

HIGHWAY RESEARCH RECORD

Number | Citizen Participation and
470 | Social Indicators

4 reports
prepared for the
52nd Annual Meeting

Subject Areas

- 11 Transportation Administration
- 81 Urban Transportation Administration
- 82 Urban Community Values

HIGHWAY RESEARCH BOARD

DIVISION OF ENGINEERING NATIONAL RESEARCH COUNCIL
NATIONAL ACADEMY OF SCIENCES—NATIONAL ACADEMY OF ENGINEERING

Washington, D.C.

1973

NOTICE

These papers report research work of the authors that was done at institutions named by the authors. The papers were offered to the Highway Research Board of the National Research Council for publication and are published here in the interest of the dissemination of information from research, one of the major functions of the Highway Research Board.

Before publication, each paper was reviewed by members of the HRB committee named as its sponsor and accepted as objective, useful, and suitable for publication by the National Research Council. The members of the review committee were chosen for recognized scholarly competence and with due consideration for the balance of disciplines appropriate to the subject concerned.

Responsibility for the publication of these reports rests with the sponsoring committee. However, the opinions and conclusions expressed in the reports are those of the individual authors and not necessarily those of the sponsoring committee, the Highway Research Board, or the National Research Council.

Each report is reviewed and processed according to the procedures established and monitored by the Report Review Committee of the National Academy of Sciences. Distribution of the report is approved by the President of the Academy upon satisfactory completion of the review process.

ISBN 0-309-02253-3

Library of Congress Catalog Card No. 73-21485

Price: \$1.80

Highway Research Board publications are available by ordering directly from the Board. They are also obtainable on a regular basis through organizational or individual supporting membership in the Board; members or library subscribers are eligible for substantial discounts. For further information write to the Highway Research Board, National Academy of Sciences, 2101 Constitution Avenue N.W., Washington, D. C. 20418.

CONTENTS

FOREWORD v

FORMULATION OF EFFECTIVE CITIZEN INVOLVEMENT IN
THE DEVELOPMENT OF A MAJOR AVIATION FACILITY
Charles C. Schimpeler, Thomas H. Chastain, and Joseph C. Corradino 1

PUBLIC PARTICIPATION IN LOCAL TRAFFIC ENGINEERING:
A CASE STUDY OF LOS ANGELES
Michael Schneider 12

COMMUNITY REACTIONS TO ANTICIPATED HIGHWAYS:
FEARS AND ACTUAL EFFECTS
Jon E. Burkhardt 22

SOCIAL CAPACITY INDICATORS
Carl P. Sharpe and Donald L. Williams 32

COMMENTARY ON PAPERS BY BURKHARDT AND SHARPE AND WILLIAMS
C. D. Bigelow 41

SPONSORSHIP OF THIS RECORD 42

FOREWORD

Citizen participation and social indicators are receiving at least as much attention as any other topic in planning highways and other public works. Some hope that progress can be made in dealing with these timely and complex matters is offered by the papers and comments in this RECORD. The papers deal with citizen participation through a citizens' advisory committee in an 11-county area; public participation shown by requests for traffic engineering changes; community fears compared with actual effects of highways; and social capacity indicators to show which communities can tolerate highways.

The first paper, by Schimpeler, Chastain, and Corradino, describes the use of a citizens' advisory committee to explore new airport facilities in the Louisville area. The committee, through an open-door policy, grew to 160 members representing an 11-county area. The committee operates through a steering committee, an executive committee, and 9 functional task forces (e.g., on-site design, land acquisition, finance). Although a final decision on the airport has not been achieved, the authors believe the citizens' advisory committee has been successful in giving credibility to the Louisville and Jefferson County Air Board in dealing with the public.

Schneider analyzed requests for traffic engineering changes in Los Angeles as an indicator of public participation. He found about 5 times as many requests for traffic engineering changes in high-income white neighborhoods with 1.9 cars per family as in low-income non-white neighborhoods with 0.7 car per family. The level of participation depended on education, leisure, financial security, skills and knowledge, organizational membership, self-confidence, and perception of community problems, Schneider notes.

Burkhardt's comparison of community fears and actual effects of highways is based primarily on 401 interviews (342 households and 59 businesses) in five neighborhoods, three with highways planned and two with highways completed. Fears were generally overestimated and benefits underestimated; persons expecting negative effects outnumbered those expecting benefits 3.5 to 1. Major concerns were pollution, noise, dislocation, and loss in property value. Blacks were especially concerned about dislocation, higher taxes, street changes, and child safety. Whites worried most about pollution and the character of the neighborhood. Burkhardt concludes that a more active public information program about actual effects of highways can significantly reduce concern about these effects.

Sharpe and Williams use spatial mapping of interview responses to determine cohesive opinion. Responses—for example, "very noisy" or "unpleasant"—indicate whether a community is "hard" or "soft". A "hard" community is one that cannot easily accept or tolerate a highway (e.g., because of elderly residents); a "soft" community can sustain changes associated with highways. In addition to location, the social capacity indicators approach (amounting to less than 1 percent of project cost, according to the authors) makes it possible to involve the public in a procedure that can directly affect design (e.g., a noise barrier where "very noisy" responses are clustered).

Comments by Bigelow help highlight noteworthy features of these papers, particularly their strengths. Bigelow notes especially that Sharpe and Williams solicited reactions from individuals rather than groups and that Burkhardt really responded to the need for two-way communication between highway agencies and affected communities.

—Floyd I. Thiel

FORMULATION OF EFFECTIVE CITIZEN INVOLVEMENT IN THE DEVELOPMENT OF A MAJOR AVIATION FACILITY

Charles C. Schimpeler, Thomas H. Chastain, and Joseph C. Corradino,
Louisville and Jefferson County Air Board

The Louisville and Jefferson County Air Board plans to develop extensive new air facilities in the Louisville area. The board therefore set into motion the process for establishing a functional citizens' advisory committee. The charter members of the committee were chosen for their role as influential leaders in their communities. The membership has since grown through an open-door policy to the present size of approximately 160 citizens. The committee has structured itself into an executive committee, a steering committee, and 9 functional task forces. It is playing an active role in the planning process and is proving to be a most valuable asset in ensuring that community values are properly incorporated in the total planning process. The committee has been active in the formulation of legislative proposals, in the decisions relating to site-selection criteria, and in the evaluation of alternative sites for a new airport location. Such broad demonstrated involvement is clearly shaping planning decisions and in the future will shape those development decisions that flow from the planning process.

•THE need for community involvement became apparent in the planning for improved aviation facilities to serve the Louisville region, either at a new air carrier airport or through major expansion of the existing airport. An approach was initiated to identify a group of citizens that would be geographically, socially, and economically representative of those most likely to be directly affected by the airport project. Research by Schimpeler at Purdue University in 1967 proposed an approach to effective citizen involvement based largely on the identification of those persons influential and interested in the development of their community. Based on the 1967 Purdue research and field interviews with public officials, newspaper publishers and editors, bank presidents, and others throughout the affected region, an initial committee representing 11 counties was formed. This citizens' advisory committee membership was expanded through recommendations made by the initial core membership group and is expanding on a continuing basis through a completely open membership policy. Any resident of the region desiring to participate in the long-range development programs for aviation in Louisville is granted membership on the citizens' advisory committee.

MEMBERSHIP IDENTIFICATION

Characteristics of Community Influentials

Community influentials are defined as people who have achieved a position from which significant force may be exerted on the direction of community change. The person's influence may be as a member of a group or in an individual capacity. The influence may be intensive, operating forcefully in only a few areas, or extensive, operating with some force over a wide range of activities. Such influence might be either enduring or short-lived. A convenient classification of action bodies that direct community change might be as follows:

1. Governmental bodies,
2. Public agencies,
3. Semi-public agencies, and
4. Private industries.

Those citizens who have a significant effect on the policy formulation of these bodies within a community are, therefore, community influentials.

For the purposes of this analysis, it will be helpful to further stratify influentials into direct and indirect categories. A "direct influential" must be a relatively permanent and conspicuous member of one of the above four direct-action bodies. Some of these members, however, may be acting primarily as representatives of other interested parties. These other interested parties are indirect influentials.

It can be concluded from the above definition, therefore, that the mayor, city council members, school board members, or members of a board of recreation may be direct influentials in government policy-making, and the mayor's golf partner, the councilman's constituent or special business interests, P.T.A. members, or an outstanding businessman may be indirect influentials. Among indirect influentials may be a powerful local developer who is able to exert pressure to direct local utility company policy or environmental groups that are able to sway members of governing bodies.

Each individual within a community has the opportunity to be an influential person. Either through his or her action alone or in a group, any individual can achieve a position of significant influence, either directly or indirectly, on community change.

It is apparent, however, that most citizens never exert the effort to become indirect influentials in their community. The vast majority exert little or no influence on the electorate. As a result, there commonly exists a relatively small group of people within a community that rises to the status of indirect influentials, either intensively, extensively, or, in a few cases, both of these.

Generally, indirect influentials tend to operate intensively rather than extensively. They are interested in one or a few areas of community action, often because of personal financial involvement. The interest of some is spurred by social conscience; these people act from a sense of responsibility, directing community action altruistically for the benefit of the whole.

Indirect influentials do not appear to be characterized by any identifiable personal or psychological traits. They are, however, "joiners" and leaders. They are frequently members of numerous civic organizations and hold high offices within these organizations. No social involvement is definitely an indicator. Because of their interest, often selfish and in limited areas, some indirect influentials are not truly representative of the people but are biased toward their personal causes.

Indirect influentials are numerous and difficult to identify compared to those who act directly. Direct influentials are relatively permanent and conspicuous members of the direct-action bodies, and thus the universe of possible direct influentials is easier to isolate. The universe of potential indirect influentials is vast, and therefore specific and efficient methods of analysis are needed to locate such influential persons.

Criteria for Initial Selection of a Citizens' Advisory Committee

The strength and influence of private enterprise must be a part of any process for reviewing and implementing long-range plans for development. Therefore, a committee consisting only of elected representatives would not be effective in plan implementation. Conversely, to form a committee of only those who direct development decisions would also be ineffective. Such a committee would possibly not receive popular recognition and furthermore may not be able to formulate unbiased guides for development.

A criterion for the selection of a citizens' advisory committee may be as follows: The committee should consist of direct and indirect influentials including public officials and representatives of commerce and industry who are influential in controlling development decisions and those indirect influentials who, by reason of their personal stature and demonstrated interest, are effective in shaping policy on important community issues.

An alternative presentation of this criterion is this simple block diagram:

Composition of Citizens' Advisory Committee

	<u>Influentials</u>	
	<u>Possible Direct</u>	<u>Actual Indirect</u>
Representors	A	C
Implementors	B	D

where the letters are defined as

- A—popularly elected officials;
- B—other heads of public and semi-public bodies and executives of commercial and industrial firms;
- C—unbiased, interested citizens; and
- D—other indirect influentials including groups A and B acting outside the area of their direct control.

The elected official may or may not be a direct influential but must be included on a citizens' advisory committee to be able to participate in such an important process as goals and objectives formulation because of his legal responsibility to the citizens of a community. The important indirect influential group on the committee may be those citizens who, by reputation and altruistic motive, have been consistently interested in important community problems. This group of indirect influentials would be well accepted by the community because they would not be associated directly with financial or other biased motives. Offices responsible for the programming of capital development funds should be involved in a citizens' advisory committee. Representatives of strong and influential quasi-public agencies, such as the chamber of commerce, should be included. Often, channels are directly open to such persons, that is, they may "know their way around City Hall", and, what is more important, these people do have direct channels to top business interests that control development. Another very important element intended by the criteria stated above is representation of private enterprise. This representation should come from strong business interests directly associated with decision-making that affects or directs community development.

From the general membership of the citizens' advisory committee, a steering committee and task forces should be selected (elected), consisting of the influentials who have the interests and time required for this work. The steering committee could furnish general guidelines to the task forces, ask them to address specific topics, and comment on the progress of the task forces as a whole at various stages. It would be imperative, however, that the planning entities in their interaction with the citizens advisory committee strongly support the final recommendations of the advisory committee and be thoroughly familiar with the committee's actions so that they may direct their own actions in a manner consistent with the best interest of the community.

The steering committee-task force concept possesses the following desirable characteristics:

1. The steering committee will establish policy and will have direct channels to the Air Board.
2. The task force, which is actually the work-level committee, could be maintained at an effective operating size. The full committee can have larger representation in that it will not be required to perform day-to-day work activities.

Potential Membership List

After the citizens' advisory committee membership characteristics had been defined, the next step was the identification of individuals with those characteristics. The geographical area from which the committee was to be chosen was determined to be those counties in which the airport might possibly be located and that make up the primary "hinterland" for the existing airport. The result was to include representatives from an 11-county area. Members of the Air Board staff then went into each of these counties

to identify the interested and influential citizens. The sources of information and the process employed were similar in all counties.

First, the newspapers serving the county were monitored over a period of 5 or 6 months to identify the individuals who were consistently involved in newsworthy community issues. In many cases the newspaper editors and publishers were able to readily identify citizens who were the indirect representors of the county populace. In one county, for example, an article published by the local paper that discussed the power structure of the community and identified the most influential citizens of the area was of significant value in defining the influentials.

Second, local elected officials are direct representors and indirect implementors as well as a good source of information about local leadership. Elected officials at all levels of government were interviewed and were very helpful in identifying influentials of the counties.

Third, for obvious reasons citizens with substantial investments in the community are often the most actively involved in major decisions of the area. Local bankers were excellent in identifying those persons who have a vested concern for the well-being of the community. The bankers are frequently the leading citizens of communities and are in continuous contact with the direct and indirect implementors.

Fourth, the power structure and the social structure of a community parallel very closely, and it was essential, therefore, that the list of influentials include those individuals chosen as leaders or officers of social or civic clubs and organizations. The task of identifying the current and past presidents of local business and civic organizations was relatively simple.

From the resources described, a list of influentials was constructed. This list was the combination of names from all of the sources, and, as expected, the same names were often obtained from more than one source. When the duplications had been eliminated the initial list contained some 100 names.

It is important to note that at this time there was little evidence of the attitudes toward a new airport (for or against) that these influentials would have. The important fact was that these people were active as either representors or implementors in the area. As representors, they were trusted by the citizens and were in such close communication with the total citizenry as to voice the ideas, hopes, and fears of the populace. As implementors, they were in a position to exercise effective influence over development projects in the area.

One additional group of names was added to the initial citizens' advisory committee list. This group was composed of persons who, through their interest in the project, both pro and con, had contacted the Air Board or its staff directly. The fact that they were concerned enough to initiate the contact indicated that they would probably become actively involved if given the opportunity.

Contacting the Proposed Members

Over a period of 5 to 6 months the list of potential members grew to about 125. In the fall of 1971 letters were sent to each potential member asking him to serve on a citizens' advisory committee to the Louisville and Jefferson County Air Board. Each person was told that his role would be to advise and to review the actions of the Board during the planning and development of improved air service facilities in the Louisville area. The first meeting was announced and held with about 85 percent of the invitees in attendance.

Expansion of the Membership

Following the first meeting, citizens' advisory committee membership has continued to grow through two processes. One is by invitation to persons recommended by the existing members. The second method is an open-door policy that permits any citizen desiring to participate to become a member. Through these processes, which are continuing and which are expected to provide an open avenue of citizen involvement for the life of the project, the membership has grown to a size of about 160 (Fig. 1).

