Effective Citizen Participation in Transportation Planning

Community
Public
Citizen
Participation
Involvement

VOLUME II

A CATALOG OF TECHNIQUES

U.S. DEPARTMENT OF TRANSPORTATION

FEDERAL HIGHWAY ADMINISTRATION

WASHINGTON, D.C. 20590

1976

EFFECTIVE CITIZEN PARTICIPATION

IN

TRANSPORTATION PLANNING

VOLUME II
A CATALOG OF TECHNIQUES

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16. Abstract

This report is a guide for those actively engaged in organizing or monitoring citizen participation in transportation planning. It identifies and describes 37 major techniques for citizen participation and relates them to the appropriate steps in the transportation planning process, which is divided into 19 sequential steps beginning with the initial inventory and concluding with the evaluation of the completed facility. Among others, the techniques include: Advocacy Planning, Charrette, Citizen Advisory Committees, Hotlines, Surveys, and Workshops. The techniques are presented alphabetically in a standard format: description, positive features, negative features, potential for resolving issues, program utilization, costs, and bibliography. Some techniques are from areas other than transportation planning, some have been used only experimentally, and some have been formulated only theoretically.

The techniques have been classified by function as Information Dissemination, Information Collection, Initiative Planning, Reactive Planning, Decision-making, and Participation Process Support. Eight case studies either illustrate use of combinations of techniques on the regional, corridor, and design level or focus on individual techniques. The research included a literature survey of 11 functional planning areas, such as model cities or water resources, and visits to each case study site.

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TABLE OF CONTENTS

VOLUME I. COMMUNITY INVOLVEMENT PROCESSES

VOLUME II. A CATALOG OF TECHNIQUES

LIST OF FIGURES

LIST OF TABLES

INTRODUCTION

This, the second volume of <u>Effective Citizen Participation in Highway Planning</u>, is a "Catalogue of Citizen Participation Techniques." It is divided into two parts: "Direct Techniques" and "Indirect Techniques". Indirect techniques are distinguished from direct techniques in that they seek to identify attitudes, values and opinions of citizens outside of the context of a dialogue with the planners. The three techniques that have been included in this category are: Surveys, Policy Delphi, and Focused Group Discussions.

In this research, the term "techniques" has been used in a broad sense to include methods, structures, and tools. No distinction has been made in this catalogue among methods (e.g., Advocacy Planning, Charrette, Game Simulation), structures (e.g., Citizen Advisory Committees, Task Forces) and tools (e.g., Hotlines, Cable TV).

The 37 techniques have been culled from three principle sources: a literature review of 11 functional planning areas; interviews with academicians, planners, and citizens; and previous experience of the researchers with participatory processes. The functional planning areas reviewed were:

1. Transportation Planning
2. Regional and Metropolitan Planning
3. Water Resources Planning
4. Nuclear Power Plant Siting
5. Model Cities Programs
6. Environmental Impact Statement Preparation
7. Forestry Programs
8. Technology Assessment
9. Head Start Programs
10. Anti-poverty Programs
11. Comprehensive Health Care Planning

As described in the Introduction to Volume I, the techniques are arranged alphabetically and described in parallel format: general description and strategy, positive features, negative features, potential for resolving controversial issues, utilization in various public planning programs, costs involved, and selected bibliography for readers interested in more detailed information. While some of these techniques have been used extensively by transportation planners for almost two decades, others have been utilized only in other public planning programs. Still others have been tried only in R&D efforts or have been articulated in the literature, but have not yet been tested in the field.

This inventory builds on four earlier efforts systematically to identify and describe discrete participatory techniques. In September 1971, Hans Bleiker submitted as his doctoral dissertation at the Massachusetts Institute of Technology, Augumentation and Meta-Process: A Strategy for Responsive and Responsible Decision-Making by Public Agencies. This dissertation is unpublished. Community Values in Highway Location and Design: A Procedural Guide by Marvin L. Manheim and others also was issued in September 1971 as Report 71-4 of the Massachusetts Institute of Technology Urban Systems Laboratory. Richard Yukubousky's Community Interaction in Transportation Systems and Project Development, A Framework for Application, Preliminary Report, (Albany, New York: New York State Department of Transportation) appeared in September 1973. Finally, the researchers consulted Ueland and Junker Architects and Planners and Portfolio Associates, Inc.'s report of April 1974 to the Pennsylvania State Department of Transportation, A Manual for Achieving Effective Community Participation in Transportation Planning.

2

PART C

DIRECT
PARTICIPATORY
TECHNIQUES

SECTION 1: ADVOCACY PLANNING

Description and Strategy

Advocacy Planning, a term derived from the legal profession and accredited to Paul Davidoff, is a process in which an affected group of citizens, outside the formal decision-making structure, directly employs or utilizes independent professional assistance to advance and protect its interests in a planning process.

Advocacy Planning emerged as a response by professionals to the needs of the urban poor and a concern that the interests of these citizens, generally excluded from an official planning process, be represented and articulated in urban renewal, housing construction, highway and model cities program planning. Conceptually, Advocacy Planning then implies a commitment to a public with specialized needs and is a departure from the traditional planning concept of a single plan that serves the general good.

In a pure model of Advocacy Planning, the citizen group, either with private funds or funds made available by the public agency for this purpose, contracts for the professional skills of physical planners, social planners, and lawyers, as needed. The advocate planners are directly accountable to their clients and serve their interests in:

- Developing alternative proposals;

- Dealing with the public agency and other official systems;

- Reviewing and evaluating the technical plans of the agency
  for their impact on the clients' objectives and priorities.

The responsibilities of the Advocate Planners may include a wide variety of activities, including but not limited to organizing, educating,

4

data-gathering, analyzing, planning, negotiating, and politicizing, all within the scope of protecting, interpreting and advancing the interests of the client group. In carrying out these activities, advocate planners play many roles; a primary role, however, is that of technician for the citizen group, representing the citizens in dealing with official agency technicians. The advocates work directly with their clients in carrying out their responsibilities.

In contrast to this pure model of Advocacy Planning which is characterized by a direct client-professional relationship, in another model of Advocacy Planning the agency employs planners to work directly with neighborhoods or interest groups providing them with technical assistance and advocating their interests. (See also Community Technical Assistance and Community Planning Center.)

Positive Features

Advocacy Planning brings citizens directly into the planning process, exposing and educating them in the technical aspects of the process, thus deflating planning mystique and mythology. It creates parity between the citizens and the agency professionals. With their own professional assistance, citizens have the opportunity to examine issues and goals from their own perspective, unencumbered by the constraints and perceptions of the agency. Advocacy Planning provides a check and a balance for the value-sets, assumptions and data from which the agency operates. The process stimulates communication and interaction between the local group and the agency, and provides a mechanism for incorporating citizens' interests in the final agreed-upon plan. The exposure and experience in

5

the planning process may offer a career opportunity for some citizens who develop the skills to serve as paraprofessionals in the community.

