision-making, to the disadvantage of the residents and the city.

14
Hal Kendig, "Cluster Analysis to Classify Residential Areas: A Los Angeles Application," in Journal of the AIP, vol. XXXXII, July 1976, pp. 286-294.

15
Jum C. Nunally, Psychometric Theory (New York: McGraw-Hill, 1967), pp. 288-347; and L. L. Thurstone, Multiple-Factor Analysis (Chicago: University of Chicago Press, 1947).

According to the discussion of factor analysis in Nunally, it is assumed that a collection of items may have a peculiar factor. Common factors may weave throughout a variety of collections and types of items. For example, deterioration of buildings may correlate with lower income families, or even ethnicity. Scores, or measurements, on one item may correlate with other measurements on other items. As such, factor analysis is an important statistical method used frequently in the explication of constructs. A construct is a concept developed from various combinations of variables. Hypotheses about constructs can be tested, or in the absence

of hypotheses, researchers can develop concepts by the relationship of common factors. (See pp. 288-296)

16
Public Administration Service in collaboration with International City Manager's Association, Automated Data Processing in Municipal Government: Status, Problems and Prospects (Chicago: 1966), p. 6, cited by Holleb, vol I, pp. 173-175.

17
Barrie Needham, How Cities Work: An Introduction (New York: Pergamon Press, 1977), Chapter 2, "Examples of Planning Mistakes," pp. 15-25.

18
Francine F. Rabinovitz, City Politics and Planning (Chicago: Aldine Atherton, 1972), Chapter 2, "Three Keys to Planning Effectiveness," pp. 31-58. Of particular interest is Ms. Rabinovitz' statement, "It would appear that unless most communities are elitist, the planner cannot hope to make planning effective by playing the role his profession has decreed for him."

19
Nunally, pp. 7-9.

20
Anthony Cantanese, Scientific Methods of Urban Analysis (Urbana: University of Illinois Press, 1972), p. 1.

21
Nunally, pp. 2-30.

22
Earl R. Babbie, Survey Research Methods (Belmont, CA: Wadsworth Publishing Co., 1973), p. 359.

23
Listings of commonly used observational data may be found in Walter Isard and Robert Coughlin, Municipal Costs and Revenues Resulting from Community Growth (Trenton: Chandler-Davis, 1957).

24
W. I. B. Beveridge, The Art of Scientific Investigation (New York: Vintage Books, 1957), p. 136.

25
Scaling methods are presented in detail in Rensis A. Likert, "A Technique for the Measurement of Attitudes," in Psychology, No. 140, 1932,

26
E. S. Quade, "Cost Effectiveness: Some Trends in Analysis," in J. M. English ed., Cost Effectiveness (New York: John Wiley & Sons, 1968). The Delphi technique is a method of idea generation. It is a modified "brain-storming" technique and has two commonly used applications. In one, a series of items is read aloud. At specified pauses, related items are added. In the second, a self-report is used by which respondents fill in information blanks. Both systems were used in this research.

27
William A. Brehm, Jr., "The Development of Planning Policy," Master's thesis: School of Urban Planning and Landscape Architecture, Michigan State University, 1973.

28
William I. Goodman ed., Principles and Practice of Urban Planning (Washington, D.C.: International City Managers Assn., 1968), Chapter 20, "Planning and the Public," p. 564f.

29
Lisa R. Peattie, "Reflections on Advocacy Planning," in Journal of the AIP, vol. XXXIV, March 1968, pp. 80-88.

30
Mancur Olson, The Logic of Collective Action: Public Good and the Theory of Groups (Cambridge, Mass.: Harvard University Press, 1965).

31
Amanda Ann Beck, "The Application of Small Group Techniques to Training in Community Participation," Doctoral dissertation: Department of Psychology, Michigan State University, 1973.

32
Jonathan Barnett, Urban Design as Public Policy: Practical Methods for Improving Cities (New York: McGraw-Hill, 1974), Chapter 4, "Neighborhood Planning and Community Participation," esp. pp. 94-95.