FUNDAMENTAL COMMITTEE PURPOSES

Air Board Requests of the Committee

The Air Board called the charter committee together in October 1971. At this meeting it was explained that the Air Board intended to interact with the committee in a full-faith manner and would request such in return. Representatives of the Board emphasized the fact that the committee must remain independent and unbiased. The Air Board committed itself to support the committee in terms of resources, including clerical staff, supplies, and staff members as resource persons. In turn, the committee was asked to act in an advisory role and to review objectively the efforts of the Board in developing improved aviation facilities. The committee was charged with the responsibility of maintaining such integrity that it would be an effective path of communication, understanding, and trust between all citizens of the region and the Air Board. The committee was asked to digest, to the extent possible, the technical studies conducted in relation to the project; to listen open-mindedly to the proposals of the Board; to request additional study and information if needed; to represent the Air Board to the citizenry as well as the citizens to the Board; and to take an official position as a result of their studies and involvement. The Board committed itself to plan in a conscientious manner with the welfare of the total community in mind but asked that the committee assist, when possible, to further that cause. In summary, the Board requested that the committee represent the people of the area in the manner of an intelligent, well-informed, and concerned citizens' advisory committee.

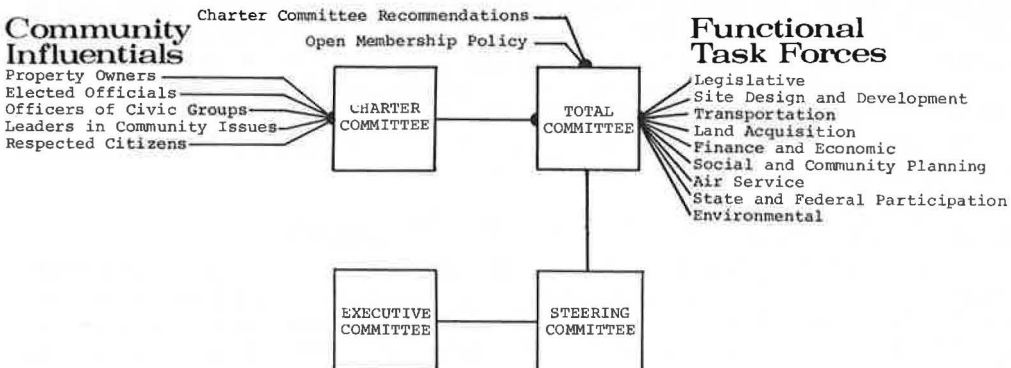
Committee Goals and Objectives

In the early meetings of the citizens' advisory committee, the steering committee set up 3 general goals for the total committee. These goals were established to give broad guidelines for the work of the committee with the knowledge that their efforts would be concentrated in a more detailed manner on the planning work connecting the 3 major decision points of the project. Their goals in relation to the major planning stages were as follows:

1. Study and assist in determination of the need for a new airport to serve Louisville;
2. Assist in the selection of a site, if and when the need is established;
3. Assist with planning and development of a regional airport community, if and when the need is established.

When the 9 task forces of the citizens' advisory committee began their work, they each established specific goals and objectives as related to the direction of work of their task force. For example, the transportation task force decided as its prime goal to "study the projected transportation needs of the community and offer to the citizens"

Figure 1. Citizens' advisory committee composition.



advisory committee an informed evaluation of methods of meeting those needs". The daily operation of each task force involves a continuing process of establishing short-range goals and objectives to accomplish the review of a specific report or to prepare and submit their reactions or responses to specific requests of the steering committee.

COMMITTEE OPERATING STRUCTURE

Structuring of the Total Committee

Full Committee—The full committee consists of about 160 individuals. It meets in total very infrequently (twice during the first 12 months) and only for the purpose of hearing new planning details or directions of the Air Board or for ratifying some major decision involving the total committee. Because of the problems encountered in assembling the total committee, official ratification has, on occasion, been accomplished through mail-in questionnaires or telephone polling.

Steering Committee—The steering committee is a group of 11 citizens, each representing one of the 11 counties involved in the citizens' advisory committee effort. The steering committee is responsible for establishing policies of the committee and issuing guidelines for the work carried out by the 9 task forces. This group of 11 members has direct lines of communication with the Air Board. As the policy formulation group, the steering committee is the primary group responsible for reviewing the work of the task forces on behalf of the full citizens' advisory committee.

Executive Committee of the Steering Committee—Three officers of the steering committee make up the executive committee. This group acts at the direction of the steering committee in carrying out the necessary logistics of communication with the task forces, the actual writing of reports, and making the day-to-day decisions necessary for the continuing involvement of the citizens advisory committee.

Task Forces—The task forces are subgroups of the total citizens' advisory committee. These task forces range in size from 5 to 25 members and are the working unit of the committee. They act at the direction of the steering committee in performing specific functions and serve as the method of accomplishing the goals of the total citizens' advisory committee. The 9 task forces have the following titles: Legislative Task Force; Site, Design, and Development Task Force; Transportation Task Force; Land Acquisition Task Force; Finance and Economics Task Force; Social and Community Planning Task Force; Air Service Task Force; State and Federal Participation Task Force; and Environmental Task Force. Although each task force is designated to concentrate its efforts on certain areas, there is a significant amount of overlapping of studies and involvement due to the intricacy of the project and the inability to divorce any one aspect from the others. The task forces have proved to be an effective working unit for accomplishing the work of the committee as a whole. Therefore, on many occasions, all 9 task forces address themselves to the same topics and their input serves to represent the action of the total committee. Each member of the citizens' advisory committee is, in fact, related to a specific task force. The task forces, because of their effective working membership size, can thus function in an efficient manner in supplying the needed input or reaction as components of the committee as a whole.

Subcommittees of Task Forces—In an effort to thoroughly familiarize itself with the Louisville and Jefferson County Air Board's project and to become as knowledgeable about airport planning as possible in the period of time available, several of the larger task forces appointed subcommittees to perform specific studies and reports on a one-time basis. The members of the subcommittees, usually 2 or 3 individuals, present a brief oral report of their findings to the task force, thus reducing the duplicated effort of the members and resulting in a more efficient endeavor.

The Air Board, the Citizens' Advisory Committee, the Community

In most governmental projects today, the individual citizen sees himself as remote and insignificant compared to the massive power and operation of the bureaucracy often connected with projects of major scope. At the same time, planners are continuously attempting to involve the needs and ideas of the community on the basis of the individual

citizen. The feeling of distrust and the simple problem of meaningful communication have been barriers in effectively involving the citizen in public projects. The citizens' advisory committee, when utilized in an effective manner, can be a major step in the direction of community or citizen involvement. The interaction among the Air Board, the citizens' advisory committee, and area-wide citizens has been interesting and very effective. The interaction takes place in a "triangular" process. The Air Board and the citizens' advisory committee interact as the Air Board presents to the committee the results of its studies and the details of its current planning effort. The committee in response advises the Air Board as to what the critical items might be in terms of the community value system and provides the reaction of informed, knowledgeable citizens. The individual members of the citizens' advisory committee, in turn, communicate with the larger body of citizens of the community to supply them with facts about studies and plans relating to the Air Board. The primary factor in this latter process is that the citizens of the community receive their information from a trusted member of their peer group and their community. They, in turn, respond in a conscientious manner, thus providing the citizens' advisory committee member with first-hand knowledge of the opinions and attitudes of his community.

The third link in this communication process is a direct line between the Air Board and the citizens of the community. This takes the form of publicity released by the Air Board, citizens' correspondence with the news media or Air Board, and direct citizen dialogue with the Air Board and its staff. In past projects, publicity and emotional reaction were the only means of communication between the initiating and controlling body and the individual citizen. The concept of a citizens' advisory committee has produced a strong and direct means of communication that instills a feeling of trust, provides a method of minimizing misconceptions and misunderstandings, and opens the path for a maximum amount of direct or indirect citizen involvement and input into the project.

FUNCTIONAL ACTIVITIES OF TASK FORCES

Formulation of Specific Goals and Objectives

In addition to the three primary goals and objectives of the total committee, the task forces formulated their own specific sets of goals and objectives ranging from that of being a "buffer between the esoteric milieu of planners and architects and the attitudes of airport users, the general public, and their political leaders" to that of becoming knowledgeable and functional in an advisory capacity for the specific topic of the task force work. In all cases, the task forces' goals and objectives emphasized the need for the citizens' advisory committee, as a whole, to act as the link between the Air Board and the community in the process of citizen involvement.

Review Past Studies of the Air Board

When the task forces had formulated a basic understanding of the process and needs of airport planning, they proceeded to review the studies that had been previously conducted for the Air Board relative to the project. Once again, the task force members asked that Air Board staff members be in attendance at their meetings as resource persons for questions about these past studies. Although in most instances the reports from the studies were quite technical in nature, task force members were able to appreciate the detail of the study and have a basic understanding of the assumptions made and conclusions reached.

Assist in Identifying Additional Needed Studies

The task forces combined the information obtained from reviewing past studies with their basic knowledge of the airport planning process and were able to assist in identifying additional studies that would be required throughout the project. They provided assistance in foreseeing what specific items of study should be included to ensure that the many questions of the general public were satisfactorily addressed. The specific concerns and requests for detailed studies relating to certain topics were good indicators

of the concerns and questions that would arise in the minds of the general public in the future. This provided a means by which the Air Board could be prepared to respond with the specific information desired by the public at various stages of the project. An example of this is the joint effort of the Air Board staff and the legislative task force to draft a bill to be introduced in the Kentucky General Assembly. By working together the 2 groups were able to produce a bill that would meet the needs of the Board while ensuring adequate representation of all affected counties.

Interact With Other Citizen Groups

The task forces have taken steps to interact with other citizen groups of the area in their efforts to truly represent the public. They may appoint members of their task force to attend other "community issue" meetings or invite representatives of other citizen groups to attend their task force meetings. This intergroup interaction occurs in a less rigorous form since many members of the citizens' advisory committee are also members of other citizen groups and thus serve as direct links for the transfer of ideas from one group to another.

FUNCTIONAL ACTIVITIES OF THE TOTAL CITIZENS' ADVISORY COMMITTEE

The total citizens' advisory group has actively participated in planning new air facilities for the Louisville regional area in a number of ways. Their first action as an organized group was the ratification of the committee structure consisting of the executive committee, the steering committee, and the task forces. They also ratified the three previously discussed goals for the total committee. The total citizens' advisory committee has also acted on three specific topics.

Proposed Regional Airport Legislation

During the 1972 session of the Kentucky General Assembly, the Louisville and Jefferson County Air Board desired to submit to the legislators a bill requesting enabling legislation for the formation and empowerment of a regional air board. This legislation, before being submitted to the General Assembly, was presented to the citizens' advisory committee's legislative task force. The task force, in working with the Air Board's representatives, suggested certain changes that were included in the legislation. The task force then submitted its recommendation to the steering committee of the citizens' advisory committee. The steering committee formulated a statement of position endorsing the proposed enabling legislation. The statement of position was mailed to all members of the citizens' advisory committee, and by means of a telephone poll the total committee ratified the statement of position and presented it, along with the findings of the legislative task force, to the members of the Kentucky General Assembly.

Although the proposed bill itself failed to reach the Senate floor for a vote (due to ulteriorly motivated political opposition), the citizens' advisory committee was significantly effective in its role of citizen involvement in an advocacy manner. The committee acted in a most responsible manner when it endorsed the legislation with this statement: "The citizens, whether for or against the project, have a strong sense of need for legislation which would enable the development of the airport if it is proven to be a desirable step of progress in the future. We also realized the need for legislation which would provide adequate representation, fair and proper procedures consistent with due process of law, and a workable structure for administrative and fiscal management." Thus the committee, although not necessarily endorsing the project itself, testified to the fact that they were keenly aware of the need for proper legislation that might arise in the future stages of the project, if it were to develop.

The Summary Report on Standiford Field

The citizens' advisory committee was asked to react to a report entitled "Summary Report on Standiford Field". In reviewing the request, the steering committee felt that, because of the size of the total committee, it would not be the best forum for reviewing

the "Summary Report". Thus, the steering committee requested that each task force address itself to the review of and comment on the "Summary Report".

The "Summary Report" documents the ability of Standiford Field (the existing Louisville air-carrier airport) to expand in light of the social, environmental, and cost repercussions. The conclusion of the "Summary Report" was that "the Air Board, in good conscience, cannot pursue expansion of Standiford without careful consideration of all other alternatives". The task forces were able to independently review the entire "Summary Report" in detail as it related to the first goal of the total committee. Each task force then submitted a written report to the steering committee. Having received the task force reports, the steering committee proceeded to summarize these findings and conclusions into a report that represented the total citizens' advisory committee reaction to the "Summary Report". The "Summary Report" received a favorable review by the citizens' advisory committee. This was a significant step in the project in that it clearly indicated the committee's support in continuing the planning efforts. The committee, while still not endorsing the project in total, agreed that the "Summary Report on Standiford Field" clearly revealed two things:

1. That, if Standiford Field were to continue to be the facility providing air service to the Louisville area, it would require extensive expansion in the near future; and

2. That the effects of such expansion were so undesirable that extensive studies should be conducted to evaluate the potential of alternative sites for the Louisville regional airport facilities.

Site Evaluation Committee

In evaluating alternate sites for a new airport to replace Standiford Field, the Louisville and Jefferson County Air Board chose to call together a special committee to establish and weigh the criteria to be used in the site evaluation process and to apply those criteria to the alternative sites under consideration. This special site evaluation committee consisted of 3 groups: (a) interested community leaders; (b) transportation/aviation planning professionals; and (c) key aviation management executives. This committee established that representatives of the citizens would be directly involved in evaluating the sites for new airport development. The citizens' advisory committee participated (and will continue to participate) in this site evaluation process in 2 ways:

1. The citizens' advisory committee was asked to appoint individuals from its membership to make up the citizen component of the evaluation committee. These representatives carried with them the ideas, attitudes, and values of the citizens' advisory committee and the community as a whole.

2. Each task force was asked to review, restructure, and weight a criteria list. Thus, the final criteria list and weighting factors contained the direct input from each individual of the citizens' advisory committee by his involvement with a specific task force. This process ensured that the subjects of greatest concern to the community are given proper consideration relative to each criterion involved in evaluating potential sites for new airport development.

CONTINUING CITIZENS' ADVISORY COMMITTEE INVOLVEMENT

Public Hearing

It is anticipated that the citizens' advisory committee will play a very important role in the process of conducting public hearings relative to the location of a potential airport to replace Standiford Field. Through the committee it is hoped that the citizens of the area will be better informed and have available to them factual information from fellow citizens of their community in whom they place confidence and trust. It is hoped that the committee will present testimony at the hearing and attest to the fact that their ideas and comments have been heard and considered. They will be in a position to verify, to some degree, the veracity of the Air Board's testimony.

A completely different means of involvement in the public hearings, although no less effective, will be the ability of the Air Board to anticipate the concerns of the community

and the questions that will arise at the public hearing by having listened to and responded to the members of the citizens' advisory committee. It is hoped that the very fact of continued citizen involvement and the presence of committee members at the hearing will be conducive to a more organized, constructive meeting.

Physical Development Layout

The physical layout of an airport can play an important role in determining the degree to which that facility fulfills the needs of the user. The members of the citizens' advisory committee will be in a position to speak to the needs of the local citizens who will use the facility. Many members of the committee travel to other airports and/or are in constant communication with citizens who make frequent use of airport facilities at both Louisville and other cities. They will, therefore, be an important resource of independent opinions as to the advantages and disadvantages of facilities at airports all across the nation and, hopefully, will be in a position to advise the Louisville and Jefferson County Air Board so that the new airport facility will provide the highest level of service possible to the user.

