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FOREWORD

For a number of years, the involvement of the community in the planning and development of transportation improvement projects has been of increasing concern to highway departments and transportation agencies. Recent federal legislation on environmental quality requires increased analysis of both the environment and the social and economic consequences on the environment of new transportation systems.

For several years committees of the Highway Research Board have been directing their attention to the effects of transportation systems on individuals and the community through which transportation systems traverse. A day-long symposium was held during the 1971 Annual Meeting of the Highway Research Board on the subject of citizen participation and several of the papers presented were published in Highway Research Record 356, Social, Economic, and Environmental Factors of Transportation.

Five additional papers on citizen participation and community values presented here provide additional thought on the subject.

In the first paper, Richard Bouchard suggests that effective community participation has three principal requirements: (a) transportation planners must be more genuinely responsive to citizen attitudes; (b) all tools and governmental programs must be used by officials and planners to respond to concerns expressed by the community; and (c) the decision-making process must include techniques and mechanisms for public officials to debate and respond to citizen views.

Kenneth M. Travis and Stanley C. Plog in their paper review previous attempts at community involvement and discuss their shortcomings. The authors then advocate a new method of community involvement based on the concepts of non-advocacy and intellectual honesty. The specific techniques used in this approach are community organization work and a community survey.

Ki Suh Park discusses ways of achieving community participation in highway planning. Some of the steps he suggests are as follows: (a) work with the community to establish the need for the transportation facility; (b) recognize "objective-oriented" and "impact-oriented" community participation; (c) recognize that the community is a composite of many interest groups; (d) evaluate costs and benefits to each interest group; (e) close cost-benefit gaps for each interest group; and (f) consider the no-build option.

Gordon J. Fielding proposes structuring citizen participation by means of value analysis. He states, "The real challenge is to design a communication system that will facilitate the diffusion of reliable information about the consequences of highway improvement. . . ." Value analysis is a method of ranking proposed routes in terms of their consequences to the community. Fielding illustrates the procedure with a description of value analysis used in route location procedures by the California Division of Highways.

The final paper is by Marvin L. Manheim and John H. Suhrbier. It proposes a strategy for project planning, location, and design and emphasizes an approach to community values and social and environmental factors. This paper is derived from National Cooperative Highway Research Program project 8-8(3), "The Impact of Highways Upon Environmental Values."

COMMUNITY PARTICIPATION: HOW TO GET THERE FROM HERE

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Effective community participation that strengthens the planning process and influences political realities and transportation decision-making must consist of three principal elements. First, there must be an attitude on the part of elected officials, concerned professionals, and citizens that transportation plans are the endproduct of their joint efforts. Transportation planners must be more genuinely responsive to citizens' attitudes while at the same time accepting the possibility that citizen input can provide better balance to their technical products. Lack of meaningful interaction between all concerned groups can likely result in a stalemate with no transportation improvements at all. Second, all possible tools and programs must be used by elected officials and professionals to respond to concerns expressed during community participation activities. Responsive transportation decisions are sensitive to and incorporate broad community goals within established legal and financial bounds. DOT programs, such as TOPICS, Urban Beautification, relocation housing, et al., coupled with transportation-related programs of HUD, HEW, DOL, and others, are the effective tools in meeting many concerns expressed by community groups. Third, there must be mechanisms and techniques in the decision-making process to accommodate, debate, and respond to the views of citizens by public officials. Some examples of currently operational mechanisms are the New Orleans Regional Planning Forum, the participatory process under way in the Boston Transportation Planning Review, and various simulation techniques. The extent and effectiveness of citizen involvement ultimately and most importantly depend on local conditions—how open local officials and technicians are to citizen input, how energetically officials and technicians try to obtain citizen participation, and how articulate and active citizens are in their communities.

•"COMMUNITY participation," like the environment, ecology, and the reordering of our domestic priorities, has become a popular but much-misunderstood catchword of the current decade. I dare say that every transportation meeting held in this country in the last three years has included this topic on the agenda. In fact, if we devoted as much time to community participation as we do to talking about it, we would all be better off for it. It is symptomatic, I believe, of a genuine and renewed public concern to have an actual influence on government decisions, especially those made by the executive arm of the government. In the main this stems from an apparent inability of elected officials at all levels of government to oversee effectively the vast bureaucracies that make up the machinery of government. There are many reasons for this situation, the least of which is the lack of personal ability on the part of elected officials, but most of which have been documented in the literature. I stress this at the beginning of my remarks because I feel it is imperative that increased channels and opportunities for community participation be accompanied by a larger, more responsible role for elected officials,

such as that envisioned under HUD's current Planned Variations-Model Cities Program and the President's revenue-sharing proposal now before Congress.

A great deal has been written about why community participation is desirable and about various abstract ways to achieve it. In this respect the title of my remarks, "Community Participation: How to Get There From Here," may be a bit overambitious, but I do feel a strong need to present some thoughts on this subject based on research under way and completed and on some personal experiences I have had since being with DOT.

There is currently a significant call for improved and increased community participation in transportation decision-making—so significant that it can no longer be ignored. The plea is nationwide and is being made by the young, the old, the handicapped, the poor, the suburbanite, the businessman, the professional, and other significant groups from cities both large and small and ranging in location from Maine to California. We must respond to that call within our constitutional and statutory mechanisms, and we must do so with all dispatch.

In making this response, I think it important to recognize that effective community participation in transportation does not depend so much on techniques as it does on the attitude of the citizen and the public official alike, and on the administrative and legislative ability of public officials to respond to genuine and significant citizen concern. So when I think of trying to achieve effective community participation in transportation decision-making, I am convinced that it must consist of three principal elements. First, and foremost, there must be an attitude on the part of elected officials, professionals, and citizens alike that transportation plans must be the product of their joint labors. Second, and perhaps equally as important as attitude, both elected officials and professionals must use every available tool and resource at the command of government to provide needed transportation facilities in a manner that satisfies the legitimate concerns of citizens. Third, but perhaps of lesser importance, there must be, within the decision-making process and at each level or stage of this process, ample procedure and opportunity for the views of citizens to be obtained, debated, and responded to by public officials.

To place these elements in perspective, what I am saying is that, without a desire or an attitude to respond to legitimate citizen concern, without the proper tools to be able to respond, and without continuing methods to determine and debate the views of citizens at each level of the decision-making process, then we cannot expect to achieve effective community participation.

Lacking all three of these elements, it is my judgment that we give only "lip service" to community participation, with papers, forms, reports, and hearings used merely as an inconsequential appendix to an agency's or official's decision. Our current guidelines call for hearings to be held when plans are still flexible enough to change, but how often does this actually happen? Citizen groups across the country lament that the location hearing requirement addresses only the question of highway location but not the alternative of whether the facility should be built at all. Citizens argue that the hearing process does not offer the concerned community the choice of transportation mode to best serve the community's goals. Since the hearing process is the official and recognized forum for community participation, it is clear that we must listen to the views of citizen groups in making the process more responsive to the community's needs. Where the latter is the case, often under the guise of safeguarding transportation efficiency or technical integrity, transportation people may well "win today's battle and lose tomorrow's war." The conspicuous role that citizens have played and are playing in confrontations and litigation shows us that the formal and recognized channels of participation in transportation planning are not working. The combination of unresponsive officials and hot-tempered citizens has resulted and will continue to result in stalemate, with outcome that no transportation improvements can be made at all.

We are already seeing evidence of this throughout the country where transportation officials are facing court reversals of their decisions, overrulings by chief elected officials, rejection of bond issues, and a general lack of support by the very people they are trying to serve. This comes at a time when we have received from Congress the mandate to increase our airport and public transit facilities and to put an increased

emphasis on solving urban highway congestion. We cannot afford this state of affairs either over the short run or the long run. We cannot afford to lose either the battle or the war. We must respond to legitimate community concerns in every way possible.

I submit that, in the past, transportation planners, designers, and decision-makers have been in the forefront of responsiveness to new concerns and that our opportunity to shape citizen participation in all governmental processes in a constructive fashion is now unparalleled. But to do so, we must recognize and fully understand the three principal elements of effective community participation that I outlined above. So let me devote the remainder of my paper to discussing these elements in more detail.

Let us begin with "attitude." I do not think it is any secret that all transportation officials are not exactly warm to the idea of community participation. Most citizen groups that end up in court opposing a transportation project, or even those that make their pleas known within the executive branch of government, constantly complain of a nonresponsive attitude on the part of transportation officials. Some of these people feel this way because their views were not accepted, while others do so because their views were not even seriously considered or debated. And to tell you the truth it is the latter group that concerns us. But the point is that this is a strong feeling that prevails throughout the country.

How can we, then, as a transportation industry change our attitude in regard to community participation? Here I think it partly appropriate to venture the opinion that you should "Try it—you'll like it." My hesitation in saying this is that I am not certain you will like it, because it is a frustrating process, but by and large I think you will like it better than the state of affairs that is now emerging in our industry.

Today many citizen groups get involved when plans are already laid out and often after location hearings are held—when in fact, their neighborhood is being impacted and they become personally affected. All possible care must be used to reach citizens in a positive manner early in the planning process to reduce the negative reactions and court actions that we are currently experiencing.

Although I will discuss later the Boston Transportation Planning Review as a participatory mechanism, I want to mention it here as an example of a positive attitudinal approach. The Boston planners and the political structure are involving citizens at the very start of the planning process. Alternatives are discussed at citizen meetings before lines are inked on the maps. Where community opposition is strong and is consistent with planning and community goals, the alternative is dropped before much planning time and money goes into it. At these initial meetings the planners and public officials not only get the negative community attitudes but they also get positive feedback and assistance. Some alternatives have been proposed by the community that the planners never thought of; after all, the people who live in an area do have something to say about their transportation desires, quality of life, and community goals. The success of this new participatory approach will be measured by the lack of or occurrence of heated community battles that lead to court actions that then result in stalemate when final plans are improved and implemented.

There are two chief results of effective community participation that I believe encourage the development of a positive attitude for participation. These are:

1. Effective participation can in most instances greatly enhance the end product of your work. It is likely to give a better balance to the technical product. The nature of technical analysis, as a result of a participatory process, will be influenced by political realities and reflect impacts that are considered most important by citizen and special-interest groups.
2. Because major transportation decisions are political in nature, a participatory process strengthens the decisive nature of the planning process. Decision-makers feel more confident in making a controversial decision when they know that the technical recommendations have had the benefit of meaningful inputs early in the planning process from as many citizens, local officials, and interest groups as have wished to avail themselves of the opportunity for participation. Decision-makers then have a better understanding of the options before them and thus are better equipped to deal with the political pressures to which they will be subjected.

There are some critical things that I think the industry should be doing now to illustrate changing attitudes in regard to community participation. These are along the following lines:

1. Encourage citizen groups to conduct studies and surveys of attitudes and values regarding the social, economic, and physical aspects of proposed programs on the environment and assist them financially and technically to do so.
2. Designate community advisers and assign them the responsibilities (a) to stay informed on the concerns of large and small interest groups and provide them planning advice and assistance and (b) to keep the community informed as to progress on plans.
3. Improve the hearing processes and utilize other standard or new communication techniques to provide for interchange of thoughts and ideas as your plans progress.
4. Answer your mail from citizens promptly and spend more time in the field discussing problems with those who request information by mail.
5. Publicize the key points in your decision-making process and inform citizens how they can provide input at these points.
6. Present special programs via press, radio, and television that analyze and review present and pending transportation plans.

These are relatively simple examples of ways to demonstrate open-mindedness toward community participation. But make no mistake about it, the proof of the pudding is in the eating, and you must be prepared to respond to legitimate concerns as they are raised or have the courage to make your own decisions, provided you can back them up.

This brings me to my second point, the development and use of all possible tools and programs to respond to concerns expressed during community participation activities. It is my view that most transportation officials would respond more to legitimate community concerns if they had the legal and financial authority to do so. It is my view that they know full well that, the more responsive transportation decisions are to the broader goals of community life, the better we all will be for it. In fact, I think a case can be well documented to show that some of the most celebrated transportation projects we have in this country today are so celebrated primarily because they incorporated this philosophy into their planning and design. I call to your attention as examples the Chicago freeway system that effectively combines highway and public transit facilities in the same corridor; the Brooklyn-Queens Expressway in New York that—20 years ago—provided a blend of freeway service, pedestrian access, parks, etc., all within a right-of-way of about 50 ft more than the old street it replaced; the John Lodge Freeway in Detroit, which effectively provides high-speed access to parking facilities; and the George Washington Parkway in northern Virginia, which efficiently serves as many vehicles a day as most urban expressways, all within a park-like setting. So transportation decision-makers know full well that mobility and broader community goals can be meshed effectively.

Most lament the fact that today there are over 1,000 federal-aid programs in existence covering everything from aid to agriculture to aid to the young, and while the administrative burdens of such a large number of programs is a cause for concern, I would suggest to you, as transportation officials, that such a large number of programs offers very significant opportunities to assist you in meeting the concerns raised in the community participation process. Although it is true that as transportation officials we have some tools available, in this day of interdependence and change, do not forget that other professional groups also have tools available that can be of use to you as you do your jobs. I urge you to take advantage of these.

Speaking of the array of tools available, I want to call your attention to an excellent source document, Federal Aid for Urban Transportation, which was published several years ago by the Automotive Safety Foundation. This report lists all the programs available through DOT, HUD, HEW, DOL, and OEO that have a bearing on urban transportation. Federal-aid programs from Urban Beautification and Improvement, to Open Space, to Advances for Public Works Planning, to Manpower Planning are all described in this document.

Judicious use of these programs, coupled with our own transportation programs can preserve historic sites as we build, can provide parks, schools, libraries, and other needed

facilities effectively coordinated with transportation systems, can provide for the effective handling of the young, the old, and the handicapped as they move about, and can, in general, go a long way toward meeting many of the concerns expressed in the community participation process.

But over and above this, even our own transportation programs can be more effectively utilized. More use of the TOPICS program, bus improvement programs, relocation assistance programs, and so forth can and should be made.

And our programs can also be improved. As you come up against community concerns that seem legitimate but that you are unable to handle with existing programs, do not be afraid to speak up through your official channels. More than one change in federal legislation was brought about to solve a problem faced in a specific instance, and this change, once made, immediately found nationwide applicability. And strange as it may sound, the transportation industry has been a real leader in this regard, much to our credit, particularly in regard to relocation housing and beautification.

Now I would like to turn to those specific mechanisms for community participation I mentioned earlier. I would point out here, however, that, if the sincerity and attitude are present and if the tools to react positively to genuine community proposals are present, then the methodology for participation will fall in place with relative ease. Nevertheless, I think a brief run-down of currently available mechanisms is germane to this discussion. One example that may offer potential in various urban areas is the New Orleans Regional Planning Forum, composed of citizens and technicians under the sponsorship of the Regional Planning Commission of Jefferson, Orleans, and St. Bernard Parishes. The Planning Commission set up the Forum in an effort to provide access to technical facts and expertise that would make it possible for citizen groups that were in opposition to particular planning problems to develop practical alternative solutions and to provide for the public airing of all alternative solutions. This program involved several hundred people in New Orleans discussing sophisticated transportation problems and evolving solutions to them. The New Orleans structure, in my judgment, was seriously flawed by the lack of participation of the city and surrounding counties' political decision-makers and by underestimating the staff time and materials required to support the Forum. Yet there is merit in the approach. Despite its specific successes and failures, it deserves study as a demonstration of whether citizens can plan on a broad scope and whether the solutions developed by such groups will run counter to political leaders if the leaders are not directly involved in the activity.