Negative Features

Pure Advocacy Planning is a highly political technique directed toward a redistribution of power and resources. Inasmuch as it implies opposition of contending views, it tends to be an adversary process in which actors and issues are polarized, inhibiting open communication and opportunity for consensus building. To the extent that the planning elements are highly technical, advocates may be a minority voice; not representative of the group, community or interests they purport to speak for. The advocate planners may be subject to the charge by the citizen group of not representing the group's values and manipulating the group. This charge is heightened when the planners promote community resistance to compromise and negotiation. When the advocate planners are employed by the agency, they may be subject to role confusion in their accountability to the agency as their employer and the citizen group whose interests they have been asked to represent.

Potential for Resolving Issues

Conflict and controversy frequently develop, as values and assumptions are challenged by citizens, but communication between citizen groups and the agency can lead to negotiation, producing changes in perspective on both sides, and possibly a redefinition of goals. Compromise and trade-offs are essential elements in arriving at agreement on a final solution.

Program Utilization

Advocacy Planning has been used in Model Cities programs in such cities as Philadelphia, Oakland, New York, and Boston. Urban renewal programs in a number of cities have included Advocacy Planning, as have some highway planning programs.

Costs Involved

Advocacy Planning can be relatively inexpensive or costly, depending on the range of professional assistance required, the project's scope, and time requirements. Cost items include professional salaries, reproduction of technical and public relations materials, mailing, meetings, office space with clerical support and often surveys and other forms of data gathering. Estimated-cost range is $20,000-$100,000 per year.

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SECTION 2: ARBITRATIVE AND MEDIATIVE PLANNING

Description and Strategy

Arbitrative and Mediative Planning are techniques which enable the various parties-at-interest to a planning process to rely on an independent party to resolve the issues raised by the contending parties. Both are standard techniques used in labor/management disputes and international relations. The conflict resolution skills employed in the two techniques are essentially the same, but the central difference between them is that the disputing parties agree to accept the decisions of the arbitrator, while the disputants only empower the mediator to act as a "go-between-and-among" by proposing recommendations. Frequently, when mediation fails to resolve the issue, the disputants agree to settle the issue by abiding by the final decision of the independent arbitrator.

The arbitrator or mediator could perform the arbitration-mediation role during various stages of the planning process, or could be brought in to resolve issues at the final stage of the planning process after the issues have been crystallized. If utilized during the course of the planning process, the arbitrator or mediator might be selected at the outset and be involved at various milestones, for example, developing objectives, establishing needs and goals of each party-at-interest, crystallization of study alternatives, impact analysis, etc. After hearing the various points-of-view presented by the contending parties, the mediator could either use his diplomatic skills to help the parties-at-interest reach an agreement among themselves, or recommend appropriate

changes. Alternatively, in complex or high conflict issues, the arbitrator could be authorized to make the decision if the parties-at-interest agree to abide by it. In the case study of mediation reported on page 101 of Part B is an example of the use of the mediator's diplomatic skills. This instance clearly shows that the mediator must be a highly skilled person.

Positive Features

By introducing an independent arbitrator or mediator into the planning process, the transportation planner is not placed in a position of having to take sides with any of the contending parties-at-interest. Once the parties-at-interest have agreed to the selection of a arbitrator or mediator, who is a non-stake-holder, the planning process can proceed with increased credibility and trust. The trust emerges from the assurance that all parties-at-interest will have an opportunity to articulate their views, that all views will be seriously considered, and that the decisions will be fair and equitable, since the arbitrator-mediator is not a state-holder and has been selected for his credibility among all the parties-at-interest.

The skills of the arbitrator or mediator assure that both assumptions and facts presented by the various parties-at-interest are brought out into the open where they can be challenged and discussed. The technique offers an additional advantage in a community where the issues of trust and distrust between the citizens and the transportation agency are critical. Since the agency has delegated its conciliation powers to the arbitrator-mediator the various parties-at-interest will not use back-door processes to press their point-of-view with the transportation agency. (See the Coordinator-Catalyst technique for a description of the conciliation role frequently played by transportation planners.)

10

Negative Features

Since such a technique is most likely to be used in a community where there is a high level of distrust of the transportation agency and deeply conflicting points-of-view among the parties-at-interest in the community, the process of selecting an arbitrator-mediator will be quite time-consuming and may delay the onset of the study process. All potential parties-at-interest need to be involved in the decision to use an arbitrative or mediative planning approach, in understanding its ground rules, and in selecting an individual who has credibility and is perceived to be fair.

The technique is relatively expensive, since in addition to the arbitrator/mediator's fee those parties-at-interest with limited or no resources will probably need technical assistance in developing and articulating their point-of-view. In addition, the arbitrator-mediator, who may be unfamiliar with the transportation planning, will, of course, have to master some of the state-of-the-art problems of transportation planning in making recommendations or reaching decisions on issues of benefit and disbenefit to the various parties-at-interest, particularly those issues which are non-quantifiable or non-comparable. In public programs, it is frequently not legally possible to delegate the final decision to an arbitrator, since a statute lodges the decision-making authority with a duly constituted decision-making body or individual.

Potential for Resolving Issues

Since the technique enhances trade-offs, compromise, negotiation, and change in perspective, the technique has good to excellent potential for resolving issues.

11

Program Utilization

Arbitration and mediation techniques have been utilized in labor management disputes, Model Cities programs, and environmental planning conflicts. Only recently have these techniques been applied to highway planning conflicts. In August 1974, the American Arbitration Association began a mediative/ fact-finding process involving some two dozen participants in the West Side Highway Project in New York City. Initiated at the end of the normal planning process (after hearings on the draft EIS), its purpose was to establish common ground among the adversaries which would allow development of a compromise alternative.

Mediation has been used to resolve environmental planning conflicts. In 1974, mediators were used to help resolve conflict over flood control, recreation and development in the Snoqualmie River Valley of Washington. Mediators assisted in the negotiation of an acceptable flood control program which had created a stalemate between residents, businesses, farmers, and environmentalists over the construction of a major dam.

Costs Involved

The major outlay for the arbitrative or mediative planning process would be the fee to an arbitrator or mediator -- $200-250 per day, depending on the length of time and number of meetings involved. Costs of agency staff time spent preparing positions and in meetings could be high, but could be absorbed in the normal planning budgets. Providing technical assistance to all of the parties-at-interest to help them develop their cases would increase such costs.

In the West Side Highway Project mediation, the citizens groups represented by the Community Planning Boards utilized their own consultants, funded by the State transportation agency. Nonetheless, the overall costs of both technical assistance and mediation amounted to less than 3 percent of the total planning budget.

12

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SECTION 3: CHARRETTE

Description and Strategy

The Charrette is a problem-solving process which convenes the various parties-at-interest to develop a full-scale plan through intensive interactive meetings lasting from several days to several weeks (depending on the complexity of the problem).

Conceptualized in the late 1960s in the Office of Construction Services of HEW as a process by which citizens and public officials could work together to develop improved designs for schools, the marathon meeting process has since been utilized for designing multi-service community centers, for land use planning, and for regional planning.

The French word, Charrette, means a hand-drawn cart used to haul goods for a short distance; architecture students from Ecole des Beaux Arts used to jump on the cart sent by the school to pick up their designs so that they could add last-minute inspirational touches to their drawings en charrette. The concept has since been expanded to signify solutions to problems arrived at through highly intensive efforts to resolve complex problems within an agreed-upon deadline.