Ground Access

One of the greatest concerns expressed in the development of a new airport is that of providing adequate ground access. The citizens' advisory committee, as a whole, and the transportation task force, specifically, will be in a position to express the community's needs and advise the Air Board in terms of planning and providing adequate access to the new airport.

SUMMARY AND CONCLUSION

Status of the Citizens' Advisory Committee

The Louisville and Jefferson County Air Board plans to develop adequate air facilities to serve the Louisville community. However, the progress of other airport projects across the nation impressed upon the Air Board the need for active citizen involvement in such projects. The Air Board, therefore, in full recognition of the power of the public, set into motion the process for establishing a functional, involved citizens' advisory committee. The Air Board's staff spent the first 6 months of 1971 identifying the geographical area that should be represented on the committee and the leaders and influentials from each county within that area. The first meeting of the committee was held in October 1971 with approximately 100 members in attendance. The committee, acting through an open-door policy, has since grown to a membership of approximately 160 citizens and has structured itself into an executive committee, steering committee, and 9 individual task forces. The committee is serving and will continue to serve 2 important roles:

1. Representing the ideas, reactions, and attitudes of the citizens of their communities; and
2. Representing the Air Board in a clear factual manner to the general public.

Planner's Conclusion

The work reported here has demonstrated that effective citizen involvement can be achieved at a detailed level of planning decision-making. The Louisville work has clearly shown the impact of a working citizens' advisory committee in framing the overall planning program and the identification of specific goals and objectives for that program. Critical review of those planning elements completed prior to the initiation of the citizen involvement effort and the participation of the citizens' advisory committee in the detailed preparation of studies relating to the statement of long-term need for facility development bring a broader based community expression to the planning process. The committee has been active in the formulation of legislative proposals that will ensure effective, continuing citizen involvement as a part of decision-making and will ensure a sound environmental planning process. Citizen involvement

in Louisville is a tangible part of those decisions relating to site selection criteria and the evaluation of alternative sites. Such broad involvement is clearly shaping planning decisions and in the future will shape, in a manner consistent with a representative expression of community values, those development decisions that flow from the planning process.

Citizen involvement must be a continuing process. Citizen involvement in Louisville is on course in the 3 critical areas identified by the citizens' advisory committee itself: in the conclusive documentation of need for development of major new facilities, in the broadest extent in the site selection process, and in the many continuing decisions that will be a part of the project implementation program for years to come.

PUBLIC PARTICIPATION IN LOCAL TRAFFIC ENGINEERING: A CASE STUDY OF LOS ANGELES

Michael Schneider, VTN Corporation, Irvine, California

This study was conducted to determine the extent and distribution of citizen participation in local traffic engineering and to determine what differences, if any, exist between citizens who participate in local government and those who do not. The Los Angeles Department of Traffic was selected as a representative agency, and its interaction with citizens in Los Angeles was examined for the fiscal years 1969-1970 and 1970-1971. The requests and petitions for traffic engineering services that the department received from citizens were investigated to determine their general origin, and this distribution was correlated with certain census data to obtain a relationship between socioeconomic status and participation rate. In addition, a home-interview survey was conducted among citizens who had requested traffic engineering services and their neighbors who had not. The results of this local survey, together with the city-wide pattern of citizen participation, are analyzed in this paper to provide some policy implications that might be applied to traffic engineering agencies and other local governmental bodies whose primary or secondary function is to provide "housekeeping" services to urban areas.

•PARTICIPATION by citizens in the affairs of government can take many different forms, depending on such factors as the level of government and the actual or perceived power of the citizen. These modes of political participation have been the subject of numerous studies to determine the characteristics of those who interact with government, whether by voting, letter writing, or other active or passive means. Most of these studies, however, have been directed toward better understanding of the factors that motivate people to participate with a particular political motive—the election of a certain candidate, the passage or defeat of a piece of legislation, or the alteration of a governmental ideology. Relatively little work has been directed at citizen participation in smaller scale, local matters that might be classed as "quasi-political" participation, i.e., the interaction between citizens and local governmental agencies regarding essentially non-political community and neighborhood services.

It is considered normal in most municipal government systems for residents of the city to submit requests for municipal services or to voice complaints and suggestions with respect to existing services. Indeed, most city departments that deal with the public have extensive institutional machinery designed specifically to handle citizen input. Yet little attention has been given to the question of the distribution of these service requests among the population of the city. While it is well known that so-called slum areas within the city require great amounts of police, welfare, and other social services, it is less well known how requests for physical services are distributed throughout the city. The study reported here attempts to address this question by analyzing the requests for service and delineating the motivational factors that play a role in service requests to a typical municipal public agency, the Los Angeles Department of Traffic.

Requests for physical services from local governmental agencies include, broadly, those types of activities that might be considered "urban housekeeping". Examples of such activities are street repairs, park and recreational facility maintenance, street

cleaning, clearing of debris from vacant land, sign posting, and other similar municipal services. Many public agencies generally rely to a large extent on public input for such services; maintenance crews are often too small or overburdened to service all areas regularly and therefore look to the public for information regarding needed services or potential problems in particular neighborhoods.

It is in this context that citizen participation in such local, essentially nonpolitical activities becomes important. It can be readily seen that, given typical time and manpower constraints on the part of public agencies, those neighborhoods or communities from which few service petitions originate will tend to be overlooked in favor of other areas from which many requests originate. Even if agency decision-makers are prepared to listen and respond with equal dispatch to all requests, those who have not requested service in the first place will, of course, not be serviced. As Verba (7) notes, citizens may choose passivity if they wish, but the opportunities to participate ought to be equalized. This includes, in Verba's terms, "equal access to motivation"; if some group—because of past experience or a special pattern of socialization—is less self-confident of its ability to influence decision-makers, it does not, in a real sense, have equal opportunity to participate.

By examining the origins and the distribution of service petitions from citizens to the Los Angeles Department of Traffic, this study will attempt to provide some answers regarding equality of opportunity for citizens to seek access to this particular agency. Further, by means of a limited survey of local residents, some inferences will be made regarding the characteristics of those who do participate. Together, these two investigations will enable certain policy implications to be put forth regarding the role of citizen input in the local traffic engineering process.

The first phase of the study was facilitated by use of Los Angeles Department of Traffic records of public requests for the fiscal years 1969-1970 and 1970-1971. Analysis of the geographic distribution of these requests was performed using the 15 council districts in the City of Los Angeles as analysis units. Census data were aggregated and attributed to each council district. In this way, knowledge of mean citizen request rates and corresponding demographic information allowed correlations to be performed that determined to what extent economic status is associated with traffic service request rates.

The second phase of the study consisted of a home-interview survey carried out in the eastern part of the San Fernando Valley in Los Angeles. This survey was undertaken to determine what differences exist between "traffic service requesters" and "nonrequesters" with respect to discrete environmental variables. The survey was designed to ascertain whether or not those who request traffic services differ significantly from others in the population. Through knowledge, then, of the gross distribution of requests among social and economic groups in the city, and through further knowledge of discrete motivational factors among individual citizens, this study will develop a series of indicators of public participation that may be useful in soliciting input from various groups who lack, in Verba's terms, equal access to motivation.

DISTRIBUTION OF CITIZEN INPUT

Input to the Los Angeles Department of Traffic generally is in the form of a request for some traffic engineering service. Citizens can call or write the department directly or lodge requests through the district councilman or the mayor. These requests vary in content, and hence the public input is divided into the following categories:

1. Requests for new signal installations;
2. Requests for alterations to existing signal installations (e.g., the addition of a left-turn arrow);
3. Requests dealing with the installation or removal of stop signs;
4. Requests for installation or removal of curb parking zones (e.g., loading zones or red curb);
5. Requests for installation, removal, or alteration of parking signs;
6. Requests for installation, removal, or alteration of other types of signs (e.g., "signal ahead" or "school x-ing");

7. Requests for crosswalks; and
8. Requests for street painting or striping (e.g., yellow center line or left-turn lane).

Data for this investigation are from Traffic Department files for the period July 1, 1969, to June 30, 1971, representing some 13,000 traffic service petitions over the 2-year period. About 80 percent of the petition requests come directly from the public, with the remainder from councilmen or the mayor. The breakdown for the study period is given in Table 1.

It should be noted that this study, in assessing the distribution of citizen input, is not concerned with the action taken by the Traffic Department in responding to each of these requests; it is assumed that every petition for traffic engineering service is considered in the same manner regardless of the citizen requesting the service. Rather, what is important to this analysis is the origin, and not the disposition, of traffic requests.

The requests received by the Traffic Department during the study period were aggregated according to council district of origin. Los Angeles has 15 such districts; these are shown in Figure 1. Aggregation of requests to council districts allowed comparison with corresponding socioeconomic data furnished by the Los Angeles Community Analysis Bureau.

An important premise underlies the validity of this investigation. It is reasonable to hypothesize that the number of traffic service requests received by the Traffic Department does not accurately reflect the absolute number of instances where traffic services may be required. Rather, it is the perception of the need for traffic improvements on the part of area residents that is reflected in the number of requests received. Furthermore, it is logical that, even if citizens do perceive a need for traffic services, they may not possess the motivation, knowledge, skills, or self-confidence necessary to contact the Traffic Department. Thus, the validity of this analysis is based on the premise that the actual number of requests received per council district is not an accurate indicator of the condition of the district with respect to the traffic environment.

The foregoing discussion has essentially set forth a 2-step process that is inherent in every request received by the Traffic Department. That is, the citizen must (a) perceive the need for a traffic improvement (whether the initial perception is, in fact, right or wrong according to Traffic Department standards is not within the scope of this study) and (b) possess the means and motivation to contact the Traffic Department or other agency regarding the perceived problem.

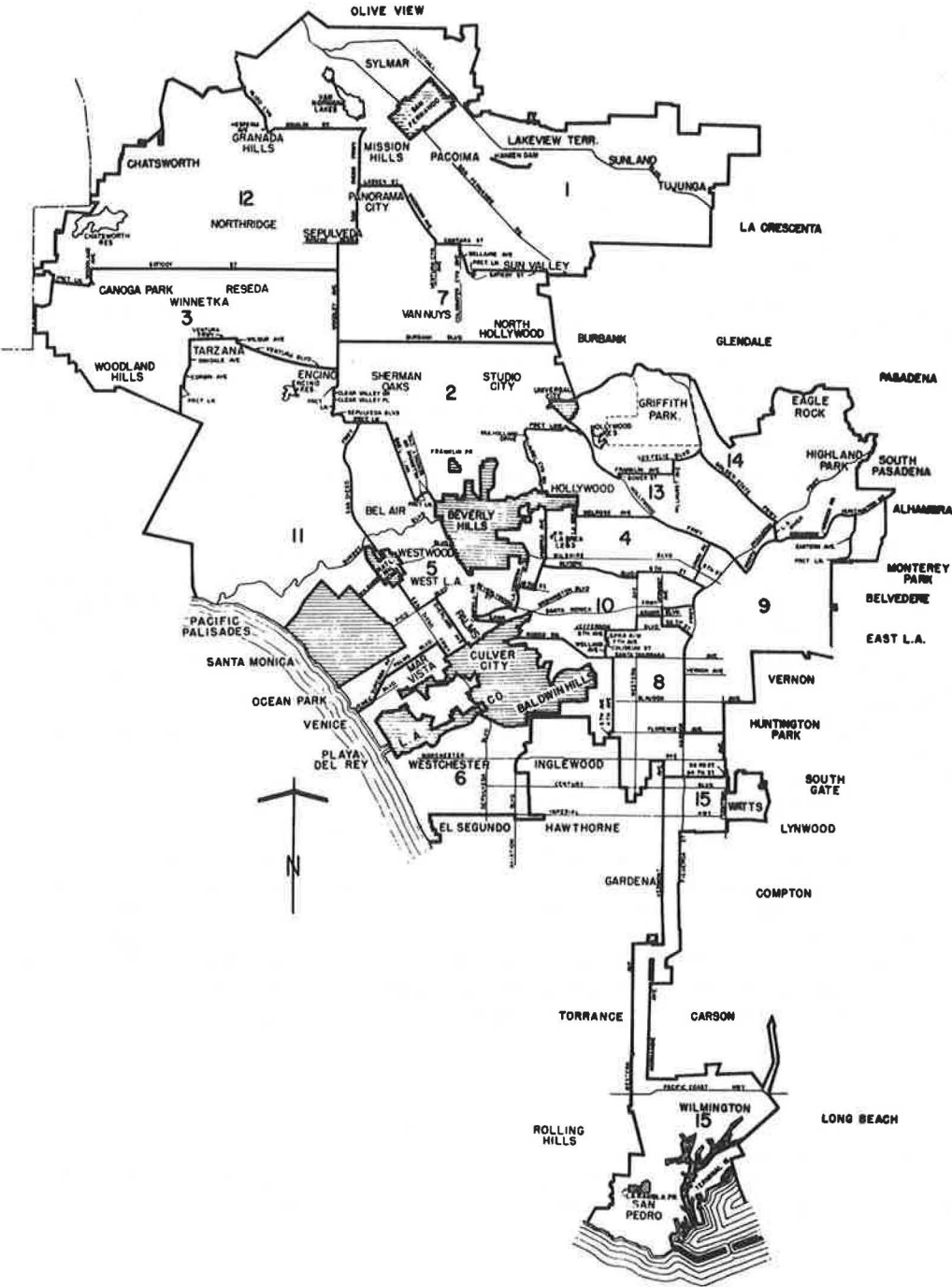
Both perception and motivation are, to a certain extent, related to the socioeconomic status of the citizen. The perception of traffic and other urban housekeeping problems must, of course, be viewed in the context of other environmental problems perceived by individuals in various socioeconomic classes. The recognition of higher order problems (e.g., housing, food, employment) may certainly overshadow the perception of the lack of a crosswalk or the need for stop signs. Similarly, the means, motivation, and self-confidence necessary to report the problem are very likely unevenly distributed among socioeconomic classes. This study, then, is based on the premise that the number of requests received by the Traffic Department is, in the long run, attributable not only to the actual existence of traffic problems but also to the socioeconomic characteristics of the population.

Using this premise as a basis for analysis, the number of requests that originated during the study period in each particular council district was compared to the average household income, the minority population percentage, and the mean number of cars per family in that council district. Since the population between districts varies greatly (because apportionment is based on voter registration rather than population), a request rate was used instead of the actual number of requests. To equalize population effects, requests per 100,000 citizens was the figure used. The results are given in Table 2, ranked in order of rate of citizen involvement. It is seen that, as the level of involvement (i.e., the traffic service request rate) increases, so does the mean family income and number of family cars, while the minority percentage decreases.

Table 1. Origin of traffic service requests, 1969-1971.

Fiscal Year	Requests From Public	Requests From Councilmen	Requests From Mayor	Total
1969-1970	5,338 (79%)	1,370 (20%)	43 (1%)	6,751
1970-1971	4,785 (77%)	1,393 (22%)	50 (1%)	6,228

Figure 1. Council districts, City of Los Angeles.



To test these apparent relationships for degree of association, a multiple-regression analysis was performed with the traffic service request rate as the dependent variable and income, percent non-white, and mean number of cars per family as independent variables. With these 3 independent variables the multiple regression coefficient was $r = 0.95$, indicating a strong positive correlation between traffic request propensity and socioeconomic status—at least insofar as represented by the variables chosen for analysis.