An interesting contrast to the New Orleans situation is the Boston case that I mentioned earlier. This involves a restudy of the area's proposed highway and transit network by representatives of interested community groups under guidance of a spokesman for the Governor. To get community ratification, the participants, which includes representatives of environmental groups, chambers of commerce, and diverse community interests, are required to report back to their individual organizations to develop a flow of information. Large public meetings are necessary for ratification of an action by the community. Significantly, unlike New Orleans, support of the political structure is explicit and continuous.

Because of the innovative and precedent-setting nature of the Boston Transportation Planning Review, I would like to go into some further detail on its participatory aspects. In designing the Boston effort, responsible government officials recognize a need to combine strong central authority—required for decisiveness—with openness and widespread involvement in the transportation decision process. They are especially concerned to minimize any suggestion of secretiveness or resistance to full citizen involvement, which they feel had often accompanied previous public hearing activity. They have the proper attitude.

With this overall aim in mind the Boston Review incorporates the following objectives and ground rules:

1. The process is participatory, with a view to informing and developing consensus where possible. However, and this is important, it is not to supersede the regular governmental process.
2. The citizen participation portion of the study is multi-valued in orientation, giving equal attention to the by-products or impacts of transportation investment alternatives as well as to their intended transportation effects.

3. Emphasis of the study is not on assigning dollar values to all identifiable costs and benefits but rather on describing likely consequences of each policy option, conducting sensitivity analyses to help evaluate the significance of risks and uncertainties, and working from the start to achieve the best possible reconciliation.

Overall responsibility for community participation is under the direction of a Chairman appointed by the Governor. Significantly, the Chairman works in continuous close consultation with a Steering Group and the Working Committees, which are the mechanisms chosen for direct citizen involvement. The Chairman reports directly to the Governor, who established broad policy guidelines and deadlines for the study effort. To assist him in preparation of the agenda and presentation of transportation options to community representatives, the Chairman employed a small consultant staff.

The Boston experience, in my opinion, brings out two key elements for ensuring a highly participatory process:

1. Incentives exist for wide participation because the study deals with difficult and controversial near-term decisions as well as with more remote long-term transportation systems; and
2. The participatory process is closely tied to the process of decision-making by elected and appointed officials in the executive and legislative branches of state and local government.

Another type of citizen participation is illustrated by the work of a design team in Seattle (King County), Washington. In this instance, the sociologists conducting the citizen involvement portion of the study acted as neutral figures. That is, they did not support any involved party, whether client, other members of the study team, or the community itself. Of equal importance, they removed surprises from the situation by giving the identical information to all sides. The sociologists began by initially identifying the persons and groups most concerned with the impact of the transportation project and then proceeded to determine their key complaints and concerns. Finally, they developed situations in which information could be readily exchanged between community elements and study team members. The techniques used in these information-exchange sessions are of special interest. Typically, the meeting was held in the home of a community representative and was attended by 3 to 8 community representatives. The informal atmosphere promoted dispelling of mutual distrust and laid the groundwork for subsequent meetings in which members of the full study team participated. The meetings were the key to the approach: face-to-face dialogue between community representatives and members of the technical team. In addition, to increase credibility of the study team with the community, special precautions were taken to reduce surprises through personal contacts with significant individuals and groups prior to release to the media.

Still another approach to achieving citizen participation is the simulation technique. This method is among the newer, less proven tools, but I think it has substantial possibilities and should be carefully evaluated for wider use. Essentially, "simulation" means participation by community representatives, transportation professionals, and local officials in a laboratory situation in which they play specific roles and make transportation decisions. The laboratory is a "shorthand" way to become exposed to the multitude of factors present in transportation planning and decision-making, especially the assessment of transportation impacts on local communities and metropolitan centers.

Participants in the lab encounter the problems and potentials of a simulated metropolitan area. Ideally, the simulated environment affords participants the opportunity to develop new sources of information, to open new channels of communication, and to experiment, without repercussions, with transportation and area development strategies. Negotiation among the various sources of power within and between communities is a key element in the laboratory process. If successful, the simulation can go a long way in providing participants a good overview of transportation problems and a chance to use their expertise to persuade and to learn from others. It also offers the potential of developing greater empathy for contrasting points of view.

In summary, two conclusions appear clear from this discussion of the essential elements in the participatory process:

1. The extent and effectiveness of community involvement ultimately and most importantly depend on attitudes at the local level—how open local officials and technicians are to utilizing input, how energetically and sincerely officials and technicians try to obtain broad citizen participation, and how articulate and active citizens are in their communities.

2. It is both possible and practical to have increasingly effective community participation within the present system using existing tools and techniques.

It is the interaction of positive attitudes, existing tools, and present techniques that makes citizen participation a two-way street, an educational and informational process for both citizens on the one hand and the transportation profession on the other. As such, the product should not only be better highways, airports, and mass transit systems, but also a better setting in which to maximize transportation's contribution to the total urban environment.

COMMUNITY INVOLVEMENT IN TRANSPORTATION PLANNING: A NEW APPROACH

Kenneth M. Travis and Stanley C. Plog, Behavior Science Corporation

It has become increasingly clear in recent years that urban transportation planners must consider the multilateral impact of their decisions on the communities that they serve. In more and more instances, affected communities have demanded that these considerations be made. Most attempts involving communities in the transportation planning process have typically met with undistinguished progress. In this paper, the usual approaches to community involvement are subjected to a critical analysis in terms of their sociopsychological implications, and specific shortcomings are identified. The authors outline a new method of community involvement that has proved itself in practical applications. Basic concepts of the method are described, including non-advocacy and intellectual honesty. Specific techniques are offered, including a method for identifying the individuals and community groups to be included in a study, the determination of their concerns and their integration into the planning process, the appropriate use of a community survey, the proper dissemination of information to the community, and the development of a continuing and constructive relationship with the community.

•IN THE past decade, it has become increasingly clear that urban transportation planners must consider the multilateral impact of their decisions on the communities they serve. Indeed, in many recent transportation projects, affected communities have demanded that these considerations be made.

Most attempts at involving communities in the transportation planning process have typically met with undistinguished progress. In this paper, a new approach to community involvement is offered, one that has been used by the authors with considerable success.

HISTORY OF PREVIOUS ATTEMPTS AT COMMUNITY INVOLVEMENT

Before discussing the fundamentals of the new program, it is well to examine some of the previous attempts at involving affected communities in transportation projects. By and large, these attempts have met with failure, and, across the country, unfinished freeways, overpasses, and other structures stand as silent although constant reminders of the power of a disenfranchised citizenry.

The Public Hearing Method

A frequently utilized method of dealing with communities in transportation projects, and one that often is prescribed by law, is that of the public hearing. The goals of this approach are to provide an opportunity for all interested citizens to become aware of plans that are being made, to question those who are making the plans, and to present their opinions on the plans. Although this method appears to be an entirely acceptable

one, and one that is in keeping with the highly valued principles of a participatory democracy, it all too frequently degenerates into an arena of conflict. There are numerous examples of hearings being prematurely closed or, worse, not even allowed to begin because of the unmanageable uproar or threat to the personal safety of those presiding!

What sociopsychological dynamics can explain this bizarre behavior on the part of so many who, outside the meeting hall, often are models of appropriate behavior? Some of the causative factors are discussed in the following, and the reader may note that many of them have a "common sense" ring.

A most frequent problem is that the public remains in an information vacuum until the time of a community meeting. They know only that plans for a project will be presented to them and that they will be given the chance to indicate what they think should be done. Often, the project involves an emotional, anxiety-producing topic, such as a freeway. Operating without benefit of more complete information, residents feed on one another's anxieties, and antipathy for the project becomes solidified.

Often, well-established groups such as service clubs or church groups focus their energies on the proposed project and begin formulating an attack against it. Other times, concerned individuals group together specifically to deal with the threat posed by a particular project.

In all cases, these groups have definable leaders whose actions can be anticipated on the basis of what has been learned about individual and group behavior through psychological and sociological research. These leaders have achieved their status because of strongly stated positions. The fact that their leadership roles have been either tacitly or formally awarded on the basis of their aggressive stand reinforces their behavior. They quickly decide that they have a role to play both within the group they represent and outside as spokesmen.

As the time of the public hearing approaches, general antipathy in the community grows and the leadership of the protest groups becomes clearly defined; the stage is thus set for confrontation. Attendees arrive at the public hearing in a belligerent and uncompromising mood. There often is an aura of tension preceding the meeting, and the impression is that the people are waiting for the "action" to start. The psychological setting of the hearing room itself also often accentuates the problem. For example, those who are presiding, and presenting their case to the people, are seated at the front of the room facing out toward the audience. Thus, there literally are two opposing sides at the outset.

Often, individuals in the audience interrupt the presentation before it is completed with provocative and accusatory statements and questions, for which they are rewarded with immediate applause from their fellows. Moreover, once the hearing is opened to participation from the audience, a parade of individuals presents increasingly acrimonious and aggressive statements to the planning team. These too are rewarded with immediate applause from the audience.

Also, many citizens who speak out at such meetings are not accomplished public speakers and, as such, read long written statements. These previously prepared papers are delivered with little or no regard to what has been said throughout the meeting. In essence then, the citizen speakers do not respond to the information they have received from the planners, and no true two-way discussion occurs at all.

Citizen speakers who are not tied to prepared statements also suffer from pressures that militate against their flexibility. Because of their own prior statements, either in private or in public or both, they feel compelled to hold fast to their original positions regardless of the proposals of the planning team. This self-defeating phenomenon, which often occurs in other confrontation situations, has been termed "the traitor treat," in that the individual feels that he is betraying himself to those who have supported him if he acquiesces in any degree to the opposition.

Another psychological phenomenon that is applicable to this situation is what social scientists refer to as "behavioral contagion." When an individual engages in an activity in the company of others who also are engaged in that activity, the intensity of his behavior can dramatically increase. Common examples of this are eating and laughing. In a public hearing setting, the expression of aggression toward the planners is mutually reinforcing, and initial antagonism can heighten to an unexpected level of disruption.

Working With Prominent Citizens

The second most common approach to dealing with the community involvement aspect of a transportation project has been to work with a small group of prominent individuals assumed to be representatives of the community, such as local public officials, business community figures, and/or other "leading citizens." This method often is tantamount to excluding the public from participation in the study.

The basic flaw of this approach is its simplistic view of the community. One does not identify the attitudes and gain the approval of the community by discussing a project with a handful of leading citizens. It has frequently been the case that the opinions and feelings of select groups diverge widely from those of the community as a whole. This is not surprising, since it is quite common for a group of leading citizens, such as a Chamber of Commerce, to have members who do not even live in the community but simply operate businesses there.

Thus the risk involved in resorting to such an approach is substantial. People in the community who are concerned about the impact of the project feel ignored and alienated. They feed on one another's anger and frustration until the antipathy toward the project becomes well established. This often grows to the point that an active anti-project group becomes formalized, dedicated to the goal of stopping the project through petitions, demonstrations, and the like.

BASIC PHILOSOPHY

Before describing the specific techniques utilized in the execution of the new approach, it is appropriate to discuss the basic philosophy of the overall method. The philosophy is a humanistic one. It recognizes and respects the basic dignity of all persons. It holds that man's constructive tendencies far outweigh his destructive ones and that, if placed in an appropriate environment, his behavior will be in accord with the common good of all. Although these statements are, to an extent, out of character with a technical report, they nevertheless describe the basis on which an effective method of community involvement can be implemented.

In addition to and based on this philosophy, certain other concepts help to guide the implementation of the approach. One of these is the concept of non-advocacy, and the other is that of intellectual honesty. The concept of non-advocacy simply means that the behavioral scientist working with a team of planners acts as a totally neutral figure when engaging the community and makes every effort possible to convince those he is working with of this neutrality. In no case does he offer his support to any involved party, whether it be a highway department, the study team, or elements of the community itself. This neutrality serves as a catalyst for open communication among all concerned. The concept of intellectual honesty means that the same message is given to all sides, and no information is withheld or distorted to give one group any material advantage over another.

The two concepts of non-advocacy and intellectual honesty are used to remove all surprise from a situation. It is the unknown and the unexpected that cause anxiety, frustration, anger, and mistrust. Thus, by keeping all parties informed of the interests and activities of all other parties, a stable, predictable, and productive interaction can be maintained.

PRINCIPAL METHODS OF THE NEW APPROACH

The specific techniques that make up the approach may be grouped under two major headings: community organization work and a community survey. The data provided by the survey, when combined with the data acquired during the community organization work, can provide planners with an adequate and accurate composite picture of the community's goals and desires relative to a project. These tasks are discussed in detail in the following.

Community Organization Work

In order to engage the community in the active dialogue necessary for its effective participation in the project, a specific sequence of steps has to be followed. First, the

appropriate individuals and groups to be contacted are identified. Second, these persons are contacted to determine the basic focus of their concerns. Third, situations are developed wherein information can be exchanged between the community elements and the planners. As the study team reaches decisions, the content of these decisions is released to appropriate persons in the community. Initial reactions are noted and brought to the attention of appropriate study team members for their action.

Identification of Individuals and Groups—The identification and selection of individuals and groups to be contacted from perhaps the tens of thousands of residents in a study area is an important consideration. To this end, the team behavioral scientist must conduct both a leadership and a group profile.

Leadership Profile—Individuals occupying positions of formal leadership within the community have, by definition, a significant impact on the attitudes and actions of the community at large. Thus, their inclusion in a study is critical, and a major effort must be made to identify them and to obtain their suggestions and opinions. Within the study area, the persons who qualify as leaders number in the hundreds. Thus, the initial problem is to ensure that those included are representative of the leadership structure as a whole. Fortunately, in recent years advances in sociopsychological theorizing have created an approach that seems particularly relevant to the solution of this problem. This approach and its theoretical orientation are discussed in the following paragraphs.

Basically, the community can be conceptualized as a conglomeration of organizations. These organizations can be categorized into four groups: (a) productive or economic organizations; (b) maintenance organizations; (c) adaptive organizations; and (d) managerial or political organizations.

Productive or economic organizations are concerned with the creation of wealth, the manufacture of goods, and the provision of services to the general public or its specific segments. For the society as a whole, they provide an instrumental integration, i.e., they provide the food, clothing, and shelter. They also provide the rewards that induce persons to keep the system functioning.

Maintenance organizations are devoted to the socialization of persons for their roles in other organizations and in the larger society. Organizations such as the school and the church are maintenance structures of the social order. These types of organizations are responsible for the integration of society.

Adaptive structures create knowledge, develop and test theories, and, to some extent, apply information to existing problems. Colleges, research organizations, and planning groups provide an adaptive function for the society as a whole.

Finally, within the managerial or political function, i.e., the organizational activities concerned with the adjudication, coordination, and control of resources and people in the society, are found the elected offices and formalized pressure groups.

The task, then, is to choose individuals who are leaders of the various types of organizations. Moreover, the selection has to be made in as balanced a manner as possible so that leaders from one type of organization will not be over-represented.

Group Profile—Among those deemed important for inclusion in the community organization work are anti-project protest groups and other groups who previously have shown an interest in transportation planning. There are a number of sources of names of such groups, such as the local news media, professional highway department and similar agency personnel, and local legislators.