33
Ibid., p. 92.

34
Brett W. Hawkins, Politics and Urban Policies (Indianapolis: Bobbs-Merrill Co., 1971), p. 86.
An example from Dallas, Texas is informative. In this case, in 1976, the city formed a partnership with the firm of Fox & Jacobs Home Builders for a renewal of East Dallas (a neighborhood comprised largely of poor and elderly residents). Mixed land use abounds and renters are on fixed income. Scattered site new housing in the $80,000 price range was proposed for neighborhoods adjacent to the Central Business District. Benefit to the developers and the city (in the form of increased tax base) was obvious, but residents pointed out forcefully to the media that down-zoning and development would mean displacement of current residents. Citizen groups, such as the activist Bois d'Arc Patriots, held that displacement would leave poor and older residents with no place to go, and public housing assistance was already over commited. The plan was eventually stalled in favor of a citizen-based plan of neighborhood improvement. See "Fox and Jacobs Place Time-Table on East Dallas," The Dallas Times Herald, January 4, 1978, p. C-1.

35
Paul Davidoff, "Advocacy and Pluralism in Planning," in Journal of the AIP, vol. XXXI, November 1965, pp. 331-337.
John W. Dyckman, "Social Planning, Social Planners and Planned Societies," in Journal of the AIP, vol. XXXII, March 1966, pp. 66-76.

36
Frederick H. Bair, Jr., Planned Cities (Chicago: American Society of Planning Officials, 1970). Of particular note is Bair's commentary on "Planning for Action" and organizing public participation in Chapter 3, "Planning Techniques."

37
Holleb, vol. I, p. 90.

38
City of Detroit Department of Urban Planning, Data Coordination Division, Description of Data Resources Available from the Data Coordination Division, December 9, 1974, and Current Reports and Publications--Data Coordination Division, Report No. 801, August 1974.

39
A general description of data sources and a system of retrieval is explained in Tulsa Metropolitan Area Planning Commission Report, Metropolitan Data Center Project (Tulsa: Planning Commission, 1966).

40
U.S. Department of Commerce, Bureau of the Census, Measuring the Quality of Housing: An Appraisal of Economic Statistics and Methods, Working Paper No. 25 (Washington, D.C.: Bureau of the Census, 1966).

41
Holleb, vol. I, pp. 79-81.

42
Kevin R. Cox, Conflict, Power and Politics in the City: A Geographic View (New York: McGraw-Hill, 1973), pp. 37-39.

43
Frank E. Horton and Jordan J. Louviere, "Behavioral Analysis and Transportation Planning: Inputs to Transit Planning," in Transportation, vol. III, July 1974, pp. 165-182.

44
U.S. Department of Commerce, Bureau of the Census, 1970 Census of Housing Characteristics, The Detroit Metropolitan Area (Washington, D.C.: Superintendent of Documents, 1970), and U.S. Department of Commerce, Bureau of the Census, Block Statistics: Detroit, Michigan, Urbanized Area, 1970.

45
Edward E. Jones and Harold B. Gerard, Foundations of Social Psychology (New York: John Wiley & Sons, 1967), pp. 318-320.

46
Sanford Labovitz and Robert Hegedorn, Introduction to Social Research (New York: McGraw-Hill, 1971), Chapter 5, "Methods of Classification," pp. 50-63.

47
Jones and Gerard, pp. 605-608

48
Goodman, p. 109.

49
A discussion of conformity among researchers is presented in Buford H. Junker, Field Work (Chicago: University of Chicago Press, 1960).

50
Neal Shover, "Experts and Diagnosis in Correctional Agencies," in Crime and Delinquency, vol. XX, October 1974, p. 356.

51
Alan Lipman, "Professional Ideology: Community and Total Architecture," in Architectural Research and Teaching, vol. I, April 1971, pp. 39-49.
Thomas Kuhn, The Structure of Scientific Revolutions (Chicago: University of Chicago Press, 1962).
Richard Nisbett, see note 6.

52
Even in normally valuable works, such as Holleb, Goodman and Cantanese, there is surprisingly little reference to this information. Holleb merely lists sources that are available and mentions that new data must be collected and revised. Goodman suggests kinds of data needed for land use inventories, while Cantanese assumes that existing data will be used and he avoids any informative discussion of collection methods or matching data to specific tasks.

53
One interesting report comes from James Schroeder, Planning Director of the City of Dallas, Texas, who has stated during the course of a discussion with this writer that the failure of the city's "Land Use Policy Plan" in June 1976 was due to citizen uncertainty over the premises upon which the plan was based.
In another case, Robert Buffington, Planning Director of the City of Plano, Texas, reported in November 1977 that the HUD designation which selected one specific area of his city for low-income multi-family housing, based on an analysis of metropolitan area census statistics, failed before the public and was rejected because citizens' concepts of the area did not match the statistical picture. While the citizens approved of low-income multi-family housing in general, they demanded that planning researchers investigate other areas and develop stronger data--which the planners agreed to do.