The Charrette, which must be managed by staff skilled in both the substantive technical area and in group dynamics, enables hostile parties-at-interest to meet in open public forums to examine the problem, to develop goals and objectives, to examine alternative choices and costs, and to arrive at a comprehensive design for the social program or physical facility that provides the best solution to the problem. Since all

14

parties-at-interest to the problem, including the sources of funds (at the local, regional and Federal levels), agree to participate in the intensive catalytic process, the end result is a plan and a strategy to implement the agreed upon plan.

The Charrette may last from four to eight weeks, may be conducted at night or on weekends, and the participants may live and work in a 24-hour facility, depending upon the problem to be solved and the parties-at-interest to be involved. To be successful, a Charrette involves considerable advance preparation through a steering committee, which includes representatives from the funding sources, relevant agencies, and citizens groups. The steering committee issues the invitations, handles the publicity, seeks the resource people, and manages the physical arrangements. After the steering committee has defined the issues, gathered the data, and determined the time, place, and participants, the Charrette forum is convened.

Charrettes vary in form and style, but common to all of them are six major tasks:

1. Definition of the problem and issues that need to be resolved and development of goals.

2. Analysis of the problem, alternative approaches, and development of goals.

3. Creation of task forces which clarify issues and develop supporting data.

4. Development by staff and resource people of refined proposals which respond to the key ideas and solutions generated by the Charrette participants. These refined

15

proposals, in the form of graphics, models, maps, and

program descriptions, are reacted to and modified by

the citizen representatives.

5. Presentation of the final proposal by citizen spokesmen

to a "jury" of community officials not present

at the Charrette who officially approve and fund the

project.

6. Selection of a follow-up committee to implement the

plan and possibly serve as the initial committee for

the new facility or program.

Critical to a successful Charrette are periodic public forums and

an extensive flow of publicity during the various phases of the process

to inform the larger community of the existence of the Charrette, its

purpose, and its daily (weekly) progress. This extensive publicity

enables people in the community to submit their suggestions to the

participants while the Charrette is occurring.

Positive Features

Since the critical actors are integrally involved, a successful

Charrette results in the resolution of the problem and a commitment to

pursue the agreed upon plan. The process not only results in the

specifications of the plan, but the generation of support for the plan,

which is thus not subject to further barriers and delays by either

citizens groups or agency decision-makers. The intensive process is

conducive to changing one's perspective of a problem, acquiring a serious

knowledge base about both the problem and alternative solutions, and

reaching consensus on a plan which avoids or minimizes negative impacts
to the various parties-at-interest and enhances and supports positive
impacts for the various parties-at-interest. The technique also creates
a spin-off benefit in that new lines of communication, new avenues of
access and new perceptions of the problem are generated, creating a net-
work of relationships which can continue to function long after the
immediate problem, program or plan has been devised.

Negative Features

Charrettes are a costly technique, since they require considerable
advance preparation -- generally two to three months on the part of the
steering committee -- and the utilization of skilled staff which has
credibility in the community to manage the process. It is also diffi-
cult to engage some of the key decision-makers in the time-consuming
process, since the problem to be solved may be only one of several
problems for such a decision-maker. In addition, it is frequently
difficult to involve some community members, particularly low-income
residents who are unable to afford baby-sitting and have problems taking
time off from work. Further, it is sometimes not possible to involve the most
hostile community organizations, since they might be unalterably committed
to opposing the development of a plan or project which they see as detri-
mental to their legitimate interests or to their political interests.

Potential for Resolving Issues

The Charrette process is highly conducive to a resolution of
issues, since the key parties-at-interest are assembled and committed
to arriving at an agreed-upon plan through compromise, negotiation,

17

trade-offs, changes in perspective, and redefinition of goals. The time pressure to arrive at a point-by-point agreement within a specified time frame enhances cooperative problem-solving.

Program Utilization

The Charrette has been utilized by HEW for innumerable school-construction and school-design problems. In recent years, HUD has funded Charrettes for neighborhood-facility programs, regional land-use planning, urban renewal (Winter Park, Florida), and Model Cities (Indianapolis). It has also been used to plan for rapid transit (Atlanta), to design an urban mall (Madison, Wisconsin), to examine the economic base of a city (Watertown, Mass.), to design an interstate highway interchange (Raleigh, North Carolina), to design a multi-service center (Winter Park, Florida), and to develop a historic preservation plan (Tallahassee). While most of the Charrettes have been funded by HEW and are focused on school planning, they have frequently developed spin-off plans: for example, the Charrette process in Baltimore for a high school resulted in the creation of a community-based, prepaid group health practice servicing low- and moderate-income people residing in the East Baltimore community.

Costs Involved

Charrettes are quite costly, ranging from $15,000 to $250,000. They involve extensive use of skilled staff, facilities for meeting over a reasonably long period of time, food (sleeping quarters if the Charrette is a 24-hour-a-day venture), and materials, such as graphics, xeroxing, audio-visual presentations, etc. In addition, it is advisable to reimburse

18

at least low-income residents for baby-sitting and transportation

expenses, in order to facilitate their participation, and, in some

cases, it is useful to pay citizens honoraria to enhance their

participation.

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SECTION 4 : CITIZENS' ADVISORY COMMITTEE

Description and Strategy

A Citizens' Advisory Committee is a group of citizens called together by an agency to represent the ideas and attitudes of their community in advising and giving consultation to the agency. A popular participatory structure, the Citizens' Advisory Committee came into wide use in response to the mandate for citizen participation in such Federal programs as the HUD Workable Program for Community Improvement and Urban Renewal.

Citizens' Advisory Committee is a generic term, covering a variety of committees or councils, differing in type, membership, and operations, according to the purpose and function of the agency. Generally, however, most Citizens' Advisory Committees have the following characteristics:

- Limited power and authority. The purposes of the committee are usually broadly stated, in terms of giving advice and consultation to the agency. The committee tends to operate from a general acceptance of the agency's goals, bringing its ideas and influence to bear on the decision-making process by reacting to the agency's proposals.

- Large membership. Advisory Committees may range in size from 50 to 100 members. In order to accomplish the assignment, therefore, committees frequently organize themselves along functional lines into subcommittees or task forces.

- Agency staff provide the technical assistance and support for the committee. The agency may call in or employ other professionals to assist in this task or to provide expert testimony to the committee.

20

- Structural life of the committee is tied to the life of the program or project, though membership on the committee may change, either voluntarily or through stated procedures.

- Meetings of the full committee tend to be infrequent.

Membership on the committee is usually designed to reflect broad community interest groups and may include representation from both affected and unaffected interests, including those disposed toward the agency, as well as those in opposition. Community leaders and influential persons are almost always included among the members and, to the extent that they are predominant, the group may be described as a "blue-ribbon" committee. Membership on advisory committees frequently includes citizens who are selected on the basis of their professional knowledge and expertise, but who generally serve in their role as citizens, as opposed to their professional role. Officials of other public agencies may also be included as members, representing the interests of their agencies. Members may be chosen by any one of the following methods:

- Appointment or invitation by the sponsoring agency.

- Self-selected representation by particular interest groups, identified by the agency.

- Popular election, usually under procedures established and/or approved by the agency. This method is a fairly recent innovation which developed in some urban renewal programs in response to community charges that agency-selected membership failed to reflect representation of contending interests.