Perhaps the greatest resource for identifying groups is the initial group meetings themselves. At the close of each of these meetings, those attending are asked what other groups of which they are aware would wish to participate in the study. To be sure, many groups are likely to be identified through more than one source. In fact, the frequency with which a group is named provides some indication of its relative importance; thus, the priorities for contacting groups can be rather easily established.

Determination of the Concerns of the Leadership—Meetings with individual leaders usually take place during working hours, typically at their place of business. The team behavioral scientist must be experienced in the use of counseling and interviewing techniques when conducting these meetings, which usually consume about an hour's time. Interviews are loosely structured so as to give leaders a maximum amount of freedom in expressing attitudes and opinions concerning transportation issues in the area.

Questions must be asked as unobtrusively as possible so as to cover all essential topics. Among the topics to be included might be the following:

1. Awareness of any controversy over the transportation plan;
2. Assessment of what should be done to meet present and future transportation needs in the area; and
3. Appraisal of the citizen groups that have been opposed to the project.

Determination of the Concerns of the Citizen Group—Perhaps the most sensitive area of the entire community involvement effort is the interaction with protest and other citizen groups. It is here that the battle to achieve effective community participation is waged.

Initial efforts to arrange meetings with community representatives are often met with mixed reactions. Some community groups appear happy to have a neutral outsider hear their grievances first-hand. However, many others consent to a meeting only hesitantly, feeling that it is simply a new ploy to gain acceptance for the unwanted project.

The primary characteristics of the group meetings are small size and informality. Typically, the team behavioral scientist requests that the number of persons attending be between six and eight. This is a very manageable size and, in fact, is derived from such widely divergent fields as group therapy, business management, and sensitivity training, where research has shown that group size has a significant impact on the quality of the communication that occurs.

The degree of formality of a meeting also influences the quality of communication. The more relaxed the atmosphere is, the more likely that unguarded, open communication will occur. Group meetings are held during the evening hours and usually at the home of one of the group's members. In these comfortable and familiar surroundings, any initial mistrust and hostility rather quickly gives way to meaningful conversation. Frequently these sessions last many hours, often past midnight. This time is spent fruitfully, however, in that the basic concerns of the people are presented and further small group meetings are made possible. These are quite critical since they involve bringing the members of the study team into contact with the citizen groups.

These subsequent meetings comprise the very crux of the approach: true face-to-face dialogue between community members and the technical team responsible for performing the tasks and making the decisions. As a matter of procedure, prior to every community-study team meeting, the team behavioral scientist indicates to each of the team members what, on the basis of initial group meetings, he understands the concerns and questions of the community group to be. This procedure allows the team members to consider the concerns of the group, to be ready for the questions that might arise, and to prepare their own questions. Thus, the surprise characteristics of the situation are reduced, lessening tension and facilitating a healthy interchange of ideas and questions.

In terms of size and informality, community-study team meetings are similar to the initial meetings; they also are held in the private homes of group members during the evening hours. Typically, these encounters are quite effective in achieving their purpose. The problems and concerns of both sides are aired, and the planners are able to gain data useful in the conduct of their work.

The Information Release Network—As the study progresses, numerous in-house meetings must be held by the study team to discuss the direction taken by each of the members, as well as to determine the direction of the study as a whole. During these meetings, it is the sociologist's task to temporarily put aside his position of non-advocacy and act as spokesman for the community in evaluating the various alternatives presented.

The series of in-house study team meetings ultimately lead to a number of highly significant interim decisions regarding the major conclusions and recommendations of the study. To continue to maintain the desired community involvement during the decision-making process, initial, tentative decisions must be passed on to the community. The vehicle for achieving this objective is an information release network. Essentially, this network involves the establishment of appropriate channels for releasing critical decisions. In executing the network, certain tasks have to be accomplished, including the following:

1. Ensure release of the correct information to the people;
2. Properly phase the release of information;

3. Acquire the initial reactions of the people; and
4. Assure due consideration to the opinions and alternatives offered.

The first consideration, ensuring the release of the correct information, is perhaps the most difficult. To prevent the release of biased or erroneous data, information is released to significant individuals and groups in the area by personal conversation, telephone calls, and letters. After dissemination of the information in this matter, the data are made available to the media. Three objectives can be accomplished by proceeding in this manner:

1. The message is not distorted;
2. No one is surprised by stories that ultimately appear in the news media; and
3. The procedure ensures the maintenance of a personal touch, a sense of personal involvement that is so characteristic of the earlier phases of the community organization work.

The proper phasing of information releases also constitutes an important consideration. Protest groups display the sociopsychological dynamics exhibited by all groups, i.e., they have their own internal status hierarchy. During the initial and subsequent meetings with these groups, their internal leadership structures are identified, and it is possible to distinguish between those group members with more and less influence.

In passing team decisions on to these groups, it is important that the status hierarchies not be violated. Thus, if individuals with rather strong influence in a group are the last to be informed of the decisions of the study team, they may resent the fact that their positions of high status have been ignored and might, either consciously or unconsciously, become more critical of the information released. The phasing of information releases, then, is helpful in gaining positive responses.

The third consideration, the response of the community to information released, is also critical. This is especially true in dealing with the group leaders since, by the very definition of their leadership, their reactions are an indication of the reactions of the community as a whole. In all contacts with community members, they must be invited and even encouraged to respond to the decisions of the study team. Furthermore, it has to be emphasized that the study team will give serious consideration to their reactions in developing the final conclusions of the study.

Community Survey

As a significant part of the overall community involvement effort, a survey should be conducted with the primary goal of identifying, in an explicit and comprehensive manner, the attitudes and opinions of the general community relative to transportation and transportation planning. The survey also helps to determine the representativeness of the individuals and groups contacted as part of the community organization work. The issue of the representativeness of protestors is always a special concern, since, if protestors are a vocal minority, the omission of the survey would make it possible for these individuals to have a disproportionately large voice in the community involvement program.

DEVELOPMENT OF A CONTINUING RELATIONSHIP WITH THE COMMUNITY

One of the typical findings of a community involvement program like the one described here is the pronounced desire of the community to participate in transportation planning. Individuals and groups consulted usually express a definite desire to take part in the transportation decisions that so greatly affect their lives.

Interestingly, the very execution of the community involvement tasks initiates a closer rapport between the community and those involved in transportation and transportation planning. Frequently, the persons contacted express a great deal of satisfaction with the fact that they have been consulted and their opinions and suggestions taken into consideration. Highway departments and other agencies involved can take advantage of this regeneration of trust by maintaining a continuing liaison with the communities they serve. In so doing, they can prevent future confrontations, or, at the very least, mitigate the intensity of such confrontations.

ACHIEVING POSITIVE COMMUNITY PARTICIPATION IN THE FREEWAY PLANNING PROCESS

Ki Suh Park, Gruen Associates, Inc.

Amid today's freeway controversies the mandate for a more comprehensive transportation planning process has been given a new phrase, "community participation." This paper outlines a means for achieving more effective participation and hence greater acceptance of new transportation facilities. A major component of more effective community participation is the identification of the various levels of interest that constitute the community. This is necessary to better understand their problems and concerns that in turn must be related to the benefits and costs associated with the freeway facility. Individual costs must be resolved independently of group benefits. If the gap between costs and benefits is too great and cannot be properly closed, then an option for providing no new facility must be considered. However, before such an option becomes final, there should be a comprehensive analysis to evaluate the consequences of such an action. The introduction of community participation into the freeway planning process has advanced the art of highway planning by bringing attention to problems not previously considered. It has also simultaneously tended to raise the level of community expectations and to increase the gap that already exists between what can be done and what should be done. The closing of this gap remains to be accomplished through new legislation, new funding, and a broadened sense of responsibility by federal, state, and local jurisdictions.

• A FREEWAY brings definite transportation benefits and fulfills other vital functions in the increasingly complex urban structure. The effect of its introduction into the urban fabric does not end with the initial impact. A chain of actions and reactions is set into motion that has far-reaching geographic and temporal influences on individuals, neighborhoods, cities, and entire regions.

A continuing effort is being made to cope more comprehensively with these impacts. A part of this effort is the use of the multidisciplinary design team. The Federal Highway Administration has stated that the objective of the design team approach is "to make sure that adequate attention is given to the preservation and enhancement of the quality of the environment, and related social and economic factors."

However, the design team concept, no matter how successful in fulfilling this objective, cannot be considered a panacea for all of the problems attending freeway development. The introduction of multidisciplinary consultants into the process has advanced the art of freeway planning by bringing attention to problems not previously considered and by suggesting implementation programs and procedures heretofore not thought of. But it has simultaneously tended to raise the level of community expectations and to increase the gap that already existed between what can be done and what should be done.

In most American cities, proposed freeway facilities are increasingly being challenged and opposed. Anti-freeway arguments include negative environmental impact,

human dislocation, local community disruption and cost, and, most importantly, the question of the need for such a facility or whether the need can be met by other transportation modes.

Amid freeway controversies and freeway deletions, the need for community participation in a comprehensive transportation planning process has become a mandate. If community participation is to become truly effective, ways must be sought to draw individuals and community groups into closer and more meaningful relationships with the governmental planning process beyond that of merely being a "listener" and "adversary" at location and design public hearings. Techniques must be developed to bring major issues of freeway planning before people and, in turn, to accurately convey people's judgment and concerns back to the transportation planners and decision-makers.

Despite recognition of the importance of community participation, few effective techniques and procedures have been developed for involving local communities in the planning process. In this report I would like to share with you some of the experiences in community participation gained in a number of team studies undertaken for the California Division of Highways and the U.S. Department of Transportation. Although I will be reporting primarily on an approach to community participation in the urban freeway planning process, I believe the same approach can be applied to any transportation and land use decision-making process.

Based on our experience, let me propose ten steps for achieving effective community participation.

STEP 1: WORK WITH THE COMMUNITY TO JOINTLY ESTABLISH THAT THERE IS A CLEAR NEED FOR THE PROPOSED FREEWAY FACILITY

The freeway planning process through the 1950s and 1960s saw relatively little community opposition to the system and its development program. Although there were discussions on specific route location, the overall freeway system concept was seldom seriously questioned. This can be attributed primarily to the fact that the system's total benefits clearly outweighed its total costs. However, as the system reaches the point where it is beginning to fill in the freeway network interstices, the relationship between community benefits and the price that the community must pay comes closer together, and more and more justification is needed for individual freeway segments (Fig. 1). Furthermore, as the cost-benefit relationship changes, a growing resistance to freeway programs within urban communities emerges. The growth of this resistance has been gradual and cumulative, with people learning from the experiences of others. Today, in cities that have been engaged in freeway planning and building for years, planners often find areas slated for proposed facilities ready and waiting, organized and armed to the teeth.

Before initiating route location and environmental impact studies for a freeway, transportation demand projections should be documented and tentatively accepted by a local community. Unless the community is convinced of the need for a freeway by the traffic demand projections, constructive community participation cannot be achieved.

We have found that the question of whether or not a new freeway is needed will not dissolve with the adoption of a specific route location. The question will appear over and over again during the design phase, hampering constructive community dialogue and involvement. Experience has shown that the failure to respond directly and comprehensively to this sensitive question at the outset is likely to polarize the community prematurely to a no-freeway position. The most effective approach is to explore, jointly with the community affected, the demand analysis on a particular corridor based on the anticipated regional and local land use developments, evaluate what the most appropriate transportation modes are to meet the demand, and assess the future consequences of having no freeway facility improvements. Only then will the community begin to focus its attention on environmental impact, freeway location and design, community adaptation planning, and equitable compensatory program packages.

STEP 2: GAIN A THOROUGH UNDERSTANDING OF REGIONAL AND LOCAL COMMUNITY VALUES, ISSUES, CONCERNS, AND OBJECTIVES

The fulfillment of a freeway program requires reconciling the potential regional benefits and the localized socioeconomic and environmental impacts that the facility may bring. Quantifiable and nonquantifiable freeway impacts on the local community will vary significantly depending on the condition, characteristics, and objectives of that community. Thus, there must be a thorough understanding of regional and local community values, issues, concerns, and objectives. This understanding will help in structuring the citizen element for the most meaningful participation. It will establish at an early point in the planning process critical issues that, if left for consideration in a later stage in the development process, could produce an insurmountable impasse.

Knowledge of these issues will permit the planning body to prepare and document its response to critical local issues and concerns. In addition, understanding local issues and concerns will enable the planners to better identify other factors external to the particular facility under consideration that influence community participation and reaction. All of these factors accentuate the need for a thorough assessment of regional and local issues and concerns.

STEP 3: IDENTIFY VARIOUS AREA-WIDE AND IMPACT-ORIENTED COMMUNITY INTEREST GROUPS AND ESTABLISH AN ONGOING COMMUNICATION CHANNEL WITH EACH INTEREST GROUP

We must recognize that there are two distinct forms of community participation: objective-oriented and impact-oriented.

The first consists of participation by general community interest groups in the discussion of area-wide transportation-land use objectives, issues, problems, and opportunities, concentrating on area-wide benefits and costs that the freeway facility may bring to the community. Unless there is area-wide community support, expressed or latent, for the facility, the freeway planning process will certainly encounter major roadblocks, particularly in the more impacted areas.

The second form of community involvement is impact-oriented. It comes after various alternative route locations are proposed and those individuals and groups affected by each alternative can be reasonably defined. In this respect the community groups in this category may not be identical to the first. The task is to identify these newly created interest groups and address more directly the impact problems and equitable compensatory program packages.

To bring about active and constructive community involvement, it is essential to view the local community as a composite of many interest groups rather than as a single entity. The various levels of interest that constitute the community must be identified in order to understand local objectives, problems, and possible opportunities. These various interest groups are not all affected to the same degree by the freeway and its impact. Generally, the more immediate and the more personal the impact is, the more intense and emotional the reaction is likely to be and the less interest there will be in long-range area-wide benefits. Therefore, until the more personal immediate impact problems are resolved, it cannot be expected that an individual or group will participate in solving problems beyond their immediate self-interest.

The following is an identification of groups at each level or range of concern and the most important impacts and needs related to each (Fig. 2); however, until a precise alignment is determined during the design phase, individuals will be uncertain as to which of the first three groupings they belong to:

1. Owners and occupants of properties displaced by the freeway:
 - Problems of dislocating families and businesses.
 - Separation from established neighborhood social patterns.
 - Need for replacement housing, relocation technical assistance, and monetary payments.
 - Problems in disposing of property during the period from route adoption to acquisition.

Figure 1. Freeway development in the Los Angeles region.