The regression equation derived from the data is as follows:

$$\text{Requests per 100,000 citizens per year} = 0.18 (\text{MFI}) - 1.709 (\text{PNW}) - 70.297 (\text{MNC}) + 184.367$$

where

MFI = mean family income ($r = 0.88$),
 PNW = percent non-white ($r = 0.73$), and
 MNC = mean number of cars per family ($r = 0.66$).

This regression analysis shows that the distribution of citizen involvement in local traffic engineering among the population in Los Angeles is uneven, with significantly more involvement in the wealthier districts and in those districts lacking minority populations. Such a result may indicate several explanations:

1. The traffic environment is better (i.e., requires less service) in the districts from which few requests are received;
2. The residents of the lower class districts perceive fewer traffic problems than their counterparts in wealthier districts; or
3. Residents of poor and minority-populated districts lack the motivation, knowledge, or means to request services.

The first explanation, while perhaps the most obvious, is actually the least credible. According to data from the Los Angeles Community Analysis Bureau, those districts that show a lower request rate are not better off in terms of traffic services than other areas; in fact, they tend to be worse off due to such factors as vandalism, heavy traffic and pedestrian demands, and old and inadequate facilities. It cannot be concluded, then, that, merely because there is a lower rate of traffic requests from low-income districts, these districts have fewer relative demands for traffic improvements. This in turn implies that the lower request rate must be due to factors not specifically related to traffic, such as the socioeconomic indicators used in the regression equation and their various correlates.

Thus, the premise that citizen involvement in local traffic engineering is attributable to socioeconomic factors as well as to the existence of traffic problems is probably valid. Regardless of the causal linkages, it is quite clear that the urban poor do not seek access to the Traffic Department nearly as frequently as higher income groups in the city. This situation is not due to a lack of cases where services might be used; it is the result of a number of characteristics associated with low socioeconomic status that in effect prohibit the poor from utilizing these services. While there may be no outward governmental bias apparent, there is a societal bias rooted in economic and social factors that hinders access according to class. Although it is not within the scope of this study to determine the precise causal relationships between socioeconomic status and citizen involvement, it can be said that socioeconomic status is associated in a strong positive sense with the inclination on the part of citizens to contact public agencies.

HOME-INTERVIEW SURVEY

To determine characteristics associated with citizen participation in local traffic engineering, a home-interview survey in the eastern San Fernando Valley was conducted as an integral part of the research. A total of 64 citizens were interviewed; of these, 32 had requested traffic engineering services from the Department of Traffic

within the year preceding the interview. These names were drawn at random from departmental files, from a total population of about 800 who had submitted requests in the East Valley during the preceding year. The other 32 respondents had not contacted a local agency in the previous year. The people comprising the latter group were selected at random from the same block where a corresponding respondent in the first group resided. In this way, the population of respondents consisted of 32 pairs of citizens, both of whom lived on the same block and one of whom had previously contacted the Traffic Department regarding a particular neighborhood traffic problem.

Presumably, this sampling strategy ensured that each "pair" of respondents was in basically the same socioeconomic class (using housing and neighborhood as a control) and that each might be impacted in the same way by the traffic problem about which the respondent in the first group contacted the Traffic Department. The purpose, of course, was to attempt to determine what perceptual and motivational differences between the respondents could have accounted for the fact that one citizen sought access to a local public agency while the other did not.

The questionnaire used in the survey was divided conceptually into the following sections:

1. Household and demographic information;
2. Neighborhood identification and stake in the community;
3. Awareness of neighborhood problems;
4. Rating of community services;
5. Knowledge of public agency responsibilities;
6. Political activity and awareness;
7. Ability to solve neighborhood problems and affect local government; and
8. Political efficacy.

Each interview took approximately 20 minutes; the questionnaire contained a total of 75 codeable questions. It was designed in such a way that each question or response category became a variable; these are given in Table 3.

Characteristics of the Sample Population

The socioeconomic and demographic characteristics of the surveyed population did not differ statistically between the group that had contact with the Traffic Department and the group that had no contact. The sampling strategy therefore ensured that demographic and socioeconomic variables alone could not be responsible for differences in responses to questions regarding perception and motivation. The following characteristics describe the total sample of 64 respondents.

The average age of the respondents was between 36 and 45, and about 70 percent were female. Almost two-thirds had at least some college, and by far the majority reported that they were housewives (or spent most of their time at home). The household heads in 90 percent of the cases were male and quite well educated. About one-third had a graduate or professional degree, and all but 25 percent had at least some college. In terms of occupation, about 40 percent of the breadwinners were professionals while less than 20 percent were engaged in skilled or unskilled labor; 10 percent were retired and the remainder filled "white collar" positions in sales or management.

The average household consisted of 3.7 people, with 1.4 children under 18 living at home. However, 40 percent of the respondents reported no children under 18. All but 7 percent of the respondent families had 2 or more drivers in the household, and the mean number of cars per family was 2.3.

Perhaps the most interesting demographic characteristic was the fact that 60 of the 64 respondents were homeowners and only 4 rented apartments. (Census data indicate that approximately 35 to 40 percent of the dwelling units in the study area are apartments or other multiple dwellings.) Of the homeowners, more than 80 percent had homes valued above \$30,000; 15 percent had homes in the over-\$75,000 range. Those few who did rent all paid more than \$200 per month rental. Family incomes were quite high: The mean household income was between \$15,000 and \$20,000, and all but

Table 2. Council district request rates.

Council District		No. of Requests ^a	Average Household Income (\$)	Percent Non-White	Mean No. of Cars per Family
No.	Communities Included				
5	Bel-Air, Westwood, Palms, West L.A.	470	24,800	3.5	1.9
2	Beverly Crest, Sherman Oaks, Studio City, N. Hollywood	396	16,700	1.8	1.8
11	Pacific Palisades, Brentwood, Tarzana, Encino, West L.A., Venice	349	14,600	7.8	1.8
3	Woodland Hills, Canoga Park, Reseda	267	12,600	1.4	1.9
13	West Hollywood, Elysian Park, Silver Lake, Hollywood	264	7,800	14.0	0.8
4	Wilshire-West, Silver Lake, Wilshire	255	6,500	8.9	0.9
7	Sepulveda, North Hollywood, Van Nuys	253	10,400	1.9	1.5
12	Sepulveda, Granada Hills, Chatsworth, Northridge	243	12,400	1.8	2.0
14	Mt. Washington, Glassell, Griffith Park, Eagle Rock, Highland Park, Attwater	243	8,200	5.2	1.0
6	Del Rey, Palisades, Westchester, Leimert, Baldwin Hills, Mar Vista	234	10,900	25.7	1.7
1	Sun Valley, Sylmar, Sunland, Pacoima	184	10,200	9.7	1.5
9	El Sereno, Lincoln Heights, Boyle Heights, University, Westlake, Downtown	164	4,900	38.8	0.6
10	West Adams	135	5,700	63.4	1.0
15	Torrance, Gardena, Harbor City, San Pedro, Wilmington, Watts	129	7,700	42.2	0.9
8	Exposition Park, Santa Barbara	92	5,900	87.4	0.7

^aRequests per 100,000 citizens per year.

Table 3. Listing of variables.

Code	Question	Code	Question
VAR500	Complaint status of respondent	VAR032	Respondent reads newspaper?
VAR501	Respondent head of household	VAR033	Respondent listens to TV-radio news?
VAR502	Age of respondent	VAR034	Number of letters written to state government
VAR503	Sex of respondent	VAR035	Number of letters written to federal government
VAR504	Educational attainment of respondent	VAR036	Political organizational member?
VAR505	Occupation of respondent	VAR037	Respondent's voting habits
VAR506	Age of head of household	VAR038	"Crosswalk needed" ⁱ
VAR507	Sex of head of household	VAR039	"Neighbors noisy"
VAR508	Educational attainment of head	VAR040	"People drive too fast"
VAR509	Occupation of head of household	VAR041	"Imposition of new tax"
VAR510	Number in household	VAR042	"Signal doesn't stay green"
VAR511	Number of children under 18	VAR043	"Street has too many potholes"
VAR512	Number of children under 12	VAR044	"Stop sign needed"
VAR513	Number of drivers in household	VAR143	Type of living structure
VAR002	Rating of neighborhood as living place	VAR144	Respondent renter or home owner?
VAR003	Respondent feels part of neighborhood?	VAR145	Market value of home—owners only
VAR004	Acquainted with neighbors?	VAR146	Monthly rental—renters only
VAR005	Discuss neighborhood problems?	VAR147	Number of cars owned by household members
VAR006	Discuss traffic problems with neighbors?	VAR148	Length of time at present address
VAR007	Discuss traffic problems with children?	VAR149	Number of times moved in last 5 years
VAR008	Discuss traffic problems with family?	VAR150	Distance from previous address
VAR009	Perception of community traffic problems	VAR151	Miles driven by respondent in 1971
VAR010	Rating of recreational facilities	VAR152	Miles driven by all drivers in 1971
VAR011	Rating of schools	VAR153	Use of public transportation in 1971
VAR012	Rating of streets and traffic conditions	VAR156	Member of home owners' or citizens' group?
VAR013	Rating of public transportation	VAR157	Mode of children's school trips
VAR014	Rating of housing	VAR158	Hours home between 8 a.m. and 5 p.m.
VAR015	Rating of police protection	VAR159	Friends, relatives in public service?
VAR016	Rating of fire protection	VAR160	Combined family income
VAR017	Rating of libraries	VAR167	"Public officials don't care"
VAR018	Rating of shopping facilities	VAR168	"Voting is only means of influence"
VAR019	Rating of parking facilities	VAR169	"People have no say in government"
VAR020	Rating of health and hospital facilities	VAR170	"Government too complicated to understand" ⁱⁱ
VAR027	Knowledge of agency responsibilities	VAR171	Composite efficacy index
VAR028	Can respondent affect city government?	VAR901	Awareness of neighborhood problems
VAR029	Municipal ordinance opposition strategy	VAR950	Overall rating of neighborhood services
VAR030	Respondent follows governmental affairs?	VAR960	Perceived ability to solve community problems
VAR031	Respondent active in political campaigns?		

15 percent of the respondent families had incomes higher than \$10,000. Cross-tabulation showed that almost all of those with incomes under \$10,000 were retired.

From this brief review of the demographic characteristics of the total sample, it can be seen that the socioeconomic status of the respondents as a group is quite high. We know, from the analysis of the city-wide request distribution, that such a group might initially be considered to have more involvement with public agencies due to the factors associated with higher class standing. In the long run, this may be true. However, of these respondents, half actually did become involved with the Traffic Department and the other half did not. Thus, by looking at the difference in responses to the questions dealing with perception and motivation, it was possible to obtain a "profile" of the locally involved citizen, controlling, in this case, for socioeconomic standing.

Survey Results

The questionnaires were analyzed by means of the chi square 2-sample test (8) in order to determine at what level of statistical significance a difference existed between questionnaire responses from the two sample groups. Those variables that were significant at 0.1 or less were then tested for degree of association with the dependent variable (i.e., involvement with the local traffic engineering agency). Cramer's V, a nonparametric measure of association (5), was used for this purpose.

The variables that were determined to be significant were grouped in four categories. These are listed below along with the derived characteristics associated with local involvement indicated in each category in order of strength of association. These characteristics can be considered indicators of the propensity on the part of citizens to participate in local traffic affairs, specifically through the contact of public agencies.

Recognition of Community Traffic Problems

1. The tendency to rate the quality of neighborhood streets and traffic conditions as inferior (VAR012);
2. The tendency to perceive a large number of traffic problems and hazards in the community (VAR009);
3. The tendency to discuss community traffic problems with family and neighbors (VAR006, VAR008); and
4. The tendency to drive somewhat more than the average (VAR152).

Sense of Neighborhood Identification

1. The tendency to "feel a part of the neighborhood" (VAR003);
2. The tendency to frequently talk with neighbors about community problems (VAR005);
3. The tendency toward relatively stable residential living patterns (VAR148, VAR149);
4. The tendency to belong to homeowners' or citizens' groups in the community (VAR156); and
5. The tendency to be acquainted with most neighbors (VAR004).

Knowledge of the Functional Organization of Local Government

1. The tendency to possess good knowledge of local agency responsibilities (VAR027);
2. The tendency to have a good strategy to employ in opposing local legislation (VAR029); and
3. The tendency to have friends and/or relatives employed in public service agencies (VAR159).

Sense of Political Efficacy

1. The tendency to score high on the composite efficacy index (VAR171): (a) tends to feel that there are other ways besides voting to influence local governmental decisions (VAR168); (b) tends to feel that public officials "care" (VAR167); (c) tends to feel that people generally have a say in governmental decisions (VAR169);

2. The tendency to perceive a high level of personal effectiveness in influencing city government (VAR028);
3. The tendency to perceive a high level of personal effectiveness in solving neighborhood problems (VAR960);
4. The tendency to write letters to federal officials (VAR035); and
5. The tendency to be a member of a political organization (VAR036).

CONCLUSIONS AND POLICY RECOMMENDATIONS

The results of this study support several widely held theories of citizen participation and provide some new insights regarding the application of these theories to local, non-political modes of citizen involvement. In addition, certain implications in the context of local traffic engineering derive from the research findings.

Many studies in political science and psychology have dealt extensively with citizen participation and have pointed to the high degree of association between socioeconomic status and political participation (1, 2, 3, 4). Education, leisure time, financial security, skills and knowledge, organizational membership, self-confidence, efficacy, and other correlates of social and economic status have been shown to be closely aligned with levels of participation. This same type of relationship seems to hold for the nature of citizen involvement considered in this study. The indicators chosen to reflect socioeconomic status showed strong correlation with levels of public involvement, in terms of requests received by the Traffic Department from citizens in Los Angeles. Low-income groups, for a variety of different reasons, do not seek access to such local public agencies to the degree exhibited by higher income groups. Since this phenomenon cannot be readily attributable to a "better" traffic environment in low-income areas, it must instead be based at least partly on factors that operate independently of the particular service in question (i. e., traffic engineering services).

While city-wide aggregation of citizen request rates showed a definite decrease in involvement from high- to low-income areas, the home-interview survey showed that more discrete perceptual/motivational variables can be accountable for lack of participation in smaller areas when controlling for socioeconomic status. For example, cross-tabulation indicated that a significant number of respondents who tend to feel "part of the neighborhood" also knew most of their neighbors, discussed community problems frequently with neighbors and family, lived in the neighborhood a long time, and so on. Similarly, those who gave a low rating to the quality of streets and traffic conditions and perceived many traffic problems in the community also said that they frequently talked about traffic problems at home and with friends, were members of homeowners' groups, lived in the neighborhood for relatively long periods of time, and generally rated the quality of other public services quite low. The conclusion, then, seems to be that perception of community problems (in this case, traffic problems) results in citizen action when the citizen has a heightened awareness of problems in the community. This awareness is the product of a number of factors, including relationships with neighbors, length of time in the neighborhood, membership in community organizations, and other such attributes contributing to an individual's awareness of his community environment and its condition.

Further cross-tabulation showed that citizens who possessed a good knowledge of agency responsibilities also felt effective in influencing city government and opposing municipal legislation. Those who scored high on the efficacy index were essentially the same individuals who had a good knowledge of agency responsibilities and had friends or relatives employed in public service. The conclusion here seems to be that motivation to contact public agencies is strengthened by a sense of political efficacy and a general awareness of the functions and organization of local government.

The implications of the foregoing discussion for local agencies are quite complex. One immediate question arises: Is it, or should it be, the role or the responsibility of public agencies to ensure an equality of opportunity for public participation? This is not to say that the actual amount of citizen input should be equalized among various sub-groups in the city; citizens may retain the rights of apathy and non-interest. However, it might be argued that the role of government in this regard should be to attempt to equalize the opportunities for participation.