- Combination of the above.

21

Positive Features

The Citizens' Advisory Committee provides the public agency with a community listening post, offering feedback on proposed program approaches and plans. As representatives of a larger constituency, the committee can articulate and interpret the goals of the agency to the general public. With adequate staff assistance, the committee can deal with technical issues and, in the process of reviewing proposals, suggest and initiate alternatives. If assigned specific tasks and given staff direction, the committee can augment the work of the staff, such as assisting in surveys and gathering data. Individual members of the committee have the oppor- tunity to become familiar with the broad issues and concerns of the agency, as well as its processes and goals.

Negative Features

Participation in a Citizens' Advisory Committee is a time-consuming and frequently frustrating experience for citizens. The large member- ship brings together citizens who may be unequal in status, knowledge and experience. In this situation, less informed members are reluctant to participate actively, lest they reveal their weakness. Inequality of status and expertise between the committee as a whole and the agency professionals inhibits members from raising issues and challenging the value and data bases of the agency's proposals. Without technical assistance, the committee cannot deal adequately with issues, and members frequently feel that they only "rubber-stamp" the agency's decisions.

For their part, agency professionals may tend to devalue the com- mittee's capacity to deal with technical aspects of planning and withhold

or present insufficient information. Some officials complain that providing sufficient staff support and assistance to the committee diverts the time and energies of the agency staff.

Frequent charges against Citizens' Advisory Committees are that, except for a popularly elected membership, they are rarely representative, have little or no accountability to a larger public, and are used by the public agency as a means of coopting citizens, placating community interests, and circumventing community opinions. When advisory committees are the only technique used by the agency, they can become a critical barrier to citizen input from population sectors which are not represented on the committee.

Potential for Resolving Issues

A Citizens' Advisory Committee offers only a limited potential for resolving issues, since it tends to reflect the agency's goals. Particularly when membership is agency-selected, differences of opinion are unlikely to be raised. Where membership is self-selected by identified interest groups or elected by popular vote, the potential for negotiation and persuasion increases. An adequately staffed advisory committee has more potential for raising and resolving issues.

Program Utilization

The Citizens' Advisory Committee is widely used at local, State and national levels for many Federal programs. Local urban renewal, Model Cities, and Headstart programs employ Citizen's Advisory Committees. State and regional committees have been appointed for water resource planning, airport planning, and regional planning. On the national level, Federal

23

agencies have appointed such committees as Advisory Committee on Civil

Rights, on Soil and Water Conservation, on Environmental Quality, and

Consumer Product Safety.

Costs Involved

Maximizing the potential of the Citizens' Advisory Committee requires

an investment of agency resources--administrative and staff time, plus

clerical support. Costs also include preparation and reproduction of

materials for committee members, mailings, and publication of the com-

mmittee reports. Estimated costs range from $20,000-$60,000, depending

on the level of staff resources made available.

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SECTION 5:   CITIZEN EMPLOYMENT

Description and Strategy

This technique involves the direct employment of citizens by the official planning agency, most characteristically in positions termed "paraprofessional" or "new careers."

Citizen Employment emerged as a form of citizen participation in the social opportunity programs, where low-income members of the community were employed to work with the professional staff in program planning and operations. Conceptually, the technique was utilized as a means of "humanizing" the service programs of the various agencies through the continuous input of the citizen employees who, as representatives of the beneficiaries of the services, could bring the clients' (consumers') values and interests to bear on policy and planning decisions and could also serve to interpret the program to the community.

Pragmatically, the technique also offered career opportunities for the low-income citizens who, working along with professionals, could gain skill and experience in professional activities, opening new areas of employment for them. The concept was formalized in an official Federal program known as New Careers. Experience demonstrated that when an agency was committed to the concept, significant tasks and duties could be assigned and carried out by paraprofessionals.

Development of paraprofessional positions, now no longer exclusively directed to low-income citizens, has been institutionalized in many agencies and programs, including regional planning and transportation study efforts. In the Boston Transportation Planning Review, for

26

example, a number of staff hired to work on environmental analysis, community liaison, neighborhood impact, and transit planning, were associated with various citizen and civic organizations prior to their employment.

Positive Features

Citizen Employment insures the planning agency has the benefit of citizen thinking and points-of-view in all its planning efforts. As representatives of the consumers or clients, the citizens can reflect the dominant values and interests of the community, informing and instructing the planners on potential response to other forms of citizen participation, the relevant actors and organizations in the area, and the history of past planning efforts in the community. Citizen employees can serve as a testing medium for agency plans before they are presented to the community, and can act as liaison, interpreting agency plans and goals to the community. As community residents, they have sanction and entree into the community, and thus can improve the image of the agency usually viewed suspiciously as an "outsider." The citizen employees can be assigned specific tasks and responsibilities, releasing the professional staff to concentrate on the more technical aspects of the planning process.

Negative Features

Employing citizens carries a strong potential for cooption of the citizens themselves and the community as well. The citizens can be subjected to problems of conflicting loyalty and role confusion. As employees of the agency, the citizens may tend to identify more with the agency's goals and interests than with the community they purportedly

27

represent. Citizen Employment can be viewed by the community as a means of "buying off" the community, and the citizen employees become suspect to other community members who lose confidence that the employees will continue to represent their interests and points of view.

For the agency's part, employment of citizens as paraprofessionals represents some risks and an investment. Without adequate information on how potential employees may be viewed by their fellow community members, the agency may unwittingly employ citizens who do not really represent community views. If a citizen employee fails to perform his duties adequately or responsibly, discharging the employee may create a community issue, placing the agency on the defensive with the community and endangering its image. Agency professionals may be unwilling to work with the paraprofessionals and be reluctant to share equally information and data as it is developed in fear that it will be released to the community prematurely.

Citizen Employment in paraprofessional positions requires an investment of time by agency staff in defining tasks for citizen employees, instructing them in the particular methods to be employed, and supervising their work. Unless the agency staff has a commitment to the concept, the citizen employees will have no meaningful work, leading to their frustration and discontent which can be transmitted to the community, creating a negative image of the agency. With citizens on the staff, the agency may be tempted to utilize their presence as meeting all requirements for citizen participation, and fail to develop other opportunities for citizen involvement in the planning process.

Program Utilization

Citizen Employment has been a feature of many Model Cities, anti-poverty, and health planning programs and projects. As indicated, it has also been used in some regional and transportation planning efforts, such as the Boston Transportation Planning Review.

Costs Involved

The costs of Citizen Employment depend on the number of positions to be created in the planning effort. Salaries and fringe benefits are the major costs ($5,000-$10,000 per employee), but training and supervision time should also be calculated as an agency expense.

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SECTION 6: CITIZEN HONORARIA

Description and Strategy

Citizen Honoraria, payment for services rendered, was devised as a technique to encourage the participation of low-income citizens (particularly unemployed males) in some OEO and Model Cities programs.

Rationale for the honorarium was based on the fact that professionals are paid for their services, but citizens are not. In programs where an honorarium has been used, citizens have been asked to contribute substantial amounts of time in a planning process which they perceived as time-consuming and often frustrating. The honorarium is designed to compensate them for their time and services, made at the expense of competing and often more enjoyable activities at night, or for taking time off from work during the day.