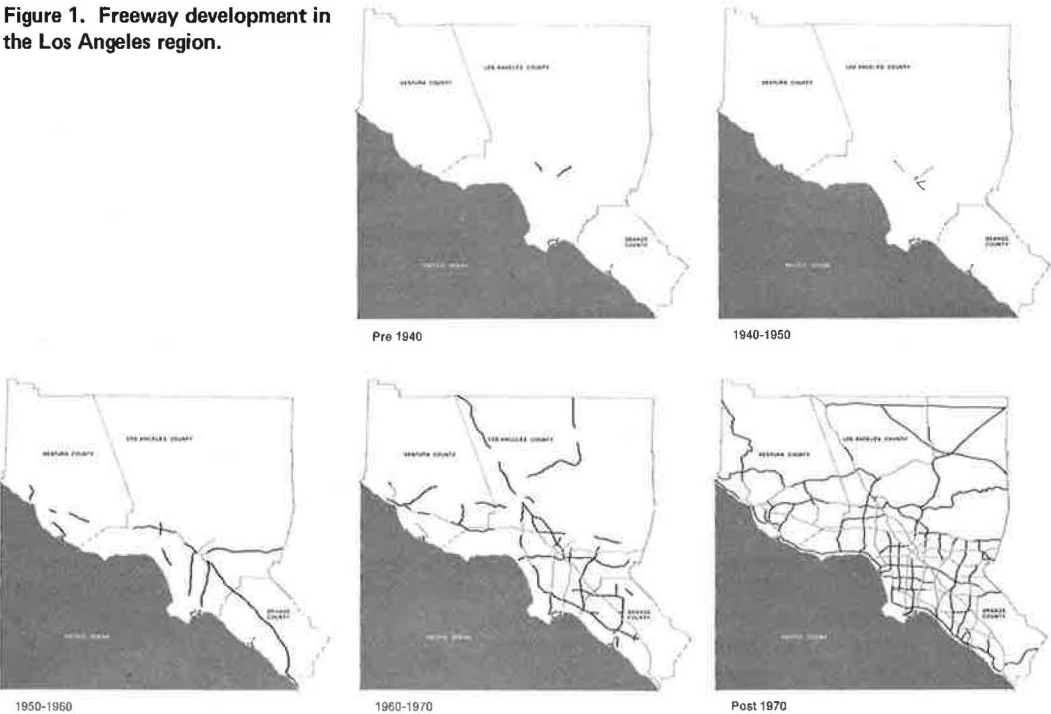


Figure 2. Freeway-community interaction.

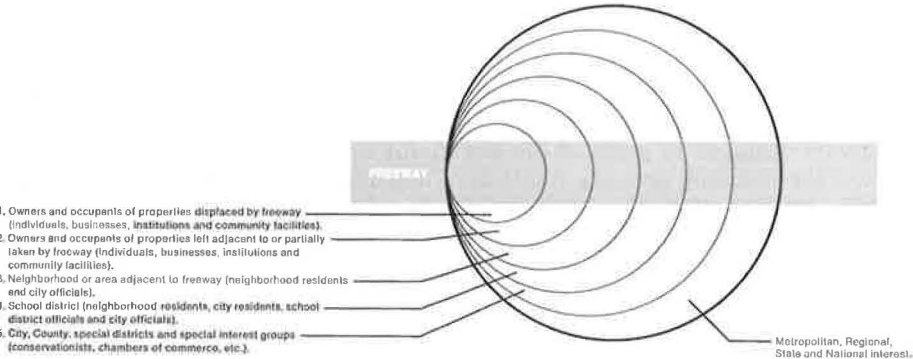
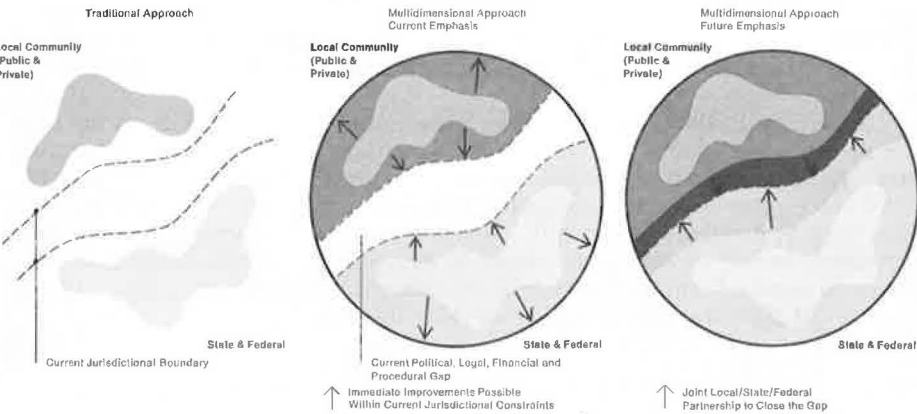


Figure 3. Implementation program gap.



- Possible property value depreciation during the same period.
- Properties not maintained despite assurance of compensation at fair-market value.
- 2. Owners and occupants of properties left adjacent to freeway:
 - Environmental impact of noise, air, and dust pollution.
 - Safety hazards.
 - Difficulty or inability to readily dispose of freeway-adjacent properties at full value because of environmental impacts.
 - Redefinition of neighborhood boundaries, establishing new neighborhood edges to freeway, imposing disadvantages of edge properties on new group.
 - Impact on life-styles of increased mobility and environmental impacts.
- 3. Neighborhood or area adjacent to freeway:
 - Severance of neighborhood from larger community and from schools and other community facilities.
 - Change in vehicular and/or pedestrian circulation patterns, including possible new or increased traffic flow.
 - Proliferation of new freeway-related uses, resulting in possible conflict with existing uses; conflict between uses of different densities.
 - Overall effects on neighborhood cohesiveness and stability.
- 4. School district:
 - Noise, dust, and air pollution impact on school facilities.
 - Change in pupil load, resulting in possible disruption to facility plans and change in facility operating efficiency.
 - Change in school attendance boundaries.
 - Reduction of school district revenue.
- 5. City and county (also special district and special-interest group):
 - Change in economic base, on short-term basis, resulting in decreased tax roll from property acquisition.
 - Local traffic reorientation, including introduction of regional through traffic.
 - Pressure for accelerated land use change with possible conflict on orderly growth plans and budget programs.
 - Potential conflicts and confrontation between various community interest groups and elected officials.

Ongoing community dialogue is perhaps the key factor to successful community participation. Because the planning process itself is of a continuous nature, the participation element should also be. If participation occurs at only one or even several points in time within the planning process, those participating will have a distorted view of the whole process.

As can be seen from the above groupings, the present form of public hearings is inadequate to provide the necessary communication channels. We should evaluate various alternative communication concepts such as pre-hearings, mini-hearings, community group meetings and work sessions, mass media presentations, reports and graphic displays, films, and post-hearings and various community attitude survey methods such as through personal interview, telephone interview, and mailout questionnaires. All of these available techniques should be assessed for their appropriateness, tailored to a specific freeway program and corresponding communication and interaction needs of each interest group.

One further concern that affects participation in decision-making as well as the total scope of citizen involvement is that not all persons or groups are able to participate in an equal manner. Some, because of educational and economic advantages, are able to exert greater influence, and hence it is possible that a distorted view and a decision favoring certain interest groups may prevail. If the objective of meaningful participation is to be achieved, technical assistance must be provided to certain disadvantaged community groups to enable them to translate their concerns to concrete proposals and to assess the impact of potential public action on their interest.

STEP 4: UNDERTAKE COMPREHENSIVE SOCIOECONOMIC AND ENVIRONMENTAL IMPACT STUDIES AND DETERMINE ANTICIPATED IMPACT COSTS AND BENEFITS TO EACH INTEREST GROUP

There has been a clear reluctance to identify individual and community costs beyond those resulting directly from freeway right-of-way acquisition because there are no compensatory programs for them. Instead, there has been customarily a lumping of all costs and benefits to show a trade-off balance on an area-wide basis.

I think you will agree, however, that it is neither equitable nor persuasive when attempting to obtain the community acceptance of the freeway to try to balance local losses against regional benefits, individual losses against community benefits, or short-term losses against long-term benefits. Cost-benefit trade-offs are only effective (a) if the benefits are at least equal to the costs and (b) if the benefits go to the same person or group paying the costs. Those in the path of a freeway are not interested in long-range benefits purchased at their short-term expense. Nor do neighborhoods that will suffer from freeway impacts find promises of community-wide benefits compelling.

This new cost-benefit analysis for each community interest group will include both quantifiable and nonquantifiable aspects of the impact of a freeway on the natural and man-made environment. At present, most impact statements represent an aggregate summation of socioeconomic and environmental impacts of a freeway on the local community. However, they are seldom disaggregated so as to be understood clearly by each interest group. The impacts measured against local values and concerns must be viewed through the eyes of those to be affected by the transportation facility and must be communicated in that context.

STEP 5: MINIMIZE LOCAL COMMUNITY IMPACTS AND OPTIMIZE LOCAL OPPORTUNITIES THROUGH JOINT FREEWAY-CORRIDOR COMMUNITY PLANNING AND DESIGN

Two basic approaches can be followed to minimize community costs and disruptions and to assist in realizing new development potentials created by a freeway. You can select an alignment and design configuration that will adapt the freeway to the community, or you can adapt the freeway-corridor community to the freeway.

In adapting the freeway to the community, we should select and design a route that imposes the least amount of community costs. Since it is the freeway that is intruding on the community, it is the freeway planners' responsibility to first explore and implement to the fullest extent possible the adaptation of the freeway to the community. Where costs or losses are unavoidable, those who are incurring the costs should be compensated in principle by those who are benefiting on an area-wide basis. However, where there are gaps left unresolved by this first approach or when community objectives and plans require, then the second approach of adapting the community to the freeway must be utilized.

The task of adapting the community to the freeway is not now vigorously pursued by state agencies because it is considered outside their jurisdictional domains. Efforts to become involved with the broad spectrum of environmental concerns associated with freeway development are often short-circuited by lack of implementation funding and program packages. These procedural problems create uncertainties and credibility gaps, frequently leading to unnecessary hardships that disturb the local citizenry as well as providing grounds for local community opposition.

STEP 6: DEVELOP AND PROVIDE EQUITABLE COMPENSATION AND IMPLEMENTATION PACKAGE ALTERNATIVES TO EACH INTEREST GROUP

The freeway planning process is currently devoid of any significant program and funding packages to assist the community in adapting to the freeway by (a) compensating those adversely affected and (b) facilitating local land use changes to permanently solve problems left unresolved by freeway development.

This is a root problem. We come, time and time again, to unbridged gaps separating the art of freeway planning, which is well advanced, from that of freeway-related

implementation program packages and legislative tools, which lag far behind. These gaps continue to hamper effective community cost-benefit trade-offs and, consequently, effective community participation. Some of these gaps can be closed through immediate improvements in existing administrative procedures and programs. The closing of the remainder must await new legislation, new funding, and a broadened sense of responsibility on the part of federal, state, and local jurisdictions (Fig. 3).

In order to come to grips in a realistic manner with the shortcomings in the current efforts to deal with freeway impact and community costs, a full understanding of the broad spectrum of freeway-related impact is necessary. For example, impact costs to each affected interest group can be compared with matching existing federal, state and local programs to determine the extent of existing deficiencies. I believe that, until the full range of impact costs and their interrelationships are set down in a systematic manner, new procedural and legislative actions will continue to be piecemeal and ineffective. This, in turn, will cause concern and hesitation on the part of the local citizenry, who will question the sincerity of the entire process. Effective community participation does not end with the introduction of the public into the planning and decision-making process. A further step is required that narrows the gap between identifying issues and concerns and resolving them. The public must be convinced that such programs are available.

STEP 7: REACH A CONSENSUS WITHIN EACH INTEREST GROUP AND AMONG INTEREST GROUPS ON A COURSE OF ACTION

The most desirable end is to obtain a substantial agreement on a positive course of action (leading to the development of the proposed facility) from all participating interests, including those representing the impact-oriented groups as well as those representing area-wide interests. Since this type of agreement is becoming less and less frequent, a second alternative is to obtain agreement on a positive course of action from the majority of area-wide interests and some of the impact-oriented groups. This may involve overriding the desires of other immediate impact groups but should only be done when the impacts to these interest groups can be substantially ameliorated or equitable compensation packages are made available to them. In essence, this alternative is plausible only if all the previous six steps have been properly and comprehensively taken.

A third alternative may involve a similar situation as the second alternative, except that some of the previous steps (such as step 6—equitable compensation and implementation program packages) have not been fully taken. In this case, even if the majority of the area-wide interest groups support a positive course of action, the proposed freeway planning process should either be delayed until such time as all of the previous steps are adequately taken care of or be abandoned.

A fourth alternative represents a nearly unanimous agreement on no freeway facility either because of the failure to reach a consensus or because of the failure to meet the requirements of some or all of the previous six steps.

In all of these situations, the most critical factor is what level of performance standards our society or the local community considers adequate and acceptable based on its value. If that performance level happens to be higher than our society at this time can realistically deliver, then the only alternative available is a no-freeway facility option. However, if that level happens to be within the range of delivery by our society, then we could be more optimistic about the future of the entire community participation process.

Before the no-freeway option is taken, however, there should be a comprehensive analysis to evaluate the consequences of such an action. Since the transportation demand would still remain in a particular corridor, a political commitment to provide alternative modes to satisfy the demand must be made. If such alternatives are not available to the community, then more stringent land use controls (which generally require greater political courage and commitment than those required for a no-freeway option) should be imposed to bring the anticipated transportation demand and supply into a dynamic equilibrium. Thus, the freeway deletion possibility should be considered in

a total package of action programs and should not be permitted to occur purely on emotional and political grounds.

STEP 8: ESTABLISH A CLEAR AND BINDING DECISION-MAKING PROCESS

The mandate for a more comprehensive planning process for effective community participation must be balanced with an equally important mandate for a clear and binding decision-making process. Along with this there should be some definitive time limits for the freeway planning and decision-making process that provide a reasonable time frame for easy local comprehension. As long as previous decisions reached through the comprehensive planning process can be rescinded at any time with little or no just cause, the foundation of the entire community participation process will be significantly undermined.

One of the major difficulties with citizen participation in transportation planning is that of the long time span involved. This places additional stresses on participation in two ways. First, the makeup of the local community (elected and electorate) continually changes over time, and, consequently, they must be continually reformed as to the processes and as to previous decisions. A corollary problem is that the highway agency's personnel also changes; hence, the community faces a parade of new people. The second problem associated with the long time span is that of gaining active public interest in the early stages of the process and then maintaining it throughout the process. All too soon an atmosphere of public apathy exists up to the point just prior to the public hearings.

STEP 9: ESTABLISH A CLEAR APPEAL PROCEDURE AS AN ESSENTIAL COMPONENT OF THE PLANNING AND DECISION-MAKING PROCESS

A definitive appeal procedure must be established to provide ample opportunities within a prescribed limit for dissenting local jurisdictions and community interest groups to appeal their case. A state highway commission in which this appeal procedure now often rests tends to be generally identified with a highway department and thus may not be viewed by the local community as an impartial and objective body.

Hence, an independent arbitration body may be required to hear those cases in which the local community has a substantial reason for requesting a new hearing on previously made decisions. This request for a new hearing should only be permitted where significant changes in the socioeconomic and environmental characteristics of the community and, consequently, in the transportation demand have occurred, thus invalidating the basis for previous decisions.

STEP 10: ESTABLISH A BROADENED INSTITUTIONAL FRAMEWORK THAT THOROUGHLY ENCOURAGES OPEN PARTICIPATION IN THE PLANNING AND DECISION-MAKING PROCESS

In cooperation with local, regional, state, and federal agencies, we must examine and evaluate ways and means to strengthen existing ongoing institutional instruments to encourage an open community participation process. Many of the existing institutional impediments and constraints must be lifted. The process must also be adequately funded and staffed by multidisciplinary professionals.

Since the transportation planning process is of a complex nature, it is necessary that the local community be fully informed as to all available programs, the steps in the procedures, and the ramifications of both their actions and those actions of the planners and decision-makers. The highway planning agency must be prepared to invest in this communication process if it expects to have effective citizen participation.