54
Sampling bias and sampling error are explained in Julian L. Simon, Basic Research Methods in Social Science: The Art of Empirical Investigation (New York: Random House, 1969). Problems with survey data and obstacles to the gathering of adequate information are detailed in pp. 110-137.

Instrument construction requires sophisticated analytical skills and experience beyond that normally gained through a traditional planning education. This investigation is, in part, aimed at developing social science methods for use by planners.

55
More detailed information concerning statistical terminology and principles of analysis can be found in B. J. Winer, Statistical Principles in Experimental Design (New York: McGraw-Hill, 1971).

56
The Rand Corporation, A Million Random Digits (New York: Free Press, 1955).

57
Pre-Test instruments are presented in more detail in Chapter 6, "Development of Research Design." The logic underlying this method relates to the fact that a true random sample would result in an equal spread of responses. In statements where approximation of equal distributions could not be manipulated through changes in wording, items were dropped for fear of affecting the neutral composition of the instrument.

58
Ibid., U.S. Department of Commerce, Bureau of the Census.

59
Numerous studies in social psychology confirm the practice of employing graduate students as trained observers within their field of expertise. Jones and Gerard, op. cit. pp. 318-326, discuss the concept of the expert and the co-oriented peer. The co-oriented peer's beliefs and behavior may be used as reference points by which to determine one's own behavior. Expertise and co-orientation act both to augment the ability of the referring person to judge aspects of a situation and visualize his own behavior.

In Psychology Review, vol. LXV, 1958, pp. 117-127, E. P. Hollander states that people in peer groups expect rewards for meeting the expectations of other group members and expect credit to be taken away if they do not meet group expectations. Peer groups such as professionals within a specific field experience pressures to conform to group norms as a function of their status in the perceived peer group. The higher an individual's status in the group the greater he may deviate from normal behavior without fear of reprisal or reprimand. since graduate students are, in general, members of a peer group with little earned status, strong pressure for conformity to a professional peer group exists.

In "Discussion, Decision Commitment, and Consensus in Group Decision," printed in Human Relations, vol. VIII, 1965, pp. 251-274, Edith B. Bennett indicated that her research found graduate students acceptable teacher surrogates in an experimental situation to determine the effects of conformity on individual behavior. Three experimental conditions were developed and little difference could be observed across test groups.

60

Numerous surveys were reviewed for testable items and for previously tested variables describing physical neighborhoods. Groupings of variables related to building conditions, landscape description, distances, maintenance appearance and population density were developed by reference to the following sources:

Francois C. Vigier, "An Experimental Approach to Urban Design," in Journal of the AIP, vol. XXXI, February 1965, pp. 21-30.

Kenneth H. Craik, "The Comprehension of the Everyday Physical Environment," in Journal of the AIP, vol. XXXIV, 1968, pp. 29-37.

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William H. Michelson, Man and His Urban Environment: A Sociological Approach (Reading, Mass.: Addison-Wesley, 1970).

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Robert C. Tryon and Daniel F. Bailey, Cluster Analysis (New York: McGraw-Hill, 1972).

L. L. Thurstone, Multiple Factor Analysis (Chicago: University of Chicago Press, 1947).

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BC-TRY System, developed by R. C. Tryon and D. F. Bailey. Employed at Michigan State University, CDC 6400: a component used by the Computer Institute for Social Science Research, secured from the University of Colorado at Boulder.

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Literature is extensive on the effects of the appearance of deteriorating neighborhoods on residents' behavior. Some notable sources referred to in this research include: Dieter K. Zschock, "Poverty Amid Affluence in Suburbia," in D. K. Zschock ed., Economic Aspects of Suburban Growth (Stony Brook: SUNY-Economic Research Bureau, 1969), pp. 72-77; Robert Sommer, op. cit., pp. 153-154; Alvin L. Schorr, Slums and Social Insecurity (Washington, D.C.: HEW, 1966); and William Michelson, op. cit., pp. 168-190.

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Sylvia Lewis, "Adams Morgan: Spiffed Up and Speculated Upon," in Planning (Chicago: American Society of Planning Officials, Mar-Apr 1976), vol. XLII; and "Reinvestment in the City," in Urban Land: News and Trends in Land Development (Washington, D.C.: Urban Land Institute, June 1977).

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Robert E. Coughlin, "The Capital Programming Problem," in Journal of the AIP, vol. XXVI, February 1960, pp. 39-48.