Thus, an honorarium differs in theory from reimbursement of expenses, a common mechanism for participation in many antipoverty programs. Reimbursement acknowledges the expenses involved in participation -- e.g., cabfare, lunch, baby-sitting--and payment insures that no one is denied or cut off from the opportunity to participate because of costs. The honorarium is based on a theory that participation of the citizen is a valuable and needed service. It dignifies the status of the citizen and places a value on the contribution of time and expertise or knowledge.

The amount of the honorarium is either established and paid directly by the sponsoring agency, or paid by the citizens group from funds allocated to it by the agency. An honorarium can be used at any

30

stage of the planning process in which citizens are being asked to give
substantial amounts of time.

Positive Features

Payment of an honorarium provides low-income citizens with access
to the decision-making process. By allowing working people, particularly
males, to participate, it increases the opportunity for representative-
ness in the citizen group. It dignifies the role and contribution of the
participants, creates parity between citizens and professional staff of
the agency, and supports consistency and regularity of citizen involve-
ment, reducing agency staff efforts required for orientation and back-
ground briefing when participation fluctuates and/or participants change.
With an honorarium which compensates for time lost from work, meetings
can be scheduled during working hours, an advantage for the planners as
well as the citizens. Daytime meetings permit longer work sessions,
and allow citizen participation in contacts with agencies and other
resources.

Negative Features

With the sponsoring agency dispensing the honorarium, there is a
potential for cooptation of some participants who may tend to identify
more with the interests of the agency than those of the group they
represent. Cooptation can be minimized, however, by the agency trans-
ferring funds to the citizen group who establishes the amount of the
honorarium and makes the payments.

Use of an honorarium creates a potential danger that the honorarium
itself may become the rationale for participation for some citizens. Also,

31

the agency may discount the views or opinions of compensated participants, questioning their commitment to program goals and their accountability to their constituency. Providing compensation to low-income citizens for taking time off from work does not necessarily make it possible for them to do so, since their employers may object, not appreciating the reason, and may fire them, particularly if they are bottom-of-the-ladder employees.

Use of an honorarium, a controversial technique, becomes complicated when the citizens group is composed of mixed-income participants. It can produce conflict within the group when payment is made only to the low-income citizens. Other members of the group may then challenge the commitment and value of the participation and views of the low-income citizens. Payment to the entire group can be costly.

Potential for Resolving Issues

Honoraria contribute to the resolution of issues indirectly by making participation possible for some citizens who otherwise would be excluded. Thus the agency is exposed to wider perspecties and new viewpoints.

Program Utilization

Reimbursement for expenses, such as baby sitting, luncheons, and carfare, has been widely used in many of the social opportunity programs, but Citizen Honoraria has been limited to Model Cities and some OEO-

sponsored programs. Although no transportation agency has yet adopted the incentive technique, several, including New York State DOT, are currently considering it.

Costs Involved

Costs vary, dependent on the amount of the honorarium and the meetings involved. In the Model Cities program, honoraria ranged from $10 per meeting to $400 per month. Time off from work, in some Model Cities programs, was compensated for at the actual rate of pay that the citizen would have earned on the job, and, in other cases, at a flat honorarium, ranging from $25 to $50 a day.

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SECTION 7:   CITIZEN REFERENDUM

Description and Strategy

A Citizen Referendum is a statutory technique that places before the electorate for their action a proposed public measure or question of public policy. By popular vote, the citizens express their approval or disapproval, or select a course of action on a measure from several presented alternatives. The decision of the electorate is binding upon the legislative body, though in some cases non-binding referenda may be submitted to elicit citizen opinion on a particular policy issue.

A Citizen Referendum is regarded as a democratic method for citizen participation in public decision-making. All eligible voters have equal opportunity to express their views, and the final decision on the issue, representing the consensus of the majority, is a citizen-made decision. The parties-at-interest may use a variety of methods and media to educate, influence, and seek the support of citizens for their values and point-of-view.

A characteristic type of referendum seeks citizen decisions on a bonding issue, or some other financing method, to support a specific public undertaking, such as school construction or a transit system. Referenda should not be used without legal arrangements with the State agency, which is currently charged with the responsibility by statute to decide on a corridor location alternative or an urban systems plan.

State statutes prescribe the policy issue to be decided by referendum, as well as the method of placing a referendum on the ballot. In most States, referenda may be placed on the ballot by a legislative body or by popular initiative.

34

Positive Features

In putting the issue before the electorate in a referendum, decision-making is placed in the hands of the citizens, giving each eligible voter equal opportunity to express his interests and values. Citizens are on an equal footing with each other, and so tend to view decision-making by referendum as fair and democratic. The decision is arrived at within hours, and immediately known to the public.

Citizens are generally familiar with voting procedures so that a referendum requires no special education for participation. The citizens vote in their local neighborhood in accessible polling stations on a well-publicized date during extended voting hours, making it possible for all those interested to participate.

Negative Features

Though decision on a policy measure or alternative courses of action by direct vote appears to be democratic, real citizen participation may be only illusionary. Referendum questions or the alternative courses of action are frequently developed by the agencies-at-interest, and may not reflect the values of the community, since a majority vote can affirm a plan which has built-in inequities for the minority sectors of the community. Further, the referendum is presented in legal language, which may cloud or confuse the real decision to be made, or it may be framed in such a manner that the citizen does not know what a yes or no response signifies.

All citizens do not have equal access to prior information and educational material on the referendum, so that a decision may

35

represent either an uninformed vote or represent only the decision of
those who choose to participate, usually citizens with a direct interest
in the issue. Reaching all eligible voters to inform them of the issues
involved in a referendum requires a well-financed, planned public rela-
tions and educational campaign. The parties-at-interest may be unequal
in their resources and ability to educate and influence the voters.
In the transportation context, referenda on an urban system might not be
viable, since referenda must coincide with political jurisdictions, and
transportation systems generally spill over jurisdictional lines

Potential for Resolving Issues

A referendum resolves an issue by fiat. It offers no opportunity
for compromise or negotiation. As a single participatory technique, it has
considerable drawbacks. However, when the referendum is preceded by
serious efforts to educate and inform citizens of the issues at hand, it
may be an effective method to arrive at a public decision.

Program Utilization

Citizen Referenda have been used in a number of major cities, such
as Atlanta and San Francisco, for decisions on a public transit system.
A recent referendum in the City of Boston focused on a new structure
and composition of the school committee.

The referendum technique is sometimes utilized in a program
to elicit citizen views on particular issues, though the balloting
is not a formal legal procedure. For example, residents of the Model
Cities area in Cambridge, Massachusetts, indicated their program preference
through a referendum procedure. In another instance, residents of a public

36

housing development in Boston voted on the issue of entering into a tenant management program.

Costs Involved

The basic costs involved in an official and legal referendum are borne by the local municipality charged with the responsibility of carrying out an election. When proponents and opponents of a referendum question mount a campaign to influence voters to their point-of-view, costs are controlled by the available budget and funds, but may include expenses for public meetings of various types, printing and distributing printed material, telephone campaign, and media advertising.