In the development of the institutional framework, the following factors, among others, should be considered:

1. The creation of a regional planning and transportation agency and a multimodal evaluation process are necessary to fully understand the interrelationships of any

changes in the freeway network and other modes of transportation. Clarification of the interactive relationships, including the anticipated share of the total transportation demand each mode can expect to serve, will support the necessity of a multimodal system. It will also aid in dispelling notions that any single mode, such as a rapid transit facility, can alone adequately serve all of the future transportation needs.

2. There should be a rapid computer response capability to make the transportation need analysis and assess the consequences of various transportation system modifications and deletions. If a portion of a freeway is to be deleted from the network or its scheduling is to be substantially altered, then the subsequent impact to local land use and transportation patterns should be made available and fully understood by the local community.

3. The transportation and land use planners should work with political and community decision-makers in finding some effective means to achieve a balanced development of land use and transportation facilities and consequently bring demand and supply into a dynamic equilibrium in a sequential time frame. While this concept has been widely endorsed, little has been accomplished to implement it.

In summary, there can be no half-hearted or partially committed community participation in the freeway planning process. The entire process must be completely open and participatory, and we must be prepared to accept all consequences of community involvement, including a popular decision that there be no freeway.

The documentation of freeway need, a thorough understanding of regional and local issues and concerns, ongoing community dialogue, environmental impact studies, sensitive planning and design, equitable compensation and implementation program packages, an open decision-making process, and a broadened institutional framework are all essential ingredients to successful community participation in the freeway planning process.

STRUCTURING CITIZEN INVOLVEMENT IN FREEWAY PLANNING

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Value analysis is proposed as a strategy for evaluating the community consequences of alternative freeway proposals. It differs from cost-benefit and goal-matrix methods in that it does not presume in advance that a social welfare function for the freeway exists. Instead it assumes that an attitude is developed during the planning process. Value analysis assists diffusion of reliable information about freeway proposals and develops a behavioral commitment for the decision within the affected community. A field test of value analysis is discussed in reference to (a) changes required in the California route adoption procedure when the value analysis strategy is used and (b) changes in community attitude toward the freeway proposal achieved through value analysis. An appendix lists the five categories of community considerations used in value analysis and provides an example of the table used by the study groups from the affected community. Interpretation of socioeconomic and environmental impacts of development decisions will vary from community to community. Therefore, it is appropriate to allow the affected community, with technical assistance provided by the development authority or consultants, to study alternate proposals and select the option that is most beneficial and least detrimental to community goals. The highway planner serves as a "coordinator-catalyst" in value analysis.

●ANALYZING the socioeconomic and environmental impact of urban freeways is a complex task. There is little agreement on relevant criteria, and this problem is further accentuated by highway improvements affecting a wide range of community interest groups whose evaluations of the criteria differ and whose membership and attitude to highway improvement will change during the route planning process.

Technical approaches that purport to summarize environmental impact do not take into account these social and psychological dimensions. Elegant techniques like cost-benefit and cost-effectiveness analysis, relative weighting of selected community criteria, and goal matrix methods that assess impact on different interest groups, all assume that people know what they want in advance (1, 2, 3). A social welfare function is presumed to exist within the affected community against which alternative freeway corridors can be evaluated. These methods are designed to "discover" this social welfare function and to summarize environmental impacts insofar as they affect community values. They are not designed to assist development of an attitude toward the freeway proposal.

Public hearings suffer from the same defect. They are widely used in freeway planning as a means for presenting the results of technical studies and are presumed to allow the public an opportunity to comment on the plans. Unfortunately, scheduling of the public hearing tends to polarize community opinion based on little information. Instead of tolerant discussion of the broad question of values and goals, they resemble protest rallies. Contributors speak with the fervor and earnestness of those committed

to a particular position, rather than as spokesmen for groups willing to seek negotiated solutions.

Elsewhere I have argued that attitudes toward highway improvement are not known in advance (4, 5). Individuals do not initially have well-defined preferences for alternative freeway proposals. Perception of the proposals is confused, and opinions are held without conviction. Preferences are developed during the decision-making process and influenced by the manner in which information is received. A consistent attitude is developed only after the decision. Therefore, the previously mentioned attempts to calculate the socioeconomic impact of a freeway proposal in advance of the decision are without merit. What is needed is a strategy of community involvement that permits diffusion of reliable information about the freeway proposal and the monitoring of the developing community opinion. If begun early in the planning process and coordinated with it, this strategy facilitates incorporation of the affected community's evaluation of the beneficial and detrimental consequences of highway improvement.

VALUE ANALYSIS

Value analysis is a method for structuring community evaluation of alternative freeway corridors. (It is also applicable to the evaluation of freeway design proposals, but this is not developed here.) Essentially it is a method for ranking proposed routes in terms of their consequences for the community. It enables panels of community residents, assisted by state and local planners, to evaluate alternate routes and to make recommendations for route adoption at community meetings and public hearings.

To facilitate evaluation, concise statements of community considerations—economic, social, esthetic, and design criteria—have been prepared for the panels together with ranking sheets itemizing criteria (see Appendix). Each community consideration is weighted in terms of its impact on community development goals. The relative importance of development goals (the weighting) is determined by opinion survey methods. These are summed for each route to give a numerical score. [For additional detail and the survey research instruments developed for use in value analysis, see the author's Final Report, RTA 13945-13466 UCI (6).]

Ranking of the proposed freeway route should be done by study groups with a special interest in a particular theme. For instance, a subcommittee from the chamber of commerce could evaluate the impact on commercial areas; the school board, impact on schools; a subcommittee from neighborhood associations, the impact on residences; and the board of realtors, the impact on the tax base. Coordination for these groups should be provided by a committee appointed by the appropriate local authority.

The Highway Planner

The highway planner in value analysis is a "facilitator," or in the words of a recently completed report from Stanford University, he must pursue the role of "coordinator-catalyst" to achieve a satisfactory freeway plan (7). He must be a person who early in the planning process can clarify alternatives available to affected communities and be able to convey this information to aroused and frequently confused residents. He must be able to supply accurate answers to questions about highway impact in each community and be able to assist the community in studying opportunities for them to minimize the disbenefits and maximize the benefits from highway-related change. He must meet regularly with groups willing to study highway impact, be honest with them about uncertainty, and be able to direct them to appropriate agencies when they need technical assistance. For those accustomed to the traditional consultation-feedback strategy, it is a whole new ball game.

Community groups should be viewed as advocates for special sectors of community interest rather than opponents of highway improvement. The "public interest" is a myth in the metropolitan community. If community goals are to be incorporated into the planning process, then the highway planner, like an arbitrator in an industrial dispute, must assist the various groups to articulate their interest. Only when positions are clarified can negotiation proceed and satisfying changes be made in the freeway system.

Implementing Value Analysis

In order to test the applicability of value analysis, the California Division of Highways sponsored implementation in the central Los Angeles community of Compton where alternate routes for the Industrial Freeway (Route 47) were to be evaluated. The author served as coordinator-catalyst. The following sections summarize findings from the research project in reference to (a) changes required in the California route location procedures and (b) the benefits from citizen participation in Compton.

CALIFORNIA ROUTE LOCATION PROCEDURES

In order to implement value analysis the California Division of Highways would have to modify its present route location procedure to increase community participation (Figs. 1 and 2). The Division of Highways would utilize the Community and Environmental Factors Unit to conduct social and economic studies, which, together with geometric studies, would be used to select alternate corridors. Additional studies would be conducted at the request of the affected community. Where possible, it would be an advantage to have studies requested by the community conducted by an independent consultant in cooperation with the affected community. (For selected routes, the California Division of Highways has recently initiated this strategy of community participation. Private consultants serve as coordinator-catalysts.)

The role of the local community is expanded. Staff from the Division acts as a catalyst for the creation of citizen groups to study routes proposed by the Division and the community. The success of this approach will depend on the skill that highway planners are able to exercise in facilitating realistic appraisal of the alternatives by different community groups. This can be accomplished by assigning specific study tasks to panels of community residents. Technical assistance is provided by the Division, the local staff, consultants, or community residents who possess specialized skills.

An advantage of value analysis is that it allows individuals in the affected community to participate meaningfully in the route evaluation process. Usually residents have negative attitudes toward a bisecting freeway, but through the analysis of consequences of highway improvement in relation to community objectives, they encounter evidence that is contrary to their previous opinion. This creates psychological tension, a drive-producing state that either leads to attitude change or to rejection of the favorable evidence.

By using panels of opinion leaders from the community to choose a preferred freeway location before opinion has polarized to decision, residents are involved in a dissonance-producing situation. [Cognitive dissonance is a relatively simple theory that explores how people resolve beliefs that are discrepant with each other by seeking evidence favorable to the opinion and depreciating unfavorable evidence (8).] The panels thoroughly examine the consequences for the community of each alternative freeway route and are expected to arrive at a decision in a democratic manner. Dissonance is created because the decision is difficult to make, as it will affect directly and indirectly the entire community. The choice is complex and the stakes are high. But once the decision has been made, panel members tend to inflate the benefits of the chosen alternate. Panel members, as opinion leaders, are people with some political skill, and by being better informed as a result of their panel responsibilities they are able to be influential when it is time for persuading other members of the community to endorse the recommended alignment.

Value analysis facilitates meaningful citizen participation when choosing between alternative freeway plans. The highway planner, as the coordinator-catalyst, not only obtains information on community criteria but also creates a body of well-informed community opinion to support the decision and subsequent efforts to plan for the beneficial integration of the freeway with urban development.

CITIZEN PARTICIPATION IN COMPTON

Compton is an older suburban community in south-central Los Angeles. Highway improvement could stimulate commercial and industrial areas as well as provide incen-

tive for redevelopment of the most dilapidated residential areas with apartments. However, residents in this middle-class, predominantly black community fear relocation. They are proud of their control of government and schools, and their residential choice is limited by the refusal of whites to share social space with blacks.

The Industrial Freeway (Route 47) originates at the Long Beach Harbor and extends to the Santa Monica Freeway (Route 10) in downtown Los Angeles. It would link Compton with two major employment areas, between which there would be a heavy traffic flow. Although the route has appeared on several published maps, little preparation for the route through Compton had been made other than to designate the old Pacific Electric Railroad (now operated by Southern Pacific) as the possible route.

When the research project began in 1968, community leaders had no knowledge of alternative routes or how they might proceed to study the alternatives or even the possibility of selecting new routes. Appointed officials (technical staff) with whom the Division of Highways had maintained contact were aware of the possibilities, but the city was in the midst of an administrative change. Shortly thereafter both the city manager and the planning director resigned and the city engineer retired. The benefits of coordination with the local technical staff were lost, and, in addition, newly elected officials had no commitment to decisions made by previous city councils. If the local community was to contribute to the freeway planning process, a new strategy was required. At the invitation of the City Council, the value analysis procedure was initiated so as to afford the community an opportunity to evaluate the alternative freeway alignments.

Value Analysis

A Transportation Committee was appointed by the City Council and charged with two activities: (a) to evaluate the benefits and disadvantages of the two proposed freeway corridors and recommend to the Community Development Advisory Board, Planning Commission, and City Council the corridor that would be most beneficial and least detrimental to Compton; and (b) to recommend improvements in public transportation.

Although this report is concerned with the first charge, it is appropriate to note that the Transportation Committee initiated an application for an Urban Mass Transportation grant and assisted in the creation of a new bus system. The integration of public transit and freeway planning proved advantageous. The Committee was aware of the possibility of utilizing the freeway corridor as a rapid transit route for buses and eventually fixed rail systems. Also, when there was little progress on the freeway issue, the Committee directed attention to improving local transportation. Effort here produced results that enabled Committee members to report accomplishments.

Community Meetings

An active program of community meetings was initiated so as to provide accurate information on the freeway plans and to gauge community sentiments. Members of the Transportation Committee conducted neighborhood meetings. These were supplemented by widely publicized meetings when engineers from the Division of Highways were invited to discuss the freeway proposal and to answer technical questions about public hearings, land acquisition, and relocation assistance.

Whenever feasible, members of the Transportation Committee presented the information at public meetings. They were trained by the author in his role as advisor (coordinator-catalyst) to the Committee and provided with maps, diagrams, and descriptive information. Specialists from the Division of Highways and technical staff from the city were present but were not asked to lead discussions. Residents of the affected community are more convincing than external experts when discussing a controversial issue like a bisecting urban freeway.

Ranking Alternative Routes

In addition to diffusing reliable information about the freeway proposal, the Transportation Committee also studied the beneficial and detrimental aspects of the proposed alternate routes. This task was assigned to study panels.

To facilitate evaluation, concise statements of community considerations—economic, social, esthetic, and design criteria—were prepared together with ranking sheets itemizing the criteria (Appendix). Each summary was reviewed by the Transportation Committee to ensure that the language could be easily understood. Groups outside the Committee were then asked to evaluate the proposed routes in terms of specified criteria. For instance, a subcommittee from the Chamber of Commerce evaluated the impact on commercial areas; the school board, impact on schools; a subcommittee from the Model Cities Steering Committee, the impact on residences; and the Board of Realtors, the impact on the tax base.

To assist evaluation, each route was divided into sections: northern, central, and southern. This permitted separation of the commercialized central section from residential areas. Potentially this could create a situation where in the northern segment the red route is preferred and in the southern segment the blue. The committee recognized this possibility, although it did not occur, and was prepared to ask the Division of Highways to study a composite alignment.

Various methods are available for establishing the value function between criteria and each route. A simple method is preferred when working with panels of residents because it is the learning derived from the evaluation rather than the results that are important. In the table in the Appendix each proposed route is ranked according to a "most beneficial-least detrimental" criterion. A consistent numerical grade (in this study 50) is given to the "most beneficial-least detrimental" route. If the other alignments together would be "more beneficial-less detrimental" than the first ranked (i.e., two routes better than one) then their sum should exceed 50; if not, their total would be less than 50. The scores are adjusted so that the total over all routes does not exceed 100 (9).

Weighting for Community Goals

Ranking of alternative routes by citizen panels is but one stage of value analysis. Each criterion must also be weighted in terms of its importance to community development goals. In Compton the weights were determined by an opinion survey and adjusted after discussions with elected officials and members of the Community Development Advisory Board.

The ranking score for each sector times the weight yields the product for each criterion. These were summed for each alignment by sector to give a numerical score that summarized community evaluation.

Criticism of value analysis results from attempts to sum the rank values for each element and the subjectivity of methods for weighting community goals. Values dependent on the ranking of alternative routes are on an ordinal scale and therefore cannot justifiably be summed as suggested in the Appendix. They are consistent between routes on each criterion but not between criteria. For instance, the importance of highway improvement will be greater for industrial than for recreational land use. [Attempts to develop a formally correct scale (a social welfare function for freeway routes) are summarized in Fielding (4, pp. 117-119).] Weighting by community preference partially remedies this deficiency but does not eliminate the problem of aggregating outcomes measured on different scales. However, to leave each line of each table as a separate assessment places too heavy a burden on those charged with making the decision. As the ranking is applied in a similar manner to all alternatives, and as the items of each category are relatively similar, aggregation of each table is suggested. Aggregation of the separate tables into a single index of value should be avoided. A table summarizing the results of each subdivision table clarifies the order of preference.

The advantage of value analysis is its simplicity and the opportunity it affords for community participation. It is a device designed to allow meaningful participation of a wide spectrum of community interests. Although better methods of assigning values for rank and weights are needed, this limitation is not critical. The primary purpose in Compton was not to achieve a numerical score but to involve residents in the study of the beneficial and detrimental aspects associated with each of the two proposed routes.