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Bernard J. Frieden and Marshall Kaplan, The Politics of Neglect: Urban Aid from Model Cities to Revenue Sharing (Cambridge, Mass.: MIT Press, 1977), p. 259.

67
James M. Beshers ed., Computer Methods in the Analysis of Large Scale Social Systems, revised edition (Cambridge, Mass.: MIT Press, 1968), p. 4.

68
Tryon and Bailey, pp. 135-182, on object cluster analysis.

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Stuart F. Chapin, Urban Land Use Planning (Champaign-Urbana: University of Illinois Press, 1968).

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Ruth P. Mack, Planning on Uncertainty: Decision Making in Business and Government Administration (New York: John Wiley & Sons, 1971), pp. 61-62.

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For discussion of neighborhood boundaries see, Suzanne Keller, The Urban Neighborhood: A Sociological Perspective (New York: Random House, 1968), especially Chapter 2, "The Neighborhood," pp. 87-88.

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As discussed by Kendig, op. cit., neighborhoods have traditionally been classified by single sources of data, or one-dimensional aspects of perception, which defies even the most rudimentary principles of classification of social dimensions.

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Herbert J. Gans,"The Need for Planners Trained in Policy Formation," in Ernest Erber, ed., Urban Planning in Transition (New York: Grossman, 1970) p.244.

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Francine F. Rabinovitz, City Politics and Planning, (Chicago: Aldine-Atherton, 1969), pp. 34-35.

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Houston-Galveston Area Council, by Applied Decision Systems, Inc., Small Area Model of the Houston-Galveston Area, Volumes 1 through IV, May 1973. The controversy over the data (for the model) centered about the behavioral approaches. Now, simple cohort-survival population projections are being made, along with simple land use absorption coefficients; as a result of this controversy; and miscellaneous case studies in Alan A. Altshuler, The City Planning Process: A Political Analysis (Ithaca: Cornell University, 1965).

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For example, the North Central Texas Council of Governments is presently involved in maintaining citizens participation in its Water Resources Section in order to properly develop representative goals. Source: Interview with Patricia Lewis, Water Resource Planner, August, 1977.

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Alan A. Altshuler, The City Planning Process: A Political Analysis, (Ithaca: Cornell University, 1965), pp. 314-315.

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George A. Miller, et.al., Plans and the Structure of Behavior, (New York: Henry Holt, 1968), p.21.

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This concept is explained in detail in Kenneth Boulding, The Image, (Ann Arbor: University of Michigan, 1956). But conflict among different groups, such as appointed planning commissioners and irate residents, may be kindled by these differences in images.

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Amanda Ann Beck, "The Application of Small Group Techniques to Training in Community Participation: A Field Experiment," Doctoral dissertation, Michigan State University, Department of Psychology, 1973.

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William A. Brehm, Jr., "The Development of Planning Policy," Master's Thesis, School of Urban Planning and Landscape Architecture, Michigan State University, 1973, pp. 102-108.

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Robert C. Tryon, Identification of Social Areas by Cluster Analysis, (University of California Publications in Psychology), 8(1) 1958. pp. 1-100

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Philip H. Rees, "Problems of Classifying Suburbs within Cities," in Brian J. Berry and K.B. Smith eds., op.cit., pp. 267 & 296.

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Alan Lipman, "Professional Ideology: Community and Total Architecture," in Architectural Research and Teaching, Vol. 1, No. 3., Surrey, England, April 1971, pp. 39-39.

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The list is constructed from the previous sources and general references.

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Olson, 1965, explains the concept of why people chose to hold simultaneous memberships in more than one organization. His proofs relate to one's perceived individual gain and the need to collectively unite to achieve one's goals. An additional source, Dr. Joseph A. Schlesinger (Seminar in American Politics: Michigan State University, March 1974), stated that a study of bond issue and referenda voting data would probably uncover that the closer the issue to the voters in direct perceived effect, the higher the voter turnout. Since regional issues are closer to most individuals, and since many regional issues are national issues, this logic was adopted.

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Numerous existing surveys were reviewed for content items, as well as previously tested variables describing physical neighborhoods. Groupings of variables related to several categories 1) landscape description (i.e., Craik, 1975), 2) building conditions (i.e., Texas Department of Community Affairs, 1974), 3) distances (i.e., Hall, 1968), 4) maintenance and appearances (i.e., Vigier, 1965), 5) densities, (i.e., Michelson, 1970).

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