In an unofficial referendum, the sponsoring agency covers the costs of setting up and manning polling places, counting votes, and notifying involved citizens of the results of the vote. Prior to the actual vote, the agency may utilize any or all of the public relations techniques listed above, designed to arouse interest and to get out the vote. Estimates range from $5,000 to $40,000, depending on level of effort.

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SECTION 8: CITIZEN REPRESENTATIVES ON PUBLIC POLICY-MAKING BODIES

Description and Strategy

Elected or appointed citizen representation on public policy-making bodies of various types -- State or local, formal or informal, permanent or temporary -- is a frequently used technique to incorporate citizen input into public policy-making. Such policy-making bodies can vary in size, composition and function. For example, they can include both elected and appointed public officials and citizens; or, as in the case of many Model Cities program, they can include only citizens either elected, usually by a neighborhood constituency or appointed by a mayor, city, manager, city council, or other official. Such bodies may be the official decision-making structure, or despite their policy-sounding name such as Policy Board, be advisory to those having the legal authority to set policy.

In transportation planning, such representation has been a usual feature of many regional and local transportation planning bodies. In Boston, for example, the Joint Regional Transportation Committee, the currently reorganized regional transportation planning group, includes citizens appointed by the Governor, as well as representatives of the trasnportation and regional planning agencies and the municipalities that comprise the metropolitan region. In California, the State com- mission responsible for transportation planning is composed of citizens appointed by the Governor.

In transportation, it appears that most Citizen Representatives on policy-making bodies are appointed rather than selected directly by a

constituency, as in some Model Cities and anti-poverty programs. In some cases, the policy-making bodies in the social opportunity programs were termed community control models, since the entirely citizen-based group had full decision-making authority; in the vast majority, however, they were termed advisory models, since citizens comprised one-third of the membership, and thus were basically advising the two-thirds majority group.

The major issue in citizen representation on policy-making bodies is whether citizens should serve in a policy-making position. The issue is framed in such questions as the accountability of the citizen (though elected citizen representatives are presumably accountable to a constituency), lack of training or expertise in the technical aspects of planning, and, in the case of citizens who may be direct beneficiaries of a program, possible conflict of interest. This latter question was raised as a legal issue by the Attorney General of Connecticut, who ruled that a public-housing tenant could not serve on the board of commissioners of a local housing authority.

The theory behind citizen representation is that citizens will reflect a citizen point-of-view, as opposed to public officials, a vested interest group, or agency. In this context, there may often be a fine line between a Citizens' Representative and those who are serving because of their knowledge of the issues, technical expertise, knowledge of other actors or officials, or for some other reason. The credibility of the particular policy-making body in the eyes of the general public can be strongly influenced by how the Citizen Representatives are viewed.

Positive Features

Citizen representation on policy-making bodies is one of the most direct methods for citizens to play a key role in the decision-making process. Their different perceptions on planning and policy issues help surface alternative options that might otherwise be overlooked. When the Citizen Representatives are directly affected by the policies and plans, they bring an immediacy to the issues under discussion. Citizen Representatives have been known to wield considerable influence over policy-making bodies on which they serve, even though they may not control the body in any voting sense, through their persuasiveness and the known power of their constituency.

Negative Features

Citizen representation on policy-making bodies can backfire and create problems for the credibility of an open participatory process if any one of the following conditions, or a combination of them, occur: if the Citizen Representatives appear to have been coopted by the other parties-at-interest on the policy-making body; if the citizen representation appears to be a symbolic act or tokenism to mollify certain hostile interests with no intention on the part of the other members of the policy-making body (or even the agency) to consider seriously the controversial points-of-view expressed by the Citizen Representatives; if the appointed or elected citizens fail to include a reasonable spectrum of affected interests and points-of-view, e.g., minorities, low-income, environmental, etc.; and finally, if the appointment of Citizen Representatives to the policy-making body is the only technique used in the participatory process.

40

Potential for Resolving Issues

Citizen representation on policy-making bodies, under proper conditions, has a high potential for resolving conflicts, through trade-offs and compromise. Airing the issues can bring about a change in perspective among the parties-at-interest and possibly lead to a redefinition of goals.

Program Utilization

Citizen representation on policy-making bodies has been a prominent feature in a wide number of public programs. HUD and OEO required citizen representation on policy-making bodies for Model Cities and the antipoverty programs. HEW guidelines call for 51 percent "consumer" representation on comprehensive health planning bodies. Public housing tenants have been appointed to the board of commissioners of many local housing authorities. City and regional planning commissions are often composed of a combination of elected or appointed citizen representatives.

In transportation planning, State highway commissions often include some appointed Citizen Representatives. In local public transportation authorities, Citizen Representatives are often appointed by the authorized public officials to serve on the policy-making body.

Citizen Representatives are frequently elected or appointed to serve in ad hoc studies or commissions at all levels of government, such as charter reform commissions, special legislative commissions on such controversial public issues as prison reform, housing policy, education, and many others.

Costs Involved

Citizen representation on policy-making bodies involves very little expense, e.g., reimbursement for expenses such as cabfare, lunches, out-of-town trips, and/or compensation for time spent attending meetings. (See Citizen Honoraria.)

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SECTION 9: CITIZEN REVIEW BOARD

Description and Strategy

The Citizen Review Board technique delegates full decision-making authority to the citizens group. Citizens are elected or selected to serve on a review board which has the power to review alternative plans, and on the basis of their review, to decide which plan shall be implemented.

While the technique has been used in a variety of public social programs -- Model Cities, Comprehensive Health Centers, Headstart -- it was introduced into the transportation literature as a conceptual approach by Bishop, Oglesby and Willeke.

In most public programs, citizen boards serve in an advisory capacity, and the agency staff or elected officials decide which plan to adopt. In the case of a Citizen Review Board, it has the power to make the final decision.

Some Citizen Review Boards are paid an honorarium for their services, while others serve without pay. Citizen Review Boards may be appointed by the chief elected official or head of the planning agency, but in many federally supported programs, such boards are elected through neighborhood or city-wide elections. In some cases, they are partially elected and partially appointed.

A variation of the Citizen Review Board is a public commission which is appointed at large to represent a state or metropolitan area. California uses such a decision process in its highway planning procedure; the California Commission is legally authorized to make its

43

decisions after it has reviewed hearings conducted by an appointed
hearing official or has conducted its own public hearing. (See Citizen
Representatives on Public Policy-Making Bodies.)

In most federally-supported social programs where the decision-
making technique has been employed, the review board has the power not
only to review alternative plans, but to set policy for the program,
to hire the top-level staff, to decide budget allocations, and to
award contracts. In keeping with these functions, such boards were
more frequently termed policy boards or executive boards.

Positive Features

Such a citizens board or commission could offer considerable
expertise, particularly from the standpoint of value-based judgments
about the community or neighborhood affected by the plan. It supplements
this value-based expertise through technical assistance provided by
the agency staff or through independent technical assistance for which
it contracts. If it is representative of the parties-at-interest, and
if it can be held accountable for its actions, such a board has
demonstrated its ability to offer fair and equitable decisions.

Knowing in advance that citizens have the final decision-making
power can stimulate planners to be more responsive to the social impacts
imbedded in the alternatives. In the social opportunity programs, the
plans developed by citizen-controlled programs were frequently more
innovative and responsive to citizen priorities and interests.