ANALYZING COMMUNITY OPINION

In order to monitor the effect of value analysis on community opinion, a series of three opinion surveys was planned. Because of delays in the route planning process, only the first wave was completed after value analysis had been initiated.

In the initial wave 353 households were selected for interview.¹ Subjects were asked to respond verbally to a series of questions designed to determine opinion to alternative freeway alignments over four themes: convenience, esthetics, cost, and community advantage. The responses on the items comprising each theme were pooled and converted into means for each theme so that the theme scores for each subject represented a continuous measure and were comparable in spite of differing numbers of items for the different themes.

For each theme there were three dimensions for response: preference for the red versus the blue route, the intensity of this preference, and the importance of the particular content of that item for choosing between the two routes. On the intensity and importance dimensions, the respondents had three response categories. The preference dimension was, of course, dichotomous. To create greater comparability with the other two dimensions, a range of three was artificially imposed on the preference data by coding a choice of the blue route as 3 and a choice of the red as 1. The several items comprising the theme were summed and divided by the number of items (that is, they were converted into means) so that for any given dimension of response there would be comparability across the four themes.

Data were analyzed by analysis of variance. They constitute a completely crossed, within subject, 3×4 factorial design, in that there are scores for all subjects on all four themes and on each dimension of response. A comparison between opinions of the community at large and those of members of the Transportation Committee are presented graphically as Figure 3.

A confused pattern of opinion is exhibited by the random (community) group. The red route is preferred on all four themes, with preference most strongly felt for the cost and esthetic themes. Community advantage is intermediate, but not substantially different from convenience, which shows least, almost ambivalent, preference for the red route (2 indicates "no preference"). The pattern of means across the other two dimensions of response—intensity and importance—are strikingly consistent with each other and differ from the pattern for preference. For these dimensions of response, cost is again the most critical theme, community advantage is second, esthetic considerations is third, and convenience is last. The cost factor is clearly strongest, and community advantage is second. This outcome stands in contrast to the pattern on the preference dimension; there, esthetic considerations were second.

By comparison, the decision-making group (members of the Transportation Committee) expressed a stronger preference for the red route, and the structure of their opinion differs significantly from the random group. They regard convenience and esthetic considerations as more important for freeway planning than does the community sample. Committee members are better informed as to the community consequences of highway improvement. They are able to distinguish between the personal, local, and statewide benefits of proposed routes as indicated by the greater variance on the preference dimension and the intensity with which opinions are held.

The pattern of community opinion toward the freeway proposal is complex. The red route is favored, but there are inconsistencies. Responses from the random group indicate that the cost theme is paramount. This may reflect the community's opinion of governmental decision-making processes rather than preference for community develop-

¹Based on the 1960 census. The level of accuracy is such that 95 percent of the entire population will hold opinions within 6 percent of means reported. Interviews were conducted by the Survey Research Center of UCLA. There were three sections: (a) written responses seeking general attitudes to freeways; (b) oral responses to questions about the impact of the proposed alignment; and (c) enumerator-collected information and responses to questions on characteristics of respondents. Copies of the survey instrument are available in the previously cited Final Report (6).

ment objectives. A more differentiated evaluation of the consequences of proposed routes is exhibited by the Transportation Committee. As the result of study, they have developed a selective view of the freeway proposal and emphasize the importance of the esthetic theme on which they hold the strongest preference.

The confused pattern of opinion exhibited by the random (community) group illustrates the difficulty people have when they attempt to conceptualize the environmental impact of the freeway before it is built. It is for this reason that attempts to estimate environmental impact by assuming that affected groups know what they want in advance seldom satisfy the affected community.

NEW DEVELOPMENTS

Local and regional highway problems have delayed completion of route studies for the Industrial Freeway through Compton and prevented testing the duration of the opinion change hypothesized to result from value analysis. At the regional level, east-west routes in the Los Angeles Basin are required more urgently than north-south routes, and at the local level, a new alignment has been suggested by the Transportation Committee that the Division of Highways has agreed to study.

As a result of value analysis, the superiority of the red (Willowbrook) route became apparent. It parallels an existing railroad barrier, would have a beneficial impact on commerce and industry, and displaces primarily dilapidated housing. However, this route would separate the central business district from the planned City-County Administrative Plaza. The Transportation Committee had already recommended to the City Council that they seek to have the Willowbrook railroad tracks relocated alongside the Alameda tracks. When this appeared feasible, because of changes required by construction of Interstate Highway 105 to the north, the Committee recommended to the Council that a new route for the Industrial Freeway be studied that would parallel the Alameda railroad and allow both the freeway and railroad to be depressed. This would remove another east-west barrier in the City, improve transportation on local streets and avoid separation of the business district from the Administrative Plaza.

The initiative was provided by the Transportation Committee. However, their willingness to act was aided by their increased knowledge of transportation planning achieved through value analysis and the advice provided by the coordinator-catalyst. The author maintained a close liaison with the Advance Planning Section of the Division of Highways and was able to suggest changes, of which the community might otherwise not have been aware, and have these changes appraised by highway specialists without undue delay.

The additional study the new route will require, together with the interest displayed by Los Angeles City and County, who are affected by the freeway, has delayed the route hearings. However, the attitude change already observed for members of the Transportation Committee, and the manner in which they have managed transportation planning for the city, demonstrates the advantage of value analysis as a strategy of community participation.

CONCLUSION

Choosing locations for urban freeways is a political task. Elegant techniques for including community preferences into decision-making formulas are not going to resolve the political problems that mire most freeway decisions. The freeway proposal represents a major challenge to any community. It is probably the single most important development decision ever faced. It has different consequences for a wide range of interest groups, and, because it threatens to change known ways of life, it will be feared and possibly opposed. The real challenge is to design a communication system that will facilitate the diffusion of reliable information about the consequences of highway improvement, the community benefits that can accrue from an appropriately located and esthetically planned freeway, and how disadvantages can be minimized by prior planning.

Utilization of the value analysis approach allows the community to choose between alternative freeway plans with full knowledge of the consequences of each. If all routes are unacceptable, this will become apparent in the early stages of panel discussions and from "opinion" surveys. If there is support for another alignment, this can be

studied and the technical details surrounding this possibility presented to a receptive panel. But where there is an acceptable alignment, this technique can create a consistent and lasting set of opinions toward the alternative that proved to be most beneficial and least detrimental to the community.

ACKNOWLEDGMENTS

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APPENDIX

COMMUNITY CONSIDERATIONS

The following concise statements of community concern were developed for use by the transportation committee in the study community. Tables to assist value analysis as described in the text are only included, for economic considerations. Remaining tables are included in the Final Report cited in reference 6.

Four categories—economic, social, traffic improvement, and design—were used to summarize the direct and indirect impact of highway improvement. Many of the items are general and may be applied in other communities. Others are specific and will need to be modified to suit different situations. They are presented here in summary form as a guide rather than a universal set.

Table E.

ECONOMIC CONSIDERATION _____

NAME _____

TIME PERIOD: BEFORE/AFTER COMPLETION _____

DATE _____

SECTOR: SOUTHERN/CENTRAL/NORTHERN _____

CATEGORY		ROUTES			COMMUNITY RATE	ROUTE - RATE			COMMENT
Code	Item	RED Willowbrook	ORANGE Tamarind	BLUE Oleander		RED	ORANGE	BLUE	
E 1	Residential								
	A Single Family								
	B Multiple Family								
E 2	Commercial Property Values								
	A Shopping Center								
	B Central Business District								
	C Neighborhood Centers								
*E 3	Commercial Relocation								
E 4	Industrial Property Values								
*E 5	Industrial Relocation								
E 6	Employment Centers								
*E 7	Property Tax Base								
	A Residential								
	B Commercial								
	C Industrial								
	D Utilities								

TOTAL

Economic Considerations

E-1 Residential Property Values: This is an index of the change in value of residential property due to highway improvement. Residential property near urban freeways usually increases in value because of improved accessibility. Additional value increases occur where a change to multiple-family dwellings is likely to occur. Residential areas that consist of buildings nearing the end of their useful life are most susceptible to the change, and transition is accelerated by freeway activity. Value change will also depend on freeway grade distance from structures and proximity to ramps. There are two subdivisions: (A) single family and (B) multiple family. You should give the highest score to the route most beneficial-least detrimental to each item.

Note: If you feel that residential areas affected are in poor condition and that forced relocation into decent, safe, and sanitary housing would be to an advantage to the community indicate under social considerations (S-2).

E-2 Commercial Property Values: Commercial property values are closely associated with earnings. With a mobile population, accessibility (convenience) is a principal determinant of business activity. Superior access is critical for large shopping centers and central business districts but is less important for neighborhood centers. Proposed interchanges are marked. Give highest score to the alignment that is most beneficial to business activity. Consider existing and planned future commercial sites as well as land that you consider suited for

commercial development (or redevelopment).

- E-3 Commercial Relocation: Commercial property may be required for the right-of-way or business might be located in an undesirable site due to inconvenience during construction. This item is relevant only to the period prior to completion. Give highest score to the route that will be least detrimental to existing business activity. If you feel that the business areas affected have deteriorated and forced relocation may spark modernization, indicate that by higher ratings for routes causing relocation.

- E-4 Industrial Property Values: It is an advantage for industrial and manufacturing plants to be located adjacent to freeways. Movement of goods and employees is facilitated and advertising is provided. Highest score should be given to the route most beneficial to industrial and manufacturing plants. Include existing plants and planned industrial areas as well as areas that you consider to be well suited for industrial development (or redevelopment).

- E-5 Industrial Relocation: Industrial sites are major generators of economic development. Alignments that remove industrial or manufacturing sites should be given a low score unless forced relocation would be to the community's advantage. If there is available land nearby for development and the industrial facilities are either poorly placed or in poor condition, relocation would work to the advantage of the community. A higher score should be assigned to the route forcing relocation. Do not assume that all or even most of the property removed for highway will be lost to the community unless there is reason to believe that relocation "within the community" is unlikely.

- E-6 Service to Employment Centers: This is from the point of view of residents rather than commercial or industrial property values. Which alignment would be the most convenient for employees traveling to major centers of employment, both within and outside the community? The most convenient should receive the highest score.

- E-7 Property Tax Base: Which route would remove the least property by value from the community tax rolls? This route should receive the highest rating. This item is relevant only to the 0-5 year period because, after completion, benefits from highway improvement normally offset any loss in the former tax base. There are four subcategories: (A) residential, (B) commercial, (C) industrial, and (D) utilities.

Social Considerations

- S-1 Neighborhood Identity: Freeways can either reinforce neighborhoods by creating appropriate boundaries or they can disrupt established neighborhoods. Higher scores should be given to routes that avoid disruption. If it is your opinion that these neighborhoods ought not to be preserved, then reflect this by giving higher scores to disruptive routes. Three types of neighborhood are identified: (a) residential, (b) commercial, and (c) industrial. Where the freeway will provide a suitable boundary between conflicting land uses, this should be regarded as a community benefit.

- S-2 Residential Relocation: Freeway construction usually requires resident relocation. Although direct costs are reimbursed, most people are distressed by the prospect of enforced relocation. The route causing least relocation should receive the highest rating unless residents desire to relocate or if residents would benefit socially from forced relocation into decent, safe, and sanitary housing. This item is relevant only to the period before construction. Relocation after con-

* Relevant only to period prior to completion of freeway.

struction is to be evaluated in terms of the effect of relocation on schools and business activity.

S-3 **Boundary Zone:** Land uses in cities have not always developed in a complementary manner. Where a proposed freeway route separates conflicting land uses (e.g., industrial and residential), then this is a benefit. Care should be exercised when assessing this item because a mix of land uses is not necessarily detrimental. Different scores should be assigned only when routes are clearly beneficial. Separation of people of different social or ethnic character is not beneficial to community development.

S-4 **Social Facilities:** Certain buildings and areas like schools, churches, community centers, and parks provide centers for community activity. They represent a community value, and the route that is least detrimental to the use of these facilities should be rated highest. Both access and the effect of noise ought to be considered. Separate categories are provided for each of the above-mentioned facilities.

S-5 **Relocation of Social Facilities:** In some instances schools, churches, community centers, and parks must be relocated. Normally freeways avoid these facilities, and highest rating should go to the least disruptive route. However, in some instances relocation or redevelopment through land trading is beneficial to the community. Your score should reflect both the social cost of change and the benefit to be derived from relocation in new facilities.

S-6 **Public Facilities:** The provision of adequate police and fire protection necessitates superior access within the community. Freeways can either enhance this service by improving communication or obstruct it by blocking streets leading from exist-

ing or planned facilities. Highest rating should go to the route providing the least detrimental-most beneficial service.

S-7 **Relocation of Public Services:** Normally freeways bypass public buildings, and highest rating should be given to the route that is least disruptive. However, if you feel that it would be to the community's benefit to relocate the structure, then reflect this in your rating score.

S-8 **Community Identity:** Which route do you believe would be more consistent with the view of most residents on how the community ought to develop? You should give the highest score to the route you feel would be more satisfying to the community's perception of future development.

S-9 **Preservation of Historic Sites and Areas of Unique Character:** Such buildings and areas provide diversity and human interest to the city. Routes that avoid these places and divert through-traffic enhance the quality of urban life and are beneficial.

Traffic Improvement Within the Community

Note: Traffic facts and figures (flow and accident data) must play an important role in proper rating of this element. Both state and city engineers can provide this information for major streets in the community.

T-1 **Distance Within Community:** The route with minimum length within the community has a political and social advantage. Give the shortest route the highest score and assign remainder in proportion to length.

T-2 **Traffic on Local Roads:** If the freeway relieves congestion on local streets, this is an advantage. However, if the location of proposed interchanges will intensify traffic on already overcrowded streets, or into areas without adequate parking, then this will be detrimental to the community. Examine local traffic

* Relevant only to period prior to completion of freeway.

needs and capacity and rank the routes in terms of their comparative advantage to the community.

- T-3 **Disruption of Traffic Flow:** Although underpasses or overpasses are provided, some roads are closed by the freeway and detour is necessary. This difficulty is compounded if service roads parallel to the freeway are not provided. Compare the dislocation and traffic diversion caused by each route that causes the least dislocation.
- T-4 **Accessibility to Local Users:** Differing location and position of interchanges may result in differing accessibility to the freeway. Give the highest score to the route that will provide the best accessibility.
- T-5 **Adaptibility for Public Transit:** Routes that are located near population concentrations and can be adapted for multipurpose transportation development have a community advantage. The route that best lends itself to the development of public transit should receive the highest score.

Design Criteria I

User Considerations: This section should be completed with the aid of plans and models supplied by the Highway Division.

- D-1 **Geometrics:** Capacity of the freeway and avoidance of steep grades and monotonous dead-straight sections are beneficial attributes. Routes that accomplish these attributes should receive higher scores.
- D-2 **Safety:** In order to avoid public facilities some routes may require curves that, although technically safe, will provide a hazard or slow traffic. Highest score should be assigned to the route that avoids potential driving hazards.
- D-3 **Control Points:** The accessibility of on and off ramps from both the freeway and arterial roads is important to users. Freeways where the approach is difficult because of design

or length or where the control points are too far apart or too close are detrimental to users. Evaluate each route and give the highest score to the route that offers the best combination of safety and service.