The survey has shown that people are less likely to participate—even if they observe a situation they feel needs attention—if they lack a sense of efficacy and display a lack of political knowledge. In effect, this condition creates an impairment of the opportunity for participation. Furthermore, the lack of these characteristics has been associated through much documentation with the urban poor. Thus, perhaps the role of local agencies—including those concerned with traffic—should be directed toward alleviation of inefficacy and lack of knowledge on the part of these citizens. This might be done by inexpensive public educational programs to increase awareness and strengthen self-confidence. While initial results, in terms of increased involvement, may be minimal, some action in this direction might begin to eliminate the uneven opportunities for citizen participation that have been only touched upon in this study.

ACKNOWLEDGMENTS

This research was partially funded by a University Research and Training Grant to the University of California at Los Angeles by the U.S. Department of Transportation. The results and views expressed are the independent products of university research and do not necessarily represent concurrence by the Department of Transportation.

Support in the collection of data was provided by Bruce Fredrickson and Tom Montgomery of the Los Angeles Department of Traffic and Robert Mullens of the Los Angeles Community Analysis Bureau, and their assistance in this regard is acknowledged. Martin Wachs and Barclay Hudson of the School of Architecture and Urban Planning at UCLA offered many helpful comments and constructive criticisms during the various stages of this research.

REFERENCES

1. Barber, James D. *Citizen Politics: An Introduction to Political Behavior*. Markham Publishing Co., Chicago, 1969.
2. Bowen, Don R. *Political Behavior of the American Public*. Charles E. Merrill Co., Columbus, Ohio, 1968.
3. Lane, Robert E. *Political Life: Why People Get Involved in Politics*. The Free Press, Glencoe, Illinois, 1959.
4. Milbrath, Lester W. *Political Participation*. Rand McNally and Co., Chicago, 1965.
5. Nie, Norman H., Bent, Dale H., and Hull, Hadlai C. *SPSS: Statistical Package for the Social Sciences*. McGraw-Hill, New York, 1970.
6. Schneider, Michael. *Urban Housekeeping and Citizen Participation: A Distributional Analysis of Public Requests for Traffic Services in Los Angeles*. Unpublished thesis, University of California, Los Angeles, 1972.
7. Verba, Sidney. *Democratic Participation*. In *The Annals of the American Academy of Political and Social Science*, Vol. 373, Sept. 1967, pp. 53-78.
8. Siegel, Sidney. *Nonparametric Statistics for the Behavioral Sciences*. McGraw-Hill, New York, 1956.

COMMUNITY REACTIONS TO ANTICIPATED HIGHWAYS: FEARS AND ACTUAL EFFECTS

Jon E. Burkhardt, RMC Research Corporation, Bethesda, Maryland

This paper reports a study to evaluate the hypothesis that residents and businessmen within a highway corridor see themselves as victims of adverse effects of highway improvements and that these fearful expectations themselves lead to adverse effects even before the final route selection. The study was designed to identify actual changes, identify preconceptions of residents and businessmen, distinguish between effects resulting solely from the preconceptions and those that would have occurred anyway, and develop procedures to alleviate the unnecessary concerns of residents and businessmen and to ease the strain of transition. Through regression analyses of time-series data, it was found that adverse community effects can be and are being avoided where efforts have been made to inform the community and to create highway plans that minimize disruption and enhance local benefits. But a substantial amount of fear is still evident, according to the results of in-depth face-to-face interviews. Actual adverse changes would probably be minimal in the communities studied (which are not representative of all communities), and persons who witnessed changes in their neighborhood caused by highway improvements reported that they experienced more benefits than expected. To offset unwarranted expectations, highway departments should take a much more active role in information dissemination and community interaction.

•ADVERSE changes have been observed in some communities between the time a major public works improvement—such as a highway or an urban renewal project—is tentatively announced and the time plans for its execution and impact are complete. Specific adverse effects that are alleged to occur include the flight of families and businesses from the neighborhood, the loss of business and jobs, the failure of some owners to maintain their properties, the loss of property values and rental income, an inability to sell properties, a breakdown in the social order, and a general deterioration in the physical and social tone of the area. Some observers feel that such changes have been induced or accelerated by the mere expectation that the community will change for the worse when, in fact, the community would not have been adversely affected (or not affected so badly) had not people been reacting to the anticipated adverse changes. In other words, the fear of certain events occurring is said to have led, in and of itself, to the occurrence of those events.

This study shows that adverse community effects can be and are being avoided where efforts have been made to inform and involve the community and to create highway plans that minimize disruption and enhance local benefits. But a substantial amount of fear is still evident even in these areas. Residents and businessmen expected substantial negative effects and minimal benefits from the highway improvement process and were strongly opposed to the change, in spite of the fact that realized adverse changes would probably be minimal in the communities studied (which are not representative of all communities). To offset these adverse expectations, highway departments should take a much more active role in information dissemination and community interaction. A

vigorous information and 2-way communications program could allay a substantial portion of the fears and frustrations now felt by persons within a proposed highway corridor.

DESCRIPTION OF THE RESEARCH PROJECT

Research Objectives

The objectives of this study were as follows:

1. To determine community changes during "the period of anticipation", that time between the announcement that the community in question is part of a highway corridor and the actual selection of a final route for the highway;
2. To determine which of those changes could be attributed to exaggerated fears of possible highway-related effects by local residents and businessmen; and
3. To design methods to alleviate the effects of fear and uncertainty in the highway planning process, if necessary.

Research Scope

Highway projects in various stages of planning, construction, and operation across the country were examined. The analysis was restricted to projects representing the best planning practices currently available to see if substantial changes were required in those practices presently thought to be most responsive to community feelings.

Visits were made to 4 cities—Chicago, Sacramento, Los Angeles, and San Francisco—to study neighborhoods in various stages of the highway planning process. Data on neighborhood changes occurring prior to route adoption were collected in 16 neighborhoods in these cities. In 5 of these neighborhoods, systematic samples of residents and businessmen were asked their perceptions of the highway planning process. The 5 chosen were selected so as to provide variations in (a) personal and neighborhood characteristics (income, race and ethnicity, and apparent community cohesiveness), (b) the highway planning process (number of alternative routes, types of information provided to the community), and (c) stage in the highway planning process (3 neighborhoods, called the "before" group, were awaiting route adoption, and in the other 2, called the "after" group, highways had been recently opened to traffic; the expectations of the "before" group were compared with changes perceived by residents and businessmen now in the "after" neighborhoods). Table 1 summarizes the interviews conducted by type and location.

Conceptual Framework

Our problem is to separate what will happen anyway from what happens because it is expected to happen. To do this, we must consider (a) the highway decision sequence, (b) the community response sequence, and (c) community change factors. These factors are described in Figure 1. One way of stating the interaction of these factors is as follows: How will the process of highway construction (planning through implementation) alter the ongoing processes of community change (physical, economic, and social)? How much of the alteration is due to the highway itself and how much is due to the community's fears or expectations of changes?

Although the highway decision sequence and the community change factors are not complex from the aspects of theory or measurement, the community response sequence is difficult to conceptualize and measure. We are dealing with a situation in which a group of individual decision-makers must react to an uncertain future. To describe behavior in this case, we developed a model of behavior that focuses on the individual but also considers how his perceptions and reactions influence (and are influenced by) the perceptions and reactions of others. The components of this model are the following:

1. "Reality"—the actual highway situation;
2. The individual's perception of this reality;
3. The possible consequences the individual expects;
4. The probabilities that the consequences expected will actually come to pass;

5. The utility that the individual attaches to a particular consequence;
6. The individual's level of anxiety in light of the 3 previous factors;
7. His actions resulting from this anxiety; and
8. The effects of his actions on the reality factors and on the perceptions, expectations, and anxiety of others (1).

The major elements of this model are the individual's expectations and his actions in light of those expectations. In effect, what we are describing is decision-making under uncertainty as individuals react to their perceptions of their inclusion within the highway corridor. These reactions differ significantly among different individuals and in relation to the uncertainty of the exact nature of the highway improvements. A useful way to express these differences is through game theory as a non-zero sum game, a "game against nature." We feel that people generally do not consciously act in as rational or structured a fashion as the game theory model implies, but this model does provide a useful conceptual structure (2).

There are four possible procedures for decision-making under uncertainty (games against nature):

1. Minimax, i.e., deciding to minimize the loss that one could incur under the worst possible circumstances;
2. Estimating the subjective probabilities of the occurrence of particular events and finding the maximum expected payoff (or minimum expected loss);
3. Applying pure pessimism, i.e., the worst is bound to happen; or
4. Applying pure optimism, i.e., the best is bound to happen.

The only truly rational procedure is the second—decision-making based on expected payoffs. Each of the expected events (E_1 , E_2) has an associated probability of occurrence (ψ_1 , ψ_2). Each of the expected events also has certain subjective utilities that represent the positive (gain) and negative (cost) values to the person. We can theoretically define the subjective expected value of an anticipated event to be the product of its conditional probability of occurring and its utility.

No particular event is certain; there is always an element of risk. The individual can choose from several strategies or possible reactions (S_1 , S_2) to deal with this risk. There will be a certain utility or disutility to the individual associated with each combination of event and strategy—a with E_1 and S_1 , b with E_2 and S_1 , etc. The expected payoff of a particular strategy is then the sum for all possible events of the probability of each event times the utility of each event. The individual should choose the strategy that maximizes his expected payoff, as shown in Table 2.

The most significant events in this study are whether or not the highway will actually affect an individual in the highway corridor. In the case of a homeowner, possible effects include displacement, significant alterations to the area immediately around the person's home, or no change in the area. Major strategies for the individual are moving and staying at the present location. If the individual stays, another strategic decision must be made about home repairs: Will the house get fixed when something goes wrong, or will repairs and alterations be postponed until after the location of the highway is certain?

We can now proceed to determine which community changes are caused by fear alone. The first step is to determine the expectations of community members with respect to highway-induced changes. Are these expected changes likely to occur? If they are not, then anyone who acts on the basis of these expectations is misinformed and can be said to be acting out of fear. If the expected changes are likely to occur, then we must look at the reactions to these expectations. Are they rational? If not, then this qualifies as another fear situation. What steps could highway departments take to alleviate these fears? On the other hand, if both the expectations and reactions are rational, what changes in highway planning practice are required to eliminate or alleviate adverse community consequences?

Table 1. Sites for in-depth survey data.

Item	Planning Stage				
	Before		After		
Metropolitan area	Chicago	Chicago	Los Angeles	Los Angeles	Sacramento
Neighborhood	Chicago Lawn	Englewood	La Habra	Glendale	Del Paso Heights
Characteristics					
Income	Middle	Low	Middle and low	Middle	Low
Ethnicity	White—Polish and Lithuanian	Black	White and Mexican-American	White	Mixed
Interviews					
Household	68	68	69	68	69
Business	13	11	12	12	11
Total interviews	81	79	81	80	80

Figure 1. Major conceptual issues and relationships.

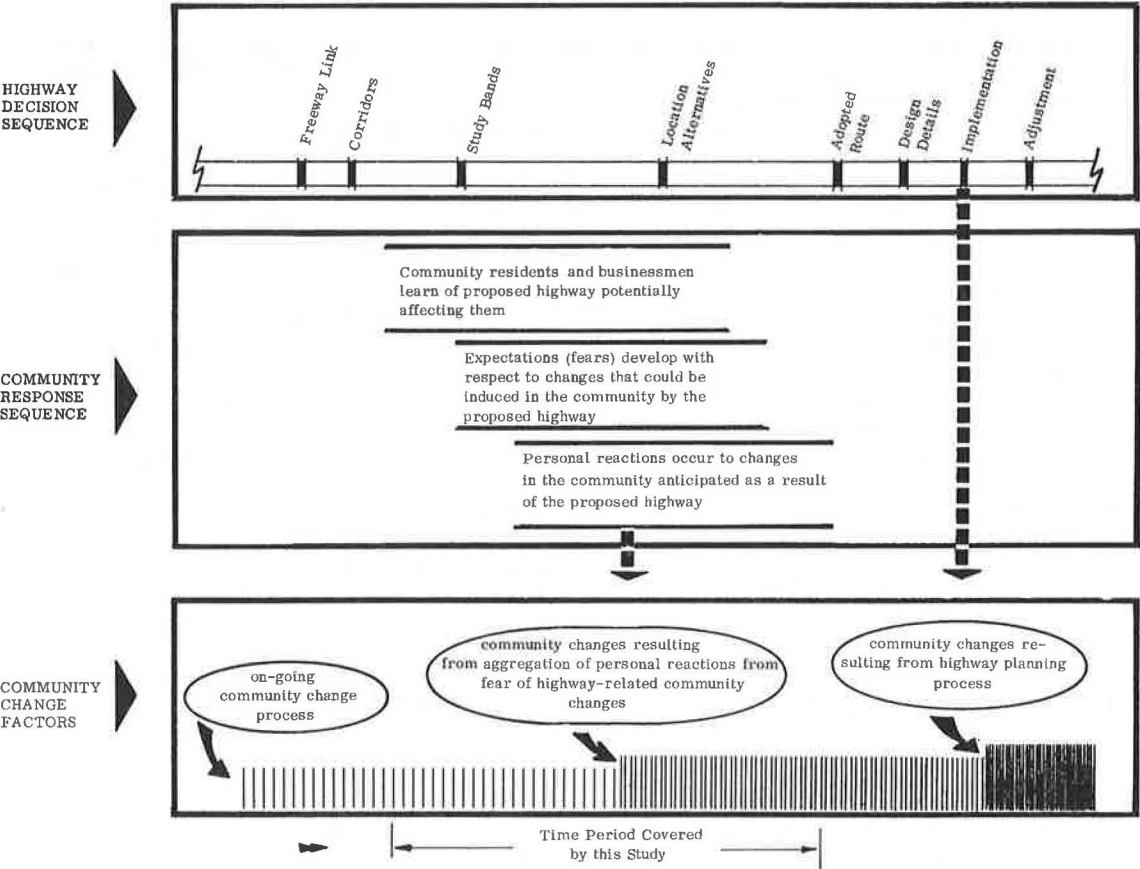


Table 2. Expected payoff matrix.

Strategies for Action	Expected Events				Expected Payoff of Each Strategy
	E ₁		E ₂		
	Probability of Event	Utility of Event	Probability of Event	Utility of Event	
S ₁	ψ ₁	a	ψ ₂	b	ψ ₁ a + ψ ₂ b
S ₂	ψ ₁	c	ψ ₂	d	ψ ₁ c + ψ ₂ d

COMMUNITY RESPONSE TO PLANNED HIGHWAY IMPROVEMENTS

Analysis of our survey of 5 neighborhoods—3 in which the final highway route is yet to be selected and 2 in which the highway has been constructed and has recently opened to traffic—yielded a great amount of detail about the ways in which people respond to anticipated highways in or near their neighborhood. In order to understand the behavior of residents and businessmen with respect to planned highway improvements, the following factors were examined:

1. The actual highway situation,
2. The consequences that the individual expects for himself as a result of his perception of the highway situation,
3. His level of anxiety as a result of these expected consequences, and
4. The actions that he takes.

The actual highway situation is discussed in the following section, after the discussion of our survey results.