Negative Features

In practice, some Citizen Review Boards have not been representative of the population to be served, particularly the minority and disadvantaged population. This non-representativeness has occurred both in the appointed and elected process, thus some citizen boards were distrusted by the citizens.

In the social opportunity programs, those models created much political controversy, since the gap between what the low-income groups wanted and what the public officials felt was appropriate was exceedingly wide. The level of distrust and alienation between the citizens board and the public officials at the outset of the social opportunities program was so great that much of the initial communication was at the confrontation level. Other difficulties encountered in the social opportunities programs were that some Citizen Review Boards were reluctant to make critical judgments about poor quality staff work, since the staff members were their neighbors, friends, or relatives, and in some communities, the elected and appointed citizens were coopted by their new high-status roles and began to be more concerned about their personal self-interests than those of their constituency.

Potential for Resolving Issues

The potential for resolving issues is very dependent on the composition of the review boards and its credibility with public officials. If the review board is representative of the parties-at-interest, and if it has adequate technical assistance, its potential is good.

45

Program Utilization

Review boards and policy boards have been used extensively in a variety of federally funded social programs, including Model Cities, Head Start, community action agencies, and in comprehensive health programs. While some State highway commissions are totally comprised of citizens, the research team knows of no community review boards that have been involved in highway planning.

Costs Involved

The major outlays for Citizen Review Boards are travel, meals, baby-sitting, and honoraria. Indirect costs include agency staff to support the activities and deliberations of the board.

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SECTION 10: CITIZEN TRAINING

Description and Strategy

Citizen Training is a technique designed to promote effective participation through arming citizens with substantive knowledge, planning and/or leadership skills. The training enables citizens to work together more effectively for their common goals, to become more knowledgeable about the program they are interested in influencing, and generally to become more familiar and experienced in techniques of engaging in a participatory process. Citizen Training may be provided through such formal methods as seminars, workshops, lectures, or it may be provided more informally through game simulation, group dynamics, and/or printed materials such as manuals, brochures, and audio-visual materials. (Another format for training is through the provision of technical assistance. See Community Technical Assistance.)

Citizen Training has long been the hallmark of such private citizen groups as the League of Women Voters, for instance, which through meetings, workshops and printed materials provides citizens with substantive knowledge on a wide range of public issues, as well as participatory processes. However, Citizen Training, as part of a public program, emerged in the Federal social opportunity programs, where early training efforts, sponsored by the public agencies, initially focused on helping poor people become more knowledgeable about the role and responsibility of serving on boards and task forces (i.e., group skills, parliamentary procedures, etc.). As both citizens and staff became more sophisticated, some of the training efforts in these

48

programs shifted to substantive program content, and such technical skills as designing a survey, writing a grant proposal, and planning and evaluating a project.

With a wide cross-section of the population interested and involved in many public programs, such as transportation planning, and with decision-making increasingly dependent on the results of sophisticated technical planning processes, the need for training is generated in some measure by the feeling on the part of many citizens that the planning techniques used by agencies are mysterious and complicated, bestowing special wisdom on the technicians and decision-makers using the results, but largely incomprehensible or inaccessible to citizens. When citizens who feel this way have access to training in the techniques of planning, they feel and are, in fact, better equipped to engage in interaction with technicians, and are able to make more significant inputs.

Transportation planners interested in developing techniques and content for Citizen Training might find it useful to expose citizens to transportation planning methodology, including such elements as traffic forecasting and estimating, use of simulation models for travel demand analysis, basic principles of traffic and transportation engineering, and techniques of impact analysis. Formats for Citizen Training in transportation planning might include seminars, workshops, roundtables, game simulation, slide presentations, or films. Any of these formats might be accompanied by written materials specially designed for the public, translating highly technical information into simple, non-technical language sufficiently clear and cogent to be useful and relevant to a wide public.

49

These training sessions might be conducted by the transportation planning agency staff, consultants, or through a contract with a citizens group which has developed the capability to provide such training. Training might also be offered through providing a significant number of local citizens with funds to attend major national conferences, such as those sponsored by the American Association of State Highway and Transportation Officials or the Transportation Research Board when those conference sessions are particularly relevant to citizens.

Positive Features

Citizen Training can be a beneficial part of any citizen participation program, particularly if a sufficient number of citizens improve their capability to understand and react to the "black boxes" of the ongoing technical work. To the extent that the training will enable a sufficiently large group of effective citizens to raise the whole level of quality of citizen involvement, the planning process will benefit greatly. Arming the citizens with planning skills places them on a more equal footing with planners and avoids the situation that arises in many transportation planning programs, where citizens feel "snowed" by all the technical terms that are bandied about, and come to feel that the technical "gobbledegook" is being used deliberately to exclude them from the process. When the transportation planning agency provides for Citizen Training through some method, the credibility of the agency and citizen confidence is enhanced.

Negative Features

All citizens will not want to engage in a training program, and some may resent the suggestion that they do so. Thus, transportation officials should be leery of any strategy which even appears to suggest that citizens must engage in a training program as a prerequisite to participation in a transportation planning process. Designing the training format and materials requires special skills to insure that the content is neither patronizing nor pedantic, as citizens will resent such an approach. Written material must be carefully and sensitively prepared to be sure that it is relevant and understandable to a lay audience. (One of the best ways of assuring this is to write materials in the second-person "you" form, since this helps the writer constantly keep the citizen audience in mind, and helps the citizen reader identify with the material.) Training must be offered as an integral part of the decision-making process, less citizens view the effort as a diversionary tactic to "keep them busy," while the power-holders make the decisions.

Potential for Resolving Issues

Citizen Training will not necessarily resolve issues, but it can be an important element in helping the entire participatory process, since good training can serve as a critical precursor to a successful participatory process. When the citizens feel that training is offered to assist them in making significant inputs in the planning process, and when the training provides them with some planning skills, they are ready to engage in a substantive dialogue on the real issues.

51

Program Utilization

Citizen Training was used extensively in the social opportunity programs of the 1960s, particularly in Model Cities and OEO-funded programs. It has also been used, though to a more limited extent, in urban renewal and in urban and environmental planning. For example, in 1969, the Research Center for Urban and Environmental Planning at Princeton University developed a 592-page workbook designed to give citizens a tool for understanding planning section, a site-planning section, and dwelling-unit section.

Costs Involved

Costs will vary widely, depending on the format, the written and audio-visual materials, the number of staff and/or consultants, the costs of the meeting rooms, and the reimbursement or honoraria paid to the citizen trainees.

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SECTION 11:   COMMUNITY PLANNING CENTER

Description and Strategy

A Community Planning Center is a technique that enables citizens
and community groups to plan independently for their communities through
the continuous availability of multidisciplinary professional technical
assistance, employed by and accountable to a community-based citizen
organization, headed by a community board, operating with its own funds.
The broad-based Planning Center serves as an ongoing resource to assist
citizens in identifying community values, objectives, and problems, as
the basis for initiating its own proposals or reacting to official agency
proposals. Conceptually, the technique places citizens on an equal footing
with agency staff, allowing them to interact effectively with official
planning agencies.