- D-4 **Scenic to Users:** By facilitating glimpses of the cityscape, pleasant driving experiences can be provided that relieve monotony and increase the driver's orientation to the city. Knowledge of attractive vistas can be improved by scenic turnoffs, and ugly areas can be shielded. Give the highest score to the route that offers the most scenic route for road users.

Design Criteria II

Community Considerations: This section should be completed with the aid of community development plans.

- D-5 **General Plan:** Does the freeway respect the general plan of the community? The best case is the route that is consistent with a comprehensive plan for the whole area.
- D-6 **Transportation Plan:** Does the freeway complement other existing and proposed transportation elements? The best case is the route that forms a transportation corridor with other transportation elements. It facilitates the sector development of an urban area. The worst case is where a route is unrelated to other elements.
- D-7 **Relation to Existing Streets:** Routes that are parallel or at right angles to local streets are more beneficial. This minimizes obstruction and reduces the number of properties taken or damaged by partial purchase for the right-of-way.
- D-8 **Integration Into Cityscape:** Is the freeway designed so as to complement local buildings? In the best case the design of the freeway (elevated, at grade, depressed) conforms in scale to the buildings and terrain amid which it passes.

- D-9 **Enhancement of Local Vistas:** Freeways may complement or obstruct local vistas. An attractively designed and appropriately located freeway can complement local views. Evaluate each route and assign highest score to the route you consider to be most beneficial-least detrimental.
- D-10 **Setback Area:** The amount and type of land allowed for setback can offset problems of noise and air pollution adjacent to freeways. In the best case a wide right-of-way is provided to protect urban areas and allow for expansion. A frontage road may be part of the setback area, but in the best case it is landscaped with trees and shrubs.
- D-11 **Noise Abatement:** Various means are available for noise abatement. These are critical when freeways pass near institutions and social facilities. In the best case adequate provision is made for noise abatement along the entire length of the freeway. In the worst case no provision is made even near schools and hospital buildings.
- D-12 **Air Pollution:** Vehicles on freeways are a primary source for air pollution. Both the design of the freeway and the use of the setback area can reduce the intensity and spread of air pollutants. Evaluate each route and give the highest score to the route that is most successful by location and design in reducing air pollution. Assistance from metropolitan air pollution control agencies should be sought in appraising different designs and locations.
- D-13 **Nonvehicular Access:** Pedestrian, bicycle, and equestrian access can be provided if requested in advance. Each route should be evaluated in terms of its provision for nonvehicular access. Where airports are adjacent to the corridor, consideration should be given to future extension of runways.

COMMUNITY VALUES: A STRATEGY FOR PROJECT PLANNING

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A proposed strategy for project planning, location, and design, with emphasis on the approach to community values and other related social and environmental factors, is described. Five aspects of the strategy are discussed: (a) the objective of the location-design process; (b) the desired process dynamics and a recommended 4-stage process strategy of initial survey, issue analysis, design and negotiation, and ratification; (c) the principal roles, activities, and organizational structure implied for the team of individuals having responsibility for a project study; (d) the dangers of the approach as perceived by a highway agency and a community; and (e) the applicability of the approach to system (network) planning and other public policy problems.

•THERE is today a widespread professional and public desire to improve current approaches to the planning, location, and design of transportation projects. This feeling is a result of several factors: recent national environmental legislation and court rulings; changes in people's values and priorities; and changes in the range of options that the public perceives as being open to them for decisions about transportation and the use of land and other resources. The desire for improved procedures, and thereby improved "products," is increasingly important to all of us: to community residents, as reflected in the number of highway conflicts and the increasing difficulty of obtaining design approvals; to elected and appointed officials, as reflected in recent legislation such as the National Environmental Policy Act and the Federal-Aid Highway Act of 1970; and to transportation professionals, as evidenced by the efforts within national, state, and local transportation agencies directed at improving procedures for dealing with social and environmental impacts.

This call for change is typified by Section 136(b) of the Federal-Aid Highway Act of 1970 calling for:

... guidelines designed to assure that possible adverse economic, social, and environmental effects relating to any proposed project on any Federal-aid system have been fully considered in developing such project, and that the final decisions on the project are made in the best overall public interest, taking into consideration the need for fast, safe and efficient transportation, public services, and the costs of eliminating or minimizing such adverse effects. ...

Section 102(2)(C) of the National Environmental Policy Act of 1969 regarding environmental impact statements has received much attention because of its immediate effect on state highway agencies with regard to reporting requirements. Perhaps more significant parts of this Act, however, are 102(2)(A), calling for "... a systematic, interdisciplinary approach which will insure the integrated use of the natural and social sciences and the environmental design arts in planning and in decisionmaking which may have an impact on man's environment"; and 102(2)(B), "... identify and develop methods and procedures, in consultation with the Council on Environmental Quality

established by title II of this Act, which will insure that presently unquantified environmental amenities and values may be given appropriate consideration in decisionmaking along with economic and technical considerations; . . ."

The conclusion to be drawn is that piecemeal improvement of individual techniques concerning prediction of particular kinds of impacts, community participation, joint development, evaluation, etc., will not be satisfactory in meeting the full intent of these requests for change. What is needed is a basically new approach in which the full set of activities of a location team are carefully coordinated and staged in response to a dynamic process.

This paper describes a proposed strategy for project planning, location, and design. While this overall approach is supported by in-depth investigations of individual activities such as community interaction, these portions of the research are not described. This work is based on approximately three years of research, case studies of several cities in which highway proposals have resulted in significant public controversy, and a period of field testing and implementation on an actual project located in a large metropolitan area (1).

THE OBJECTIVE OF THE PROCESS

The proposed approach reflects several conclusions about the nature of the location-design process and the role of the location team in carrying out that process. In particular:

1. Significant changes in current attitudes and work styles of highway agencies are necessary if social and environmental criteria are to be more effectively incorporated into transportation analyses.

2. It is impossible to get a consistent and operational statement of the values of a community since individuals cannot state their own values in the abstract and since the values of different groups are frequently in conflict.

3. There is a need to redefine the role of the highway professional to be more consistent with overall democratic principles, with new laws and guidelines, and with the changing values of society.

4. A location team should work to enhance the political process by stimulating the constructive involvement of interest groups and individuals who do not usually participate as well as those who usually do.

5. A location team must be fair, open, and responsive in its interactions with all elements of the community. Efforts should be made to make each potentially affected interest group aware of the issues and to give each interest group every opportunity to make its voice heard throughout the decision-making process.

6. The principle of equity should be implemented such that no group bears an unfair cost that is not compensated and such that enduring values unrelated to any group (historical, ecological, etc.) are carefully considered in the decision.

7. In the process of reaching a decision, there must be opportunity for meaningful negotiation among conflicting interests in order to reach agreement on what comprises an equitable distribution of gains and losses.

These ideas imply that the objective of the location team is to achieve substantial, effective, community agreement on a course of action that is feasible, equitable, and desirable. To clarify this statement, the terms used are defined as follows:

1. "Location team": The location team is that organization of professionals that has the task of doing studies of alternative highway locations and designs. This team may have as few as 2 or 3 professionals or as many as 100. It may be an element of a state department of transportation or other state or local agency, or a metropolitan planning council, or a consulting firm hired by such agencies.

2. "Course of Action": Although a highway is the major program element under consideration, highway plans need to be coordinated with a variety of public and private actions—for example, relocation assistance plans, programs for the construction of replacement housing, air rights construction, multiple uses of rights-of-way, joint development, Model Cities and other area-oriented community action programs, job

training, wildlife refuge development and other conservation measures, and rehabilitation of historical sites. The development of a highway through an area is a stimulus to constructive public and private actions to enhance the area as a whole through coordination of the highway plan with other actions. The courses of action with which the location team will deal must involve many of these elements.

3. "Feasible": The course of action must be feasible technically, economically, fiscally, and legally. In some circumstances, this may require the location team to stimulate changes in law or administrative interpretation.

4. "Equitable": The construction of a modern limited-access type of highway in an urban area constitutes a major intervention in the fabric of the city. If there are groups that receive undue burdens, equity and fairness require that they be compensated more than adequately.

5. "Desirable": After the course of action has been developed and tailored to be feasible and equitable, the benefits should still be sufficiently great so as to justify the costs incurred, if the action is to be implemented.

6. "Community": A pragmatic definition is applicable in this context: the "community" consists of all those individuals and groups who potentially will be affected, positively or negatively, by any of the courses of action being considered. The "community" so defined is composed of diverse groups; for example, highway users, local residents, local businesses and industries, historical and environmental interests. Our use of the term "community" does not imply a single formal political jurisdiction; in metropolitan areas, it may well be all the municipalities, some portion of them, one alone, or only a part of one city, depending on the scale of the location project.

7. "Substantial Agreement": It may be impossible to get total agreement from all the interests affected, but the location team should strive for this as an objective. The existence of any sizable group opposed to the course of action may indicate that there is a legitimate interest that has not been addressed adequately in developing the action. To the maximum extent possible, effort should be devoted to identifying and understanding this interest and to developing a component, or modification, of the course of action that responds to it.

8. "Effective Agreement": To be "effective," the process must involve all affected groups in reaching agreement. These groups must be confident that their views, needs, and suggestions have been fully considered and taken into account; that the location team is credible, open, and professionally knowledgeable; that there are no surprises or hidden arrangements; and that the agreed-upon course of action is indeed equitable and desirable from the different points of view of all the diverse elements of the community.

To reach this objective, the location team must ensure that (a) a wide range of meaningful choices is developed; (b) the facts about the incidence and magnitude of possible impacts of each alternative are developed and made available impartially to all interested parties; and (c) every effort is made to make each potentially affected interest group aware of the issues and to give each interest group an opportunity to make its voice heard throughout the process of reaching a decision.

We do not presume that it is feasible or even desirable to get an explicit, complete, and operational statement of the values of the community. Rather, we focus on the pragmatic objective of agreement; finding out values would only be a means to that end anyway.

To achieve this process objective, the mission of the location team is to clarify the issues of choice, to assist the community to reach a decision on what is best for itself.

Open debate about alternatives and their consequences is essential if the community is to be aroused sufficiently to inform and involve itself, and this is a necessary condition for a decision to be meaningful and lasting. The location team must work to stimulate such debate by bringing out the key issues of choice.

The no-build or "null" alternative must be one of those considered, and the consequences of deciding on the null option must be laid out as are the costs and benefits of alternative proposed actions. If some action other than the null action is to be selected, then the location team must provide sufficient information so that the community

as a whole becomes convinced that the course of action is worthwhile in comparison (once the condition of equity has been met). Another way of putting this is that "progress" per se is not desirable; only progress that meets the conditions of equity and substantial community agreement is desirable. Explicit, open, and objective discussion of the null alternative will provide a basis on which to judge action alternatives.

Fundamental to this approach is the premise that there is no single political or institutional mechanism through which all interest groups potentially affected by a highway decision can make their voices heard effectively. If there were such a mechanism, then the role of the highway team would be to serve as professional staff supporting it and to assist it in developing and analyzing alternative courses of action. Even in this case, it is quite likely that the proposed approach would provide a useful guide for a location team.

The task of the location team is much more complex, however, because in metropolitan areas there is a multiplicity of local, county, metropolitan, state, and federal agencies that play some role in highway planning. The kind of process the location team executes must provide a focus not only for the interaction of formal political institutions but also for the participation of those groups that do not find effective representation through these institutions.

PROCESS DYNAMICS: A FOUR-STAGE STRATEGY

A strategy for the kind of planning process we are recommending must be sufficiently flexible to facilitate changes as new knowledge is developed. Although the exact details of what is done must be determined for each study, we believe a basic four-stage strategy will be useful. The four stages of the basic process strategy are as follows:

1. Initial survey;
2. Issue analysis;
3. Design and negotiation; and
4. Ratification.

Initially, the location team has relatively little conception of the issues or of the alternative actions open to it. As it works with the location problem in interaction with the community, the issues become clearer; and, as the issues become defined and a range of meaningful alternatives has been developed, negotiation of an equitable compromise can begin. In this negotiation process, the location team acts as a catalyst while retaining primary authority over engineering issues that are its legal responsibility. Finally, either substantial, effective agreement is reached or, resources having been expended, the decision is passed to higher authority.

Within each phase of this process strategy, location team resources are assigned to ongoing activities according to the relative priorities of each activity and the particular talents and specialties of the team itself. The specific allocation of team resources will depend on the current issues as well as on the scale of the project and the resources of the location team.

Stage 1: Initial Survey

The objectives of the location team in the first stage are to acquire basic social, economic, political, transport, and environmental data and to develop an understanding of the interests, needs, and desires of all potentially affected interest groups. By the end of this stage, the team should have assembled suitable data for use in generating the initial alternative locations and related programs (joint development, relocation, etc.). Further, it should have an initial estimate of what the significant technical, social, and political issues are likely to be.

Stage 2: Issue Analysis

The objective of stage 2 is to develop, for both the location team and the interest groups affected, a clear understanding of the issues by stimulating identification and expression of conflicting values. The major thrust is on developing a wide range of

alternatives that represent basically different assumptions about the objectives to be achieved. When presented to various interest groups, these alternatives will help interests to question and clarify their own objectives and to perceive that there are significant choices to address. Ideally, all parties concerned are seeking to develop their understanding of the advantages and disadvantages of various alternatives, well before the location team has narrowed its choice to one or two alternatives.

In this stage, the location team starts to develop location alternatives. Perhaps none of these will be selected; the purpose is to get a wide range that shows the spectrum of possibilities. The team also engages in a program of direct interaction with formal and informal community groups. The information resulting from these interactions assists the location team in refining its perceptions of the interest groups and their values and feeds back to the location-design activities, stimulating the search for further alternatives. By presenting information about the alternatives and their impacts to various groups, the location team helps them to learn about the issues and demonstrates the trade-offs that might be possible.

Information about alternatives and their impacts is presented many times to groups and individuals throughout stage 2. Initially, the tone of these presentations is exploratory. Later, as alternatives become more precisely defined, the presentations will have to be made more carefully to avoid premature polarization of attitudes and positions.

By the end of stage 2, the location team should have achieved a heightened understanding of the issues in the community but without any of the groups affected becoming committed to a particular alternative. This understanding of issues is particularly important to the team's development of its strategy for the design and negotiation activities in stage 3.

Stage 3: Design and Negotiation

Only after an understanding of the technical and value issues is developed by both the community and the location team during stage 2 should the detailed development of alternative designs be initiated. The objective of the design and negotiation stage is to produce substantial, effective agreement on a single alternative. In general, this will involve a multi-faceted course of action: not only route location-design decisions, but also a package of joint development, relocation, compensation, and other programs.

As in stage 2, there are extensive technical and community interaction activities. Many additional alternatives are developed and their impacts predicted. However, where in stage 2 the emphasis was on a wide range of basically different alternatives, here the focus is on variations of several basic alternatives in order to develop potential compromise solutions.

Applying the criterion of equity will stimulate the search for ways of modifying actions to reduce or eliminate inequities—through redesign, through development of associated non-highway program elements, or through direct compensation.

Similarly, in community interaction, the emphasis shifts from concern with drawing out information on attitudes and desires to stimulating constructive negotiation. The location team hopes to achieve substantial agreement on a single equitable alternative. To effect this, it must structure a negotiation process that will prevent polarization of positions and promote rational bargaining among the affected interests.