Expectations

Overall Expectations and Attitudes—Most people living in the neighborhoods surveyed where a highway was planned but the final route had not yet been selected were unfavorable to the prospect of a highway being built there. Persons expecting negative effects outnumbered persons expecting benefits 3.5 to 1 overall, ranging from 2 to 1 in one neighborhood to 7 to 1 in another. The major expectations among residents were greater noise (32 percent), greater pollution (25 percent), dislocation of self (22 percent), loss in property value (18 percent), increased accessibility (other than to work) (12 percent), and change in the physical character of the neighborhood (11 percent). Major concerns of businessmen included a reduction in the number of their customers and the economic costs of dislocation and relocation. The impact on the community from each of these expected effects was usually anticipated to be great.

Factors Influencing Expectations—Race had a stronger influence on the kinds of effects anticipated than did any other community characteristic. Blacks were more concerned about possible dislocation, higher property taxes, changes in local street patterns, and the safety of children than with other possible community effects. Whites were more concerned about pollution and changes in the physical and social character of the neighborhood (often a euphemism for a racial and ethnic homogeneity—especially, no blacks) than with other effects. Blacks and whites generally shared the same concerns but attached differing priorities to these concerns.

The length of time a person knew of the highway plans was also significant. Those who had known of the highway plans the longest had more expectations (both positive and negative) and a higher proportion of negative expectations than persons who had not known as long.

Persons owning autos were more favorable than those who did not. Auto-owners foresaw more benefits and fewer negative effects than did non-auto-owners.

Anxiety

Persons who feel strongly about an issue (in this case, those who are strongly threatened by the planned highway improvement) are more likely to react than are those people whose feelings are not so strong. Persons who were extremely unfavorable to the highway were likely to fear that the planned highway would cause the following effects in their neighborhood: a change in social character, a downgrading of the neighborhood appearance, a change in physical character, greater pollution, and loss in property value. These persons were also likely to (a) have lived a long time in the neighborhood, (b) be committed to staying in the neighborhood, (c) have an annual income under \$10,000 [these findings confirm the results of other studies (3-8)], and (d) have gotten their information concerning the planned highway from TV or radio.

Reactions

Few people considered overt action or actually acted. (It must be remembered that our sample did not include persons who had recently moved from the neighborhood but only those who were still there.) More people considered signing petitions than any other alternative. Persons who considered acting were more likely to have lived longer in the neighborhood as well as to have higher incomes and younger children. Of all the possible actions, more people postponed improvements to their property than any other action. Persons actually acting were more likely to be white, extremely unfavorable toward the highway, and expecting changes in physical and social character of the neighborhood and losses in property value. Those persons who did not act generally did not know how to persuade highway departments to listen to and understand their feelings and did not feel that their opinions or actions would make any difference to the highway planners.

ACTUAL NEIGHBORHOOD CHANGES

This study found that actual neighborhood changes were much smaller than they were expected to be by local residents and businessmen in the kinds of areas studied—that is, where efforts have been made to inform and involve the community and to create highway plans that minimize disruption and enhance local benefits. (Where such steps have not been taken, adverse community effects are much more likely to occur.) This conclusion is derived from comparisons of the expectations of persons in or near a planned highway corridor (the "before" group) with the community changes perceived by persons who have had a highway built in or near their neighborhood (the "after" group) and with the measurable community changes during the period of anticipation.

Perceived Changes Versus Expectations

Effects Anticipated—Persons who actually witnessed changes in their neighborhood caused by highway improvements reported that they experienced more benefits than expected. Only half of these realizing increased accessibility in general and relieved traffic congestion had expected these effects, while only two-thirds of those experiencing greater accessibility to work expected it. Conversely, many fears, including those of dislocation and loss in property value, proved to be exaggerated.

The differences between those in the "before" and "after" groups are even more striking. While 51 percent of the respondents in the "after" group have experienced increased accessibility, only 15 percent of those in the "before" group expect to benefit in this respect. Of the respondents in the "after" group, 18 percent feel that they have benefited from increased accessibility to a place of employment, while only 11 percent of those in the "before" group expect this benefit. The percentages of respondents benefiting from and expecting relieved traffic congestion are 24 and 8 respectively. A greater discrepancy is found between the benefits expected by businessmen and those actually experienced. For example, only 3 percent of the businessmen in the "before" group expect to benefit from increased customer accessibility, while 48 percent of those in the "after" group feel that they have experienced this benefit. None of the businessmen in the "before" group expects to benefit from increased supplier accessibility, while 17 percent of those in the "after" group feel that such an increase has occurred.

Negative effects were more often expected than realized; that is, the percentage of residents in the "before" group anticipating negative effects was almost always greater than the percentage in the "after" group who felt that negative effects had occurred. For example, 29 percent of the "before" group respondents expected to experience greater pollution. However, only 10 percent of those in the "after" group reported believing that such an increase actually occurred. The percentages of those expecting and experiencing increased noise were 45 and 14 respectively. While 28 percent of the respondents in the "before" group expected a decrease in property values, none of those in the "after" group still living in the neighborhood felt that such a decrease occurred. Although 40 percent of the respondents in the "before" group feared dislocation,

only 4 percent of those in the "after" group reported having been dislocated. The last comparison is undoubtedly exaggerated, given the fact that only those who were dislocated and remained in the neighborhood were included in the "after" sample.

Comparisons of businessmen expecting and experiencing negative effects reveal similar discrepancies in most cases. For example, while 42 percent of the businessmen in the "before" group expected a reduction in number of customers once the highway has been constructed, only 13 percent of those in the "after" group believed that such a reduction had occurred. While 31 of the respondents in the "before" group expected a decrease in customer accessibility, such a decrease was not mentioned by any of those in the "after" group.

Change in Anxiety—Comparison of the "before" and "after" groups shows a very significant decrease in anxiety over time. Residents and businessmen in neighborhoods where the highway route has yet to be adopted were, for the most part, extremely unfavorable to the prospect of highway construction. But over 70 percent of the persons in neighborhoods where highways have been constructed and opened to traffic reported that they are now favorable with respect to the highway. These people reported that they became more favorable after the highway was built than they were before construction.

Although it cannot be conclusively proved at this time, it appears quite possible that initial negative feelings toward the prospect of a highway coming through or near one's neighborhood do change over time to the point that overall feelings are positive after the highway is in use. The greatest factor in this change is the unanticipated increase in accessibility to other parts of the metropolitan area. Obviously, this kind of benefit is not available to those persons who do not own a car or who do not have convenient access to the highway. Therefore, one cannot expect this positive shift in feeling in all neighborhoods.

Measurable Neighborhood Changes

U.S. Census data, city directories, multiple listing services, city planning departments, previous research, and other sources were used to document whether or not significant changes in community characteristics occurred during the period of anticipation. Characteristics receiving intensive analysis were land and property values, vacancy rates, and owner/renter ratios.

Land and Property Values—Previous research indicates that highway impacts on property values have varied from case to case and that it is possible (although not probable) that the impact will be negative (9-14). Therefore, fears of decreased property values have sometimes been justified. In this project, analyses of properties in Chicago and Sacramento could not uncover land value changes attributable to the influence of proposed highway improvements. An intensive analysis of residential property transactions was also performed in La Habra, California. Regression analysis disclosed that planned highway improvements did not affect (a) whether or not a particular property was sold, (b) the length of time it took to sell the property, or (c) the difference between the initial asking price and the final sales price in La Habra. A brief look at other cities confirmed the hypothesis that, while anticipated highways usually do not have a negative impact on land and property values, a reduction in land and property values has occurred in some cases.

Vacancy Rates—The possibility of highway construction has been said to increase the number of vacancies in the highway corridor during the period of anticipation. Analysis of residential vacancies (homes and apartments) in Glendale, California, during the period of anticipation of Route 134 there did not indicate any relationship between anticipation of the highway and vacancy rates.

Owner/Renter Ratios—Analysis of 2 Chicago neighborhoods within the highway corridor of the proposed Crosstown Expressway indicated small declines in the percent of owner-occupied dwelling units, while the total housing stock remained approximately constant from the 1960 to 1970 census. These declines were not directly attributable to the highway plans. Analysis of owner/renter ratios before and after highway construction in Glendale indicated that the highway was partially responsible for an in-

crease in residential densities (due to construction of high-rise apartment buildings) that significantly decreased the percent of owner-occupied dwelling units in the study area. This change occurred after the highway opened to traffic, not during the period of anticipation.

Summary of Actual Neighborhood Changes

Businessmen and residents expect their neighborhoods to change substantially because of anticipated highways. In the cities studied, measurable neighborhood changes did not occur—during the period of anticipation—in land and property values or vacancy rates, and the slight changes in owner/renter ratios could not be directly attributed to the highway. In short, businessmen and residents within the highway corridors studied did not react to anticipated highways in ways that contributed to neighborhood deterioration during the period of anticipation.

CONCLUSIONS CONCERNING ANTICIPATED EFFECTS

The following conclusions (applicable only to areas of good highway planning practices) were derived from analyzing the differences between (a) the preconceptions of residents and businessmen within the highway corridor with respect to highway-related community changes and (b) actual community changes during the period of anticipation:

1. Negative effects of the anticipated highway improvements are substantially overestimated and benefits are underestimated by residents and businessmen within the highway corridor.
2. Overall feelings can change from extremely unfavorable before final route selection to favorable after the highway is opened to traffic.
3. Most persons reported that they were not acting or planning to act, many of them because they did not know what to do or because they felt that their actions would have no effect.
4. Actual changes in the neighborhood—physical, economic, or social—were very small, if they occurred at all, during the period of anticipation.

These conclusions clearly indicate that unnecessary fears do exist among the residents and businessmen within the highway corridor and that these fears can be substantially reduced by an active information and communications program by the local highway department. The communications flow must be two ways: The highway department should obtain significantly more information from the community as well as providing more information to those within the highway corridor.

The following concepts of persuasive communication (15-17) are particularly relevant to the highway planner:

1. The audience will resist change.
2. The credibility of the source is crucial.
3. The inclusion of both sides of the argument is essential.
4. Local "opinion leaders" are usually the most effective source of communication within the community.

If the highway planner understands these concepts, the probability that residents and businessmen will accept facts communicated by the highway department will be significantly enhanced. The fears evidenced by persons within the highway corridor can thus be substantially reduced.

METHODS OF REDUCING UNNECESSARY FEARS

With the foregoing considerations in mind, 4 techniques are proposed to increase communications between individuals and the highway department and thus allay the unnecessary fears that are now associated with anticipated highways. These techniques are as follows:

1. A mass mailing of a basic factual pamphlet;
2. Appearances of a "resource person" before community groups;

3. Creating a telephone information service run by the highway department for answering detailed questions from members of the community or other interested parties; and

4. Establishment of a committee within the highway department to receive complaints and consider community reactions to anticipated highways.

These techniques will increase the information flow to the community, increase the credibility of that information, increase the information flow from the community to the highway department, and substantially reduce uncertainty and fear among members of the community. Specific fears that should be assuaged by an action program designed to prevent their occurrence are increased noise, loss of property value, and changes in the physical and social characteristics of neighborhoods.

CONCLUSION

A much more active role by highway departments is required in information dissemination and community interaction. The current practice of most highway departments is to maintain a low profile and to avoid giving out information concerning highway plans. This practice is distinctly counterproductive because the uncertainty promoted by such actions heightens fears that people naturally feel in the face of proposed changes in their surroundings.

Because residents and businessmen tend to substantially understate the probable benefits and overstate the possible negative effects from highway improvements, a vigorous information and two-way communications program between highway departments and the community (residents and businessmen) could allay a substantial portion of the fears now felt by persons within a proposed highway corridor and alleviate the frustration often evident. This information program will not significantly alter the ongoing processes of community change, since few of these changes are directly related to the highway. However, reduction of fear for those persons is a worthy accomplishment by itself and should be pursued vigorously by state and local highway departments.

ACKNOWLEDGMENT

The research reported in this paper is a portion of a study conducted for the Office of Program and Policy Planning of the Federal Highway Administration. The opinions, findings, and conclusions expressed in this paper are those of the author and not necessarily those of the Administration.

REFERENCES

1. Burkhardt, Jon E., and Chinlund, Nancy L. Anticipation of the Effects of an Urban Highway Improvement on the Highway Corridor, Vol. 2. Resource Management Corp., Dec. 1971.
2. Singh, J. Great Ideas of Operations Research. Dover Publications, 1968, Chapter 5, pp. 103-131.
3. Kemp, Barbara H. Social Impact of a Highway on an Urban Community. Highway Research Record 75, 1965, pp. 92-102.
4. Community Services and Family Relocation. District of Columbia Redevelopment Land Agency, April 1964.
5. Bishop, Bruce A., Oglesby, C. H., and Willeke, Gene E. Socio-Economic Community Factors in Planning Urban Freeways. Stanford Univ., Rept. EEP-33, Oct. 1969.
6. Key, William. When People Are Forced to Move. Topeka, 1967.
7. Smart, Walter L. Relocation Problems Viewed From the Affected Citizens' Point of View. HRB Spec. Rept. 110, 1970, pp. 30-32.
8. Thurz, Daniel. Where Are They Now? Health and Welfare Council of the National Capital Area, 1966.
9. Colony, David C. Estimating Traffic Noise Levels and Acceptability for Freeway Design. Highway Research Abstracts, Vol. 39, No. 12, Dec. 1969, p. 50.

10. Hess, Rudolf. The Influence of Modern Transportation on Value—Freeways. *Assessor's Journal*, Vol. 1, No. 1, Dec. 1965.
11. Hill, Stuart L. Glendale Report. California Land Economic Studies, California Highway Transportation Agency.
12. Miller, Stanley F., Jr. Effects of Proposed Highway Improvements on Property Values. NCHRP Rept. 114, 1971.
13. Downs, Anthony. Urban Problems and Prospects. Markham Publishing Co., Chicago, 1971, Chapter 9, pp. 228-250.
14. Burkhardt, Jon E., Lago, A. M., et al. Highway Improvement as a Factor in Neighborhood Change: Vol. 1, Physical and Economic Measures of Neighborhood Change. RMC Rept. UR-128, March 1971, pp. C-3 to C-9.
15. Mosel, James N. Ten Steps to Help You Sell. *Nation's Business*, April 1956.
16. Hovland, C., Janis, I., and Kelley, H. *Communication and Persuasion*. Yale Univ. Press, 1953.
17. Hovland, C., Lumsdaine, A., and Sheffield, F. *Experiments in Mass Communications*, Chapters 3 and 7.

SOCIAL CAPACITY INDICATORS

Carl P. Sharpe and Donald L. Williams, Urban Studies Center, University of Louisville

In the application of social research to highway planning for improvements to I-264 in Louisville, the Urban Studies Center at the University of Louisville developed a concept and process for defining and applying social capacity indicators to the decision-making process. The social capacity indicators concept is based on the notion that the proper social analysis of urban settings can yield a basis for decision-making regarding the location and design of roadway facilities in kind and magnitude. It is possible to influence roadway capacities through the use of readily available, inexpensively generated indicators of the social characteristics of urbanized situations. Of major concern is a process whereby social capacity indicators (self-perception, behavior, community perception, identity with community and place, friendship patterns, social history, future intentions, and characteristics of the inhabitation) can be systematically organized into a form of direct use to roadway planners and designers. Two processes are discussed: computer overlay techniques (as used on an example expressway project) and cluster analysis.

•IT is not uncommon to find highway planning projects with mountains of relevant social information. Yet this vast potential is too often wasted because of the lack of procedures for organizing this information into a form directly usable in the process of roadway planning.

The Urban Studies Center of the University of Louisville has been assigned the responsibility for providing and analyzing social information as a basis for the design and evaluation of roadway improvements for 13 miles of I-264, a circumferential expressway running through heavily urbanized, socially diversified areas of Louisville. The total endeavor of which this work is a part is still in process, and advocacy of the total set of procedures would be premature at this point. This presentation is limited to one set of procedures—the Louisville example—with suggestions for the use of techniques common to psychology, yet largely unknown (and thus unused) in planning roadways.

THE LOUISVILLE EXAMPLE

The work described herein is part of a community consultation process designed by the Urban Studies Center for the I-264 project. The process includes interviewing members of communities located in different physical proximities to the existing facility (communities immediately adjacent, communities along interchanging arterials, community groups of city-wide or regional orientation). The process also included establishing citizen panels from each of the three areas interviewed.

To simplify this presentation and to avoid premature evaluation of those aspects of our work not completed at this time, we shall focus on one interview area and the processes developed in the creation of social capacity indicators. The area of focus contains the approximately 2,000 families who live within communities adjacent to the 13-mile length of I-264 under redevelopment. These families were interviewed (face to face) from January 1972 through April 1972. The interview contained 69 items, lasted approximately 20 minutes, and was designed to generate data for the following concerns:

1. Expressed difficulty in getting to the places "we like to go";
2. Expressed attitudes toward being a neighbor of the expressway;
3. Suggested improvements for the expressway facility;
4. Neighborhood identity or attachment, both physical and social;
5. Neighborhood issues (problems and perceived opportunities); and
6. Socioeconomic characteristics of the families and neighborhoods in the analysis area.

A variety of question formats was utilized in solicitation of these concerns, including semantic differentials, open-ended questions, and multiple-choice fixed responses. In analyzing the questionnaire responses, it was possible, using the computer mapping overlay processes developed, to combine the 69 items into the composites noted above and further to quantify social capacity indicators.

In working with community psychologists from the University of Louisville who were integrated with the Center's staff, it was also possible to define and quantify the social indicators of a "hard" and "soft" community. A "hard" community is a community whose composite responses indicate that the impact of expressway improvements on it should be minimized. A "soft" community is a community that can most easily sustain changes caused by the expressway improvement. The issues of concern for such a determination involve self-perception, community perception, behavior, friendship and extended family patterns, and characteristics of the inhabitation.

Other results obtained include the establishing of constraints in kind and degree regarding the physical characteristics of the facility and a clear delineation of neighborhood problems and opportunities that will be influenced by alternate planned improvements.

OVERVIEW OF IMPORTANT ASPECTS OF THE PROCESS USED

The process of moving from questionnaire responses to recommendations requires much more effort and care than merely summarizing answers. It is not enough to know what people who live adjacent to the expressway said. We must also know who said it, where he lives, what other things he has said, whether his neighbors agree with him, whether his opinion is representative of people in general or unique to his community, how what he said relates to other characteristics of his neighborhood, the physical setting, the setting of his home, his relationship to the expressway, etc.

Therefore, we chose, wherever possible, not to lump people together in general statistical summaries. This would have been a disservice to all by "half-truthing" the results. While statistical analysis is an important part of social capacity indicators, it is not—nor was it intended to be—the central thrust of our effort to move from questionnaire results to findings.

All of the procedures used were based on allowing each individual to express his unique point of view regarding his neighborhood, the community in general, and the expressway as it is now and as it should be. The procedures used were designed to avoid gross generalizations of peoples' views while generating clearly articulated and definitive descriptions of findings and recommendations.

The process used in this effort groups people according to their specific response to a specific question and does not use these groupings beyond that one question. This has been accomplished by computer mapping of the resources, one question at a time.

Combinations of responses are achieved through an "overlay" process. Only those who responded in an identical fashion to the question being summarized are grouped together. Those who agree with some items but not with others are not lumped together simply because they agree on a few points.

Generally, for example, a majority of people did not complain that the expressway disturbs their daily activities. However, there are specific areas where a great deal of disturbance occurs. The expressed disturbance varies with certain attributes of the physical context and socioeconomic characteristics of those interviewed. The spatial mapping of interview responses has allowed us to know where to make recommendations regarding actions that will alleviate the causes of disturbance in kind and amount.

If there is a consistency regarding the socioeconomic characteristics of families who

complain about a particular phenomenon and/or their location with reference to the expressway facility, then general rules may be defined and supported. Further, the technique described herein defines seemingly incongruous answers, such as individuals who recommend widening as an improvement for the total facility yet recommend not widening as best for their neighborhood.

As described in the next section, our approach has been to systematically relate each level of analysis and summation to the level preceding and succeeding it, so that the basis for the recommendations could quickly be traced to the original answers expressed during the interview or any level of its analysis or summation.

PROCEDURES

The following is a brief description of the process utilized:

1. Divide analysis area "A" into manageable subunits to facilitate analysis of both general characteristics of subareas and particular spatial distributions of responses (Fig. 1).
2. Codify property locations where interviews are to be administered.
3. Conduct and coordinate interview process, checking for the characteristics of dispersal regarding completed interviews (Fig. 2).
4. Codify interview results (answers/questions) with specified location of interviewee (Fig. 3).
5. Write and run computer programs to yield the spatial distribution of responses for each question for each of the 11 sections.
6. Analyze spatial distribution of answers to each question to ascertain if cohesive opinion clusters or socioeconomic clusters exist (Fig. 4).
7. Combine clustered responses to questions that cumulatively display citizens' points of view (Fig. 5) regarding (a) expressed difficulty in "getting to the places we like to go" (questions 11, 12, 13, 14, 15, 16, 52); (b) expressed attitudes regarding being a neighbor of the expressway (questions 45, 46, 47, 48, 49, 50, 51, 53, 54) (Fig. 6); (c) desired improvements of the expressway (questions 7, 8, 9, 10); (d) neighborhood identity or attachment (questions 20, 21, 38, 39, 40, 41, 42, 43, 64, 69); (e) expressed neighborhood issues, problems, and opportunities (questions 17, 18, 19, 55, 56, 57, 59, 60, 61, 62, 63, 65, 66, 67, 68); and (f) socioeconomic characteristics of families interviewed (questions 3, 27, 28, 34, 35, 36, 37).
8. Define and articulate results and draw conclusions (Figs. 7, 8).

SUMMARY OF THE LOUISVILLE EXAMPLE

Through use of the foregoing procedure, it was possible to organize the social information elicited into a format of direct use in planning for the expressway improvements while involving the public in a procedure that they could understand and use. Further, it is our belief that this process is applicable to any project that would have a major impact on existing urban environments.

This process was also designed as a means of organizing data in a form that will facilitate summarization of the social impact of alternative solutions. Once the social information has been digitized as prescribed, it is a simple matter of sorting all properties affected by a given design and then describing the socioeconomic and perceptual characteristics of the people and neighborhoods affected. This is critical. As noted in the Louisville example, some areas are less sensitive in terms of social damage to alteration or intervention than others.

Upon examination of the results from the Louisville example, it has become clear that the social impact of the project could not be determined by how many families were forced to move. Indeed, it proved unacceptable to determine social impact based on how many families of different income ranges were moved. To these considerations must be added all of the other factors discussed to determine the total set of factors influenced by intervention on the people themselves and the communities of which they are a part. If one does open this "can of worms", one will soon need a procedure to deal with the complexities of so many related factors that change in kind and magnitude

Figure 1.

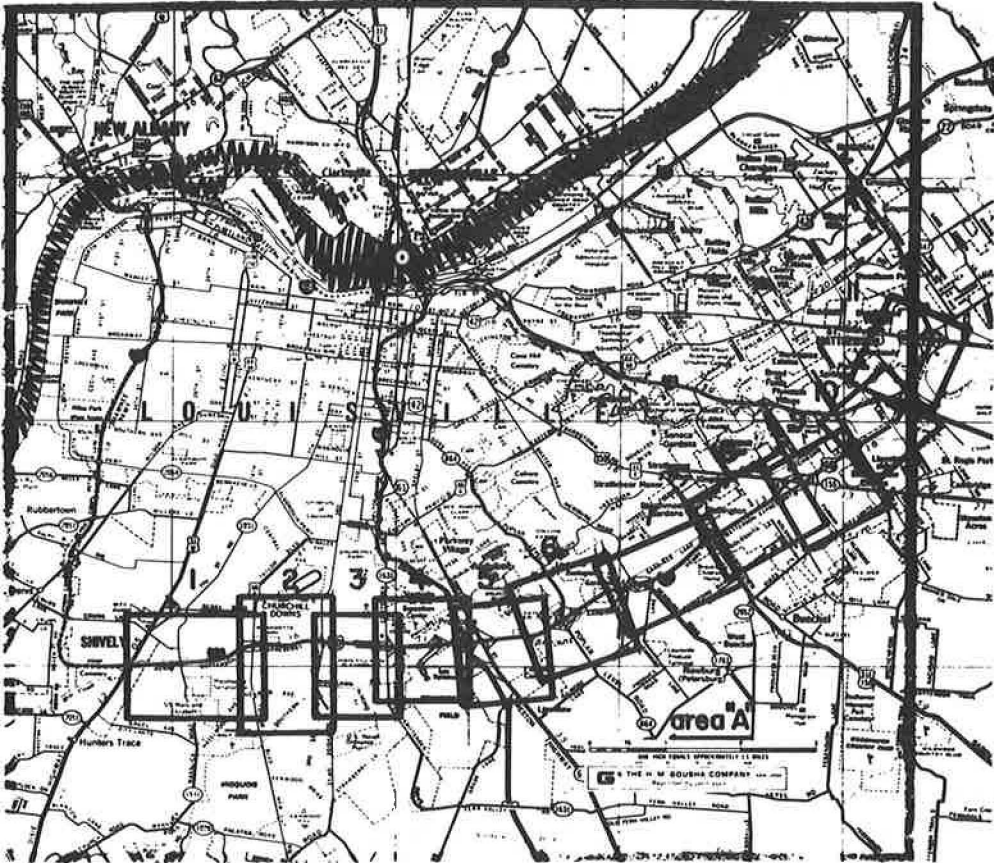


Figure 2.

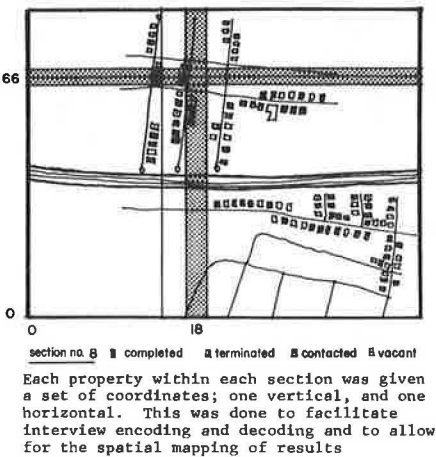


Figure 3.

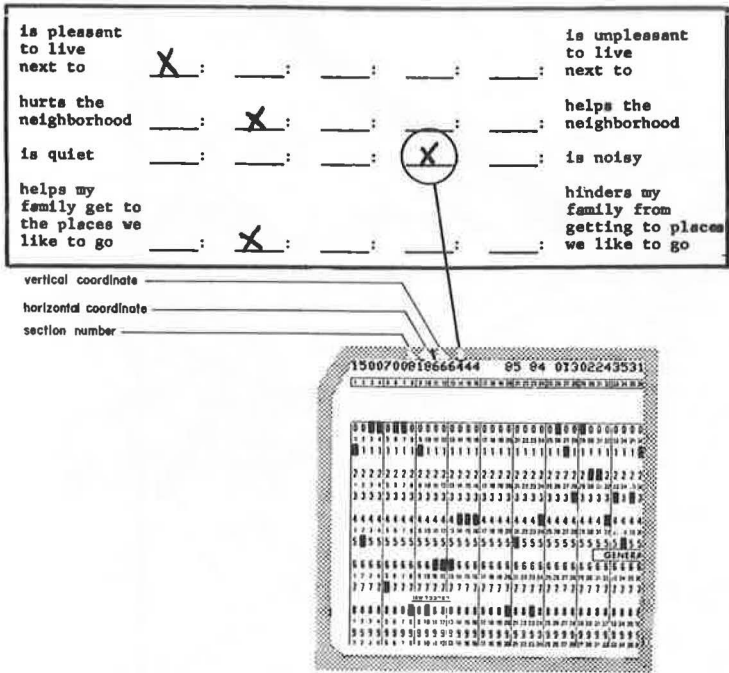
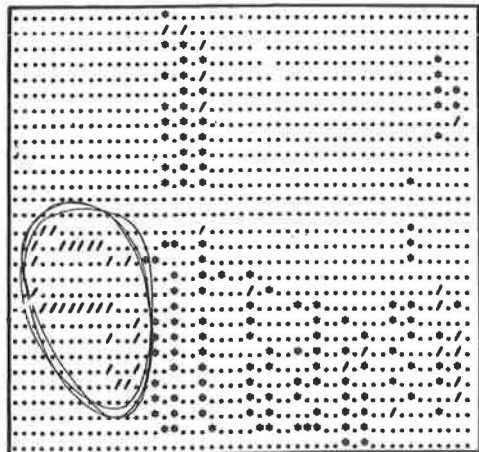


Figure 4.



The cluster circled represents a cohesive community in that all respondents herein answered the same question with the same answer. Thus, they represent an opinion cluster.

Figure 5.

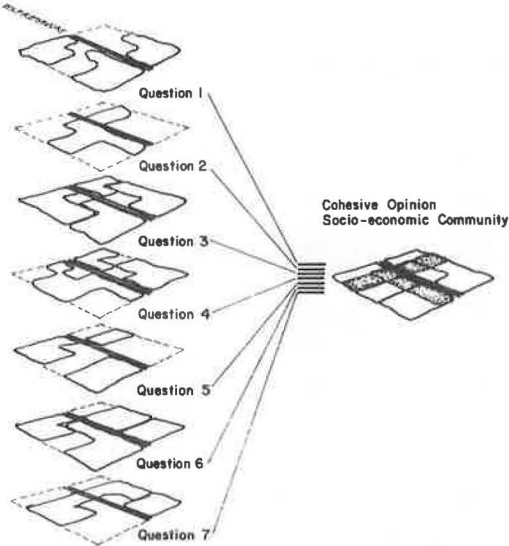


Figure 6.

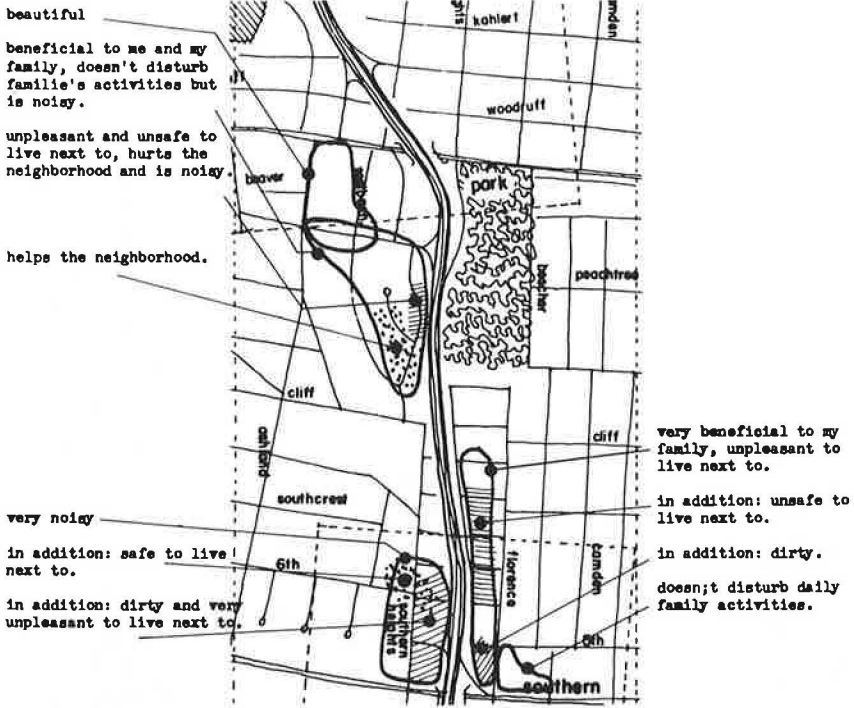


Figure 7.