Stage 3 terminates when substantial agreement has been reached, a complete impasse has developed, or location team resources (time, dollars) are exhausted.

Stage 4: Ratification

If agreement on a program of action has been reached in stage 3, stage 4 merely formalizes the agreement at a public hearing. The hearing cannot serve as a substitute for meaningful and constructive community interaction in previous stages of the process. If no agreement was reached, the location team can prepare its recommendation for presentation at the public hearing, together with discussion of the particular advantages and disadvantages of the alternatives and the trade-offs available. The information developed at the hearing may catalyze further negotiation, possibly resulting in agreement.

Should this fail, the team prepares its final report and recommendation on the basis of its broad knowledge of community preferences. The report contains a record of the negotiation effort and the team's most recent analysis of community preferences. Choosing an alternative is then up to the legally designated authority to which the location team reports (a state highway commission, metropolitan area planning council, etc.).

A monitoring activity should be initiated upon ratification of a course of action to detect changes that may occur between the times of approval and implementation and to initiate design revisions as necessary to account for these changes.

The four phases of the process strategy reflect the conclusion that the location team should participate constructively in the political process, in addition to developing technical alternatives and predicting their impacts. The strategy reflects the premise that some controversy is good; stage 2 is designed to stimulate controversy as a way of getting groups involved in the process. Stage 3, on the other hand, is designed to channel conflict into constructive bargaining.

THE LOCATION TEAM

The Roles of the Location Team

The proposed approach implies certain roles for a location team:

1. Agent of the responsible decision-making authority. Generally, a state highway agency, or its equivalent, has the basic legal responsibility for designing and constructing highways. While the location team may or may not be organizationally a part of this agency, it has to report its results to the agency for final decision and implementation. Thus the team must act as the agent of the higher authority throughout the planning process.
2. Technical adviser to the decision-maker. The location team is also responsible for acting as a technical adviser to the decision-making authority. In this role, it has a responsibility to develop alternatives and lay out their impacts.
3. Ombudsman and spokesman. The location team has a professional obligation to act as a voice for interests not represented in the political process. This means that, besides speaking for national interests, the interests of the metropolitan area as a whole, and the long-term interests of the future (in contrast to short-term and parochial interests), the location team should speak for those who may not be heard effectively, such as low-income communities that may be unable to organize themselves, and for those interests (ecological, historical, and aesthetic, perhaps) for which no other spokesman may exist. There is also a professional responsibility on the part of the location team to provide technical expertise to assist particular interest groups. This may extend to actually developing alternatives responsive to the needs and interests of a particular group.
4. Impartial negotiator. The location team is responsible for stimulating negotiation among interest groups who are in potential conflict. The team has to consider its role in the negotiations carefully, particularly as a bargaining party. It may have developed its own perception of what an equitable consensus might be through its continuing contact with the community. It has acquired bargaining resources in the form of proposals for relocation housing, multiple use, and similar programs.
5. Community adviser. The location team can help interest groups clarify their objectives by posing alternatives to individuals and groups. The team may help people to broaden their perceptions of the impacts of alternatives on themselves and others.
6. Impartial developer of alternatives and of factual information. Finally, there is the clear responsibility to develop a wide range of meaningful alternatives and to predict as accurately as feasible their full impacts on all interest groups affected.

These roles may be too dissimilar to be accommodated in one organizational entity, and it is possible that they may be performed by several organizations or organizational elements. However, at the present time, there seems little alternative to requiring the location team to perform all of these roles.

Location Team Activities

Five basic location team activities can be structured into an overall program of work designed to achieve the process objective of substantial effective community agreement.

Development of Alternatives—A wide variety of courses of action directed toward achieving a range of basically different objectives should be produced rapidly to facilitate effective community interaction and impact prediction. The detail of the designs should be adjusted to a level appropriate for the stage of the location-design process. Early in the process, rough sketches of many different alternatives are sufficient. As the range of alternatives is narrowed, attention must be given to the details of design and to related program elements. Alternatives considered should include alternative types of highway facilities and improvements to other transportation modes. The option of no highway construction—the "null" alternative—must always be openly and explicitly considered in all phases of the location-design process and used as a reference point for determining impacts of other alternatives.

Designers should be viewed as all those members of the location team who have responsibility for the development of alternatives. We use the term in a much broader sense than is traditional: the group of designers may include not only highway engineers but also relocation specialists, right-of-way experts, architects, ecologists, sociologists, urban designers, etc.

Impact Prediction—All significant negative, as well as positive, impacts should be identified for each course of action, whether they can be quantified or merely described qualitatively. Impact predictions should be initiated sufficiently early in project studies so that the results can meaningfully influence the alternatives being developed.

Quick and approximate impact predictions are sufficient in early stages of the location-design process when a large number of alternatives are being considered. More detailed and accurate impact predictions become necessary when a few alternatives are being given serious consideration.

The interest group affected by an impact, and the magnitude of the impact, should be identified. For each predicted impact, the range of uncertainty in the prediction should be stated explicitly.

The location team should differentiate between factual impacts and those that are conceptual in nature (not objectively measureable, but dependent on perception). This difference may be hazy, and the location team must recognize that their own perception of an impact may not agree with that of the affected interest.

Affected community interests should be involved in the identification and prediction of impacts on them. Also, displays should be prepared to assist community interests in perceiving and understanding potential impacts.

Evaluation—Evaluation is the process of appraising—throughout the location-design process—the options that have been developed by analyzing the available impact prediction information. In doing this, the location team draws on the results of impact prediction as well as the results of development of alternatives and of community interaction.

Evaluation must be thought of more broadly than simply the comparison of alternatives or the analysis of impact data. In particular, the developed evaluation method is designed to help (a) identify significant issues and the uncertainties surrounding them; (b) assess the potential of alternatives to serve as a basis for community agreement by viewing the alternatives from the perspective of each identified interest and by identifying who would gain and who would lose if an alternative were implemented; and (c) guide the management of a location team by suggesting priorities for subsequent activities involving the development of alternatives, community interaction, and impact prediction. The evaluation method treats qualitative as well as quantitative information and does not assume the existence of a consistent and well-defined set of values for all affected communities. Five kinds of issues are emphasized: (a) representation of affected interests; (b) equity of the incidence of positive and negative impacts; (c) community preferences between alternatives, including the null choice; (d) feasibility in a

technical, legal, and fiscal sense; and (e) desirability from the point of view of overall net benefit resulting from an expenditure of public funds.

Community Interaction—Community interaction is broadly defined as the two-way communication process through which the location team and the community learn about each other and work together to reach agreement on a course of action. The location team should interact with both local officials and private groups and citizens.

Objectives for community interaction are to establish and maintain the legitimacy and credibility of the location team; to determine the validity of earlier decisions; to establish facts and explore community values; to detect, anticipate, and find solutions to community problems; to communicate information about the location-design process; to gather information on local concerns, needs, and wishes; and to search for consensus on a course of action. Community interaction tasks and techniques must be selected and managed carefully with an eye to meeting these objectives. Community interaction is not a grab-bag of techniques; it is a complex undertaking that must be closely coordinated with other location team activities. Currently popular techniques such as public hearings or large open meetings, citizen advisory committees, and surveys generally will not be sufficient to achieve the desired objectives.

Interaction with community groups should occur throughout the process and is necessary in all phases. Such community interaction can be used to identify and predict both the incidence and magnitude of a wide range of social and environmental impacts and to learn what various interests of the community consider to be important and unimportant issues. In addition, community groups can serve as a useful source of solutions to highway and related community problems. The tone of community interaction should be consistent with the mission of assisting the community in reaching its own decisions; a position of attempting to "sell" a highway should not be assumed (2, 3).

Location Team Management—A location-design process should be managed in a style that will enable it to be dynamic, flexible, creative, and responsive to the needs of the community, yet decisive. A basic program of work must be laid out and followed, so that the resources (people, funds, time) available to the location team can be used efficiently. It includes establishment of objectives and priorities, assignment of personnel and resources to the various community interaction and location-design activities as priorities change, determination of time schedules, and overall coordination of activities. A major task of location team management is the development and revision as necessary of a process strategy, the general sequence of steps the location team follows in trying to achieve the overall process objective.

The approach proposed is based on the premise that these five basic activities must be conducted, no matter what the scale of the location team in terms of staff and other resources. Even a three-man location team must conduct community interaction activities as well as the development of alternatives and impact prediction; the function of evaluation is an important aspect of the activities even of this small a team; and the basic management approach is still critical. However, quite obviously, the degree of formal organization of a team will be markedly different between small and large teams, and the amount of work in each functional area that can and should be accomplished also will vary considerably. In addition, it is important to be able to vary internal structure as the priorities of the location team change over the course of the location-design process.

DANGERS OF THE APPROACH

From the perspective of the highway agency, it may seem that the recommended approach is very dangerous and undesirable. The process may take longer than the time now allocated for route location and design studies; the study itself may be more expensive; it may result in a project that costs much more; and it may result in the project's never being built at all.

It may well be true that more time and money will be required, but let us be realistic about what the base of comparison should be. The length of time between initiation of location studies and initiation of construction is increasing in many instances—sometimes becoming infinite—because controversy leads to the mobilization of political

power to modify or block the project. When compared with the duration of studies and controversy, the time period for the process proposed here may be short indeed.

When it comes to cost, again a true base line for comparison must be established. Given the present high annual rate of increase in construction costs, the project cost estimate of today is much lower than the cost that will be incurred when the project is built. Even if controversy delays a project only 4 or 5 years, there will be a significant increase in costs—perhaps 50 percent. On the other hand, if a major portion of this cost increase can be saved by gaining community acceptance of the need for a route and its location and design features at an early point, then this amount of resources is easily justified as being available to provide things the community desires and needs in order that the result be "equitable and desirable." [This is not intended to imply that the cost savings due to achieving earlier construction should be used as a guideline for establishing the amount that is available for project elements other than the highway and its supporting structure. Rather, this amount is suggested as a way of putting into more realistic perspective the costs of elements required to achieve "equity."]

A third major "danger" as perceived from the perspective of the highway agency is that the project may never be built at all. This is an issue that needs to be examined very carefully. At present, a highway agency may see itself as having the mission of completing a system of highways for which the need and desirability have been clearly established and, where the system plan was established at some point in the past, reflecting the best available knowledge at that time and the values of that time. As the particular route location and design study proceeds, more realistic and accurate estimates can be made of costs, of traffic service provided, of the impacts on various communities and groups, and of the costs necessary to compensate for those impacts that are negative. These estimates may indicate costs and other effects of this project that are substantially less desirable than those estimated when the system was initially established. If as a result a particular project is seen as undesirable and eliminated, this is not a catastrophe; it is simply the inevitable result of the changing world we live in. Thus the process we are recommending can be viewed as an opportunity to re-examine earlier system decisions, either to validate those decisions or to revise them.

Let us now examine the dangers in this process as some elements of the community may perceive them. To some, this process may appear to be a Machiavellian attempt to continue the highway program by co-opting the opposition. To these people, the approach will be seen as encouraging and enabling the highway agency to manipulate the community; opposition to highways will be channeled away from confrontation and direct political activity to a more diffuse form of activity. Some groups may fear that the highway agency will seek their cooperation only long enough to weather a current confrontation and to wear down the public opposition to a highway.

This fear of manipulation is legitimate. There is a real danger that some unenlightened public agencies may use this approach as a way of out-maneuvering political opposition. However, this danger is not as great as it appears. We are convinced that many community groups concerned about highways have learned, through their political activities of the last 10 to 15 years, to organize themselves to be politically effective. Whenever the agency fails to operate in a scrupulously legitimate and open manner, effective political activity by the community groups can be expected. Therefore, a system of "checks and balances" will operate.

To some groups, cooperation with a highway agency is heresy. To these groups, highways are bad, and everything possible should be done to block all highway construction. Since cooperation will only detract from the effectiveness of political confrontation, these groups will oppose any participation in the location-design process.

Certainly, groups who take this position are as narrow in their vision as those few highway professionals who insist that the system must be completed regardless of the reasons for community opposition. Some highways will be desirable; others will not be. The real task is to determine, for each proposed project, whether in fact it is desirable (and, if not, what it would take to make it so). The proposed process is designed to assist the community and the highway professionals to work together to determine the desirability of a project.

APPLICABILITY TO SYSTEM PLANNING AND OTHER PUBLIC POLICY PROBLEMS

The approach described has been developed specifically for project-level decisions, i.e., highway location and design decisions. It should also be directly applicable with few or no modifications to other project-level decisions: transit route (or station) location and design; airport location and design; urban development project location and design; flood control project location and design; and similar project-level decisions.

In principle, the concepts underlying this approach, and the approach itself, seem applicable to a wide spectrum of public policy system problems—for example, decisions about a metropolitan or statewide multi-modal transportation system. In extending the approach to the systems level, however, some modifications would be necessary.

To illustrate, the following are a few of the issues in system planning and their implications for modifications to the basic project-level approach:

1. At the project level, the impacts of various alternatives (including the null alternative) are easier to identify. At the system level, decisions can be made only on the basis of tentative estimates of impacts, because the "true" impacts can be identified only when project-level alternatives have been developed and their impacts predicted.

Therefore, uncertainty over impacts plays an even more important role in system planning. Uncertainty should be incorporated explicitly in the process, and staging strategies that incorporate uncertainty must be an integral part of the process. A staging strategy is not a plan for several years but rather makes actions in the future years dependent on what happens each year.

2. At the project level, impacts are relatively close in time and easy to perceive by affected interests so that the location team can succeed in getting community interests involved in a constructive way. At the system level, impacts of decisions are largely far distant in time, more global in scope (e.g., impacts on the metropolitan land development patterns), and more difficult to perceive and understand by laymen. This occurs because decisions at the project level are made and then implementation usually follows relatively quickly (except of course in some states where location decisions may be made 15 or more years before implementation). At the system level, decisions about some components of the system may not actually be implemented for 20 to 30 years. Some means are necessary at the system level to ensure that all relevant interest groups become involved.

In order to heighten and maintain interest in system level planning, both short- and long-range decisions could be dealt with in the system planning process that adopts the approach described here. This would also serve to develop an understanding among decision-makers and the public as to the relationship between long-run and short-run impacts.

3. At the project level, interaction is more easily manageable, as the community of affected interests can be focused more easily into a single negotiating arena; at the system level, the affected interests operate at a number of different levels of government and the identification of an appropriate negotiating arena is far more difficult. The interaction process in system planning must operate such that all groups perceive that their interests are adequately represented at each point in the decision process. Although interaction will be complex, it need not be unwieldy if a "web of trust" is encouraged in which each group feels that someone speaks for them in each negotiating arena.

4. The approach to evaluation that has been developed seems to have applicability to system planning decisions, but its operational use will be more complex in system planning due to the larger number of relationships among factors that should be considered. The same observation holds for any other evaluation method.

5. Institutional constraints on the decision process create more significant difficulties at the system scale—for example, differences in the degrees of federal, state, and local participation in funding of capital and/or operating expenses of various transportation modes; fragmentation of decision responsibility among different agencies and

levels of government; and the tendency to accept a "system" as fixed once the decision has been made, regardless of change in demand, in technology, in knowledge, and in values. All these problems affect the project level as well, but such issues must be resolved at the system level.

Research has begun on extending and adapting the basic approach described in this paper to system-level decisions. The end product of this research is expected to be a pragmatic, operational method for incorporating community and environmental issues in system-level decisions.

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