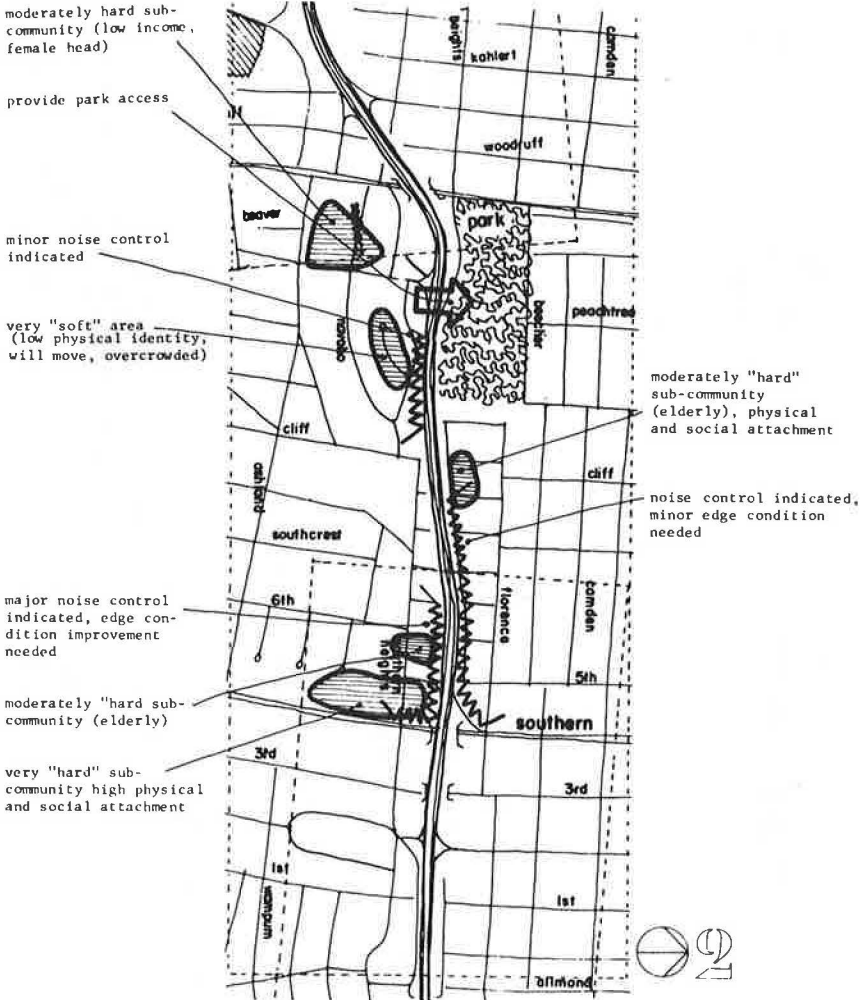


Figure 8.

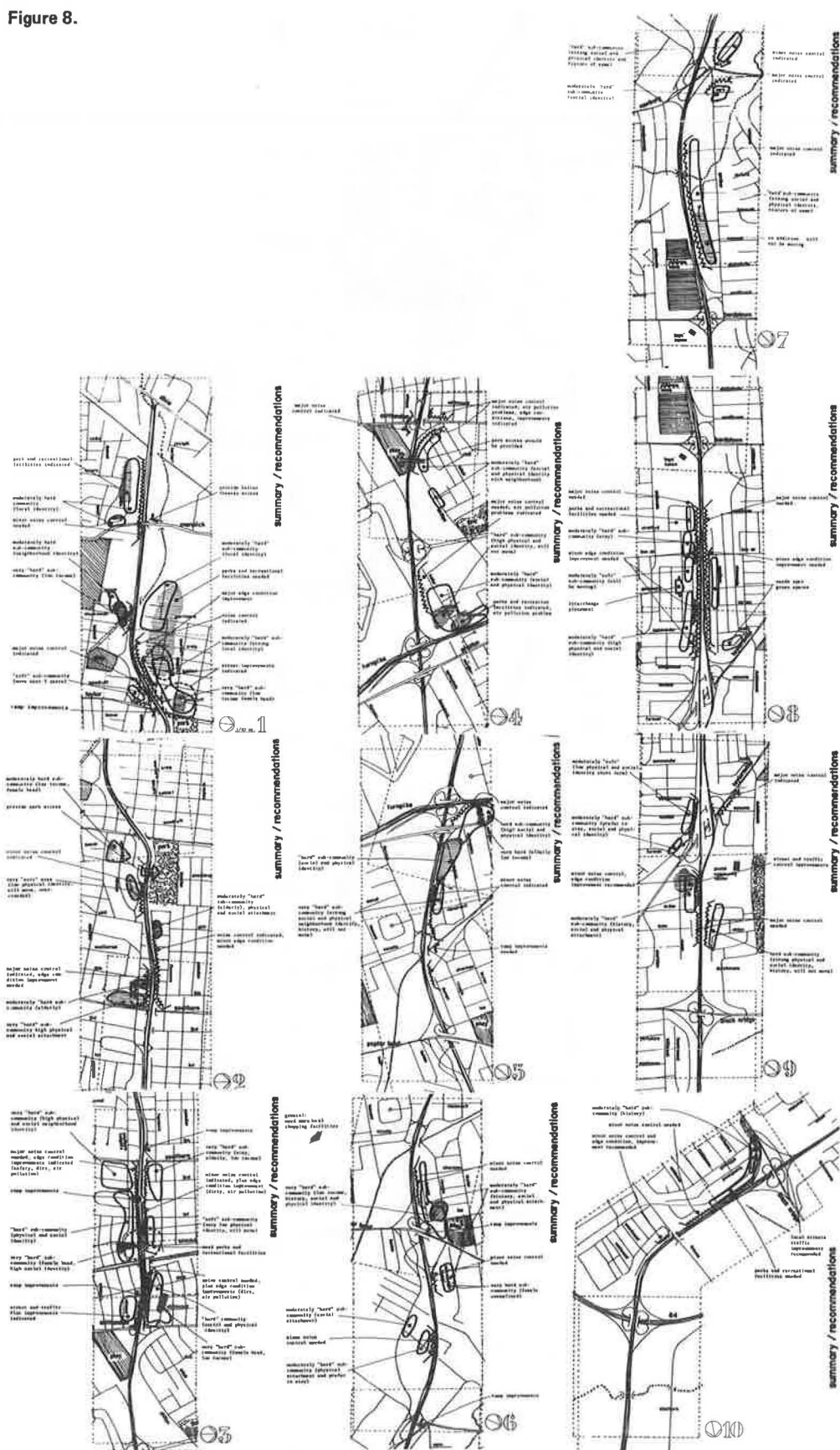
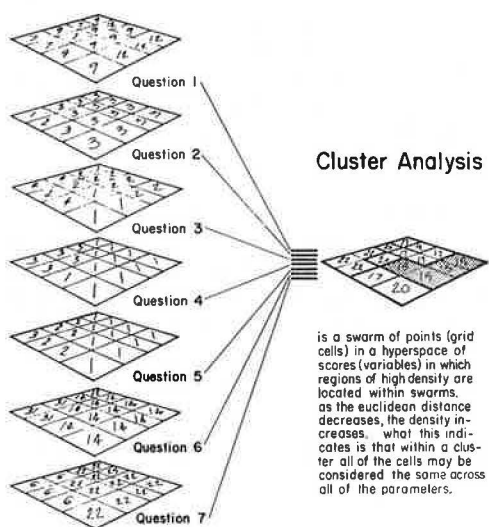


Figure 9.



from area to area. It is our hope that the Louisville example and cluster analysis, along with other investigation currently in the pipeline, can offer such procedures.

CLUSTER ANALYSIS

The Louisville example proved to be successful in this particular project and some of its procedure is replicable; yet when the number of variables (social indicators) and the number of families increase, then a more sophisticated procedure is indicated.

The procedure overview in our opinion is adequate when simultaneously dealing with less than 10 variables and 2,000 properties. The overlay process, however, has proved inadequate to handle the complexities involved when dealing with approximately 3,000 observations (questionnaires) across 15 or more variables. This complexity requires the use of another technique—cluster analysis—commonly used in psychology

since 1924. This technique is extensively covered in psychology texts so we shall limit this discussion to a brief overview only.

Given demographic and perceptual data (variables) for each property or subarea of the analysis area (cells), it is possible to combine individual observations into groupings (clusters) of cells that do not vary (within established constraints) across the variables. We may have begun with 3,000 observations and approximately 30 variables in the Louisville example and used cluster analysis to limit the differences between observations across variables to approximately 15 clusters. Once defined, each cluster may then be dealt with as a single unit. For example, instead of map overlays done by hand (a 6-week exercise in the Louisville example), the computer could have defined "hard" and "soft" subcommunities in degree, size, and location.

Figure 9 is a simplified graphical representation of cluster analysis procedure. Each variable represents a questionnaire response or any mapped social or physical observation. Each cell represents a geographic location or area (address, block, subarea). Detailed information regarding cluster analysis is given by Tryon and Bailey (1).

The basic steps in application of cluster analysis are the same as in the Louisville example, but the tediousness of the overlay procedure is replaced by a mathematical process of higher speed and accuracy.

CLOSING REMARKS

Social capacity indicators are based on the notion that social information can be generated and organized in a format of direct use in major roadway design. The information can be gathered at a moderate cost (less than 1 percent of total budget for the Louisville example). The issue is, How do we organize the information to maximize its use, replication, and communication? We believe that the Louisville example offers some insight into the potential of computer mapping and overlay procedures for use in simpler problem cases and cluster analysis in more complex problem cases. In a time when citizen involvement and socioenvironmental concerns are major areas of focus, procedures such as these can be quite useful. We must learn to deal with the "social" issues as systematically as other "physical" aspects of the total problem of roadway and community planning. Otherwise, each of us who are professionally involved in roadway planning and design will continue to be subject to criticism, not because of a lack of sensitivity but because of a lack of a means to deal with the social aspects of the problems we confront.

ACKNOWLEDGMENTS

This report is based on work performed by the Urban Studies Center at the University of Louisville, J. Douglas Nunn, Director. Credit must be given to other members of the Center's socioenvironmental team, Charles Bartman, Paul Schulte, Robert Eury, Gini Duffy, and Mary Anne Gardner. Co-author Donald L. Williams is currently Director of the Rice Center for Community Design and Research, Rice University, Houston, Texas. Figures and original manuscript were prepared by the Urban Studies Center.

This is part of a larger project being undertaken by the Kentucky Department of Highways. Credit for the work described is due the entire project team of representatives from the U.S. Department of Transportation; the Kentucky Department of Highways; Vollmer Engineers, Inc. (consultants to the state); Urban Studies Center, University of Louisville; Vogt, Sage and Pflum; Bennett Associates; and Paul Veneklasen Associates (subcontractors to Vollmer Engineers, Inc.).

REFERENCE

1. Tryon, Robert C., and Bailey, Daniel E. Cluster Analysis. McGraw-Hill, 1970.

COMMENTARY ON PAPERS BY BURKHARDT AND SHARPE AND WILLIAMS

C. D. Bigelow, Bigelow and Associates, Menlo Park, California

•THE foregoing papers reflect the significant progress that has been made in the handling of social considerations related to highway location and design. These papers add both to the "process guidelines" approach and to the improvement of techniques for that process.

The papers by Burkhardt and Sharpe and Williams are quite different from each other. However, easily identifiable advantages are evident in each. The Sharpe and Williams approach to social capacity indicators is clearly desirable, since it (a) solicits and utilizes individual rather than group responses on social issues and (b) proposes the use of readily available data and well-developed analytical techniques—i.e., the "cluster analysis". Burkhardt's paper on community reactions proposes a vigorous two-way communication program that is imperative to an effective handling of social considerations. Furthermore, it materially improves our understanding of the general population's perception of social issues related to highway location and design.

Although these papers are difficult to assess collectively, it is possible to relate their conclusions to proposed federal legislation and to FHWA's "process guideline" approach.

With respect to legislation, it is possible to trace historically the development of a basic precept of our democratic form of government—that is, the involvement of the broad community in decision-making on social issues. This involvement might also be called participatory government, and earlier legislation, as well as the growing body of current legislation, is becoming increasingly clear on this point. Thus, the consideration of social issues in highway planning is closely associated with the movement toward more and better citizen involvement procedures. As a consequence, we do have a standard against which to measure the papers presented here. A second standard, as mentioned earlier, is the FHWA "process guidelines" that are being increasingly accepted as responsive to earlier legislation as well as to the constantly changing NEPA guidelines. Since the positive aspects of the two papers are presented above, this review will conclude with the identification of further developments or refinements that might be required of the approaches suggested in the papers.

The indications are that all of our efforts toward the inclusion of social considerations in the highway development process will require

1. The development of techniques for entering such considerations at the system level rather than just at the location and design levels;
2. The identification and equitable handling of the "null" or "do-nothing" option in our methodologies, analyses, and questionnaires;
3. The refinement of techniques for the identification and utilization of dynamic social objectives or goals;
4. The improved identification of the total group of decision-makers who will (whether invited or not) insist on a role in the highway planning phase; and
5. The further development of iterative planning, location, and design procedures that will give us a much-needed flexibility in responding positively to the legislative and citizen pressures that affect all of our highway development efforts, from inception to implementation.

SPONSORSHIP OF THIS RECORD

GROUP 1—TRANSPORTATION SYSTEMS PLANNING AND ADMINISTRATION
Charles V. Wootan, Texas A&M University, chairman

Committee on Social, Economic and Environmental Factors of Transportation

Floyd I. Thiel, Federal Highway Administration, chairman
William G. Adkins, Richard J. Bouchard, George V. Broderick, Henry W. Bruck,
Jon E. Burkhardt, Leland S. Burns, John W. Fuller, William R. Helmer, Stuart L.
Hill, Jonathan B. Howes, Richard Ives, Peter G. Koltnow, Paul R. Lowry, James M.
Montgomery, Charles Thomas Moore, Robert L. Morris, James R. Nelson, Robinson
Newcomb, Robert W. Paterson, Norman Pearson, Arthur Saltzman, Owen H.
Saurelender, John H. Suhrbier, Paul Weiner, Paul F. Wendt, John Yasnowsky, Jr.,
Jim F. Young

Committee on Transportation Programming, Planning and Evaluation

Michael Lash, Federal Highway Administration, chairman
Walter J. Addison, Willard F. Babcock, Seymour F. Coffman, Dan C. Dees, Roger L.
Hildebeidel, Robert A. Keith, Jack Kinstlinger, William L. Mertz, Stanley P. E. Price,
Ronald W. Pulling, Lloyd A. Rivard, Robert E. Spicher

K. E. Cook, Highway Research Board staff

The sponsorship is indicated by a footnote on the first page of each report. The organizational units and the chairmen and members are as of December 31, 1972.