The technique reflects in some measure certain citizen-based organiza-
tions in the 1960s which were generated by the concern of professionals
that the interests of low-income communities be represented in public
decision-making. These organizations, of which ARCH (Architects Renewal
Committee of Harlem) in New York City is a notable example, were
characteristically funded by private foundations and staffed with pro-
fessional social and physical planners.

Proposals for similar-type planning centers have been conceptualized
by Mottur as a method for citizen participation in technology assessment,
and by Reiner, Sugarman and Seley, for citizen participation in highway
planning. These conceptualizations address the issue of broad citizen
participation, rather than concern for any one special population or
special interest group. Both models propose that the citizen organization

54

be funded directly; in the former model, through dues, donations, grants, contracts, and a public bonding capacity; and in the latter, funded by public agencies.

The Community Planning Center allows citizens sustained independence to pursue community goals without the constraints and limitations of a public agency's scope of authority. For example, a Planning Center's analysis of a proposed highway could be interfaced with study of a proposed housing development or need analysis of a new school. In this way, the citizens could look at their community or neighborhood in its totality, as opposed to a fragmented approach.

The Community Planning Center can serve as advocate of the community's interests and values in developing proposals and in helping citizens deal with official agencies on technical issues. Its continuity allows for citizen participation in the implementation phase of an agency's plans.

The Community Planning Center concept differs from Advocacy Planning in both its scope and continuity, and from Community Technical Assistance in its community base and accountability to a community board. (See Advocacy Planning and Community Technical Assistance.)

Positive Features

Establishment of a Community Planning Center enables citizens who are concerned about their community to articulate their values and priorities by attacking community problems and by reacting to proposals that have an impact on community life. It provides the agency with an ongoing community communication mechanism, and it provides the citizens with a sustained mechanism to hold public officials accountable for their actions.

55

Operating with independence, the community board can select and direct its own staff. It has the capability to respond effectively to agency requests for input and reactions, and thus can provide the agency with feedback on various elements in the planning process on a timely and regular basis, so that issues and problems are identified early in the process. With its own professional staff, the citizen organization has the status and expertise to examine and challenge agency data and value sets, to initiate its own proposals, and to develop alternatives to agency proposals. It has the capability of carrying out specified tasks for the agency, such as surveys, and in so doing creates greater community confidence in agency proposals .

Citizens involved in the Community Planning Center have the opportunity to work directly with professional staff and develop increased knowledge of technical aspects of planning, increasing their effectiveness to participate in other planning efforts.

Negative Features

Financing the Community Planning Center can present problems. When funded directly by the public agency, there is a potential for cooptation of either the board or its staff, whose stability of employment is ultimately dependent on agency funding. When the Community Planning Center is funded through foundations or contracts with a public agency, there is the potential of the center being more responsive to the interest and priorities of its funding sources than to the community it represents. Limitations in funding may constrain the Community Planning Center's capability to

provide technical assistance in all aspects of planning. Even with its own
professionals, the Community Planning Center is dependent on the cooperation of
the public agency to supply adequate and valid information; limitations
in access to information seriously impede the planning capability of the
Center. Inasmuch as the Community Planning Center may represent contending
interests, an adversary process could develop, hampering communication
between the community and the agency, and limiting the potential for
negotiation. Unless the community board has, or develops the capability for
holding, its community staff accountable, it is quite possible that the
staff will dominate the citizens' dialogue and usurp the citizen-based
value sets and priorities.

Potential for Resolving Issues

With the Community Planning Center evaluating and possibly challenging
the validity of the public agency's data and value set, controversy and
conflict can develop, but could lead to mutual changes in perspectives
and/or a redefinition of goals. The technique offers a good potential
for resolving issues through negotiation, persuasion, and trade-offs.

Program Utilization

Most of the existing centers have been financed by foundation grants,
universities, or the American Institute of Architects, to focus on
environmental and design problems in housing and community development
programs. The first center, Architects Renewal Committee in Harlem
(ARCH), was created in New York City, and received a grant to help

57

residents of East Harlem participate in the urban renewal program. A
Citizen/Government Transportation Planning Center has recently been
established in the Hartford, Connecticut, area. It is jointly funded by
Federal, State and local Governments.

Costs Involved

Financing a Community Planning Center, with capability to assume
responsibility for a variety of planning problems, is expensive. A
typical budget for staff, consultants, telephone, reproduction of
materials and mailings, could run to $200,000 a year. More modest
staff would reduce costs to about $60,000, but also reduce planning
capabilities.

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SECTION 12:   COMMUNITY TECHNICAL ASSISTANCE

Description and Strategy

Community Technical Assistance is a technique which enables citizens effectively to develop positions on the planning issues at hand. The theory of technical assistance stems from the view that the group which has access to qualified and empathic technical assistance will be better equipped to participate in the technical process of a planning operation, and will have a major influence on resulting decisions. By having access to technical expertise, citizens who may approach problems and issues from a different value-base or point-of-view would be closer to parity with agency staff in making recommendations, and press for their merits before the decision-makers.

As a concept in transportation planning, technical assistance developed from the objections of community organizations to the "closed" technical processes of most highway and other transportation planning agencies in which the data and information developed by agency and/or consultants to support plans presented to the decision-makers (and used by them to arrive at decisions) were not available (or were not comprehensible) to the community organizations. These decisions were often presented to the affected communities and the general public with the "facts" developed by the technical process providing the prime rationale for the decision. The affected communities would often view the "facts" in a completely different light than the agency, and might also tend to consider other information, either not presented or not given prime attention, as being more important to the decision.   Technical assistance

59

was designed to provide interested groups and organizations with help, so that they could develop their own technical information and also develop and present their own alternatives.

Technical assistance can take a variety of forms:

- The technical staff of the official planning agency can provide technical assistance as part of their regularly assigned functions.

- The official planning agency can designate special staff, possibly selected by the community group, assigned to provide technical assistance to the group requesting it.

- Assistance in the form of funds can be provided directly to a group to hire their own independent consultants or staff to help them undertake their own studies independent of the official planning process. (See also Advocacy Planning.)

- Outside groups and organizations can arrange for their own independent technical assistance through independent funding sources or recruitment of technically qualified volunteers, such as students and faculty of universities, pro bono consultants and lawyers. (See also Community Planning Center.)

Positive Features

Good technical assistance makes it possible for citizens to grasp the complexities of the planning process and the technical issues involved. When the official planning agency is willing and able to provide technical assistance to the community group on a basis the group can accept, the assistance helps to develop trust between the

60

planning agency and the citizen group, even when there are disagreements on policy and programs. The planning process, and the quality of the dialogue, is enhanced when trusted technical assistance is provided. It creates opportunity for early identification of issues and problems, and regular feed-back for the agency as planning develops. Working directly with professionals and exposed to the technical aspects of planning, citizens develop greater appreciation and understanding of the planning process, its constraints, and its opportunities.

Negative Features

When the assistance is provided by the planning agency, it can divide the loyalties of the agency's technical staff -- i.e., those staff assigned to work with the community group may be placed in conflict about whether they are accountable to the citizens group(s) or the agency. If the agency staff is not fully committed to the technique, the staff may withhold information from the community group or attempt to coopt them to the agency's point-of-view and interests. If technical assistance is only provided to those groups which are most active and vocal, the results of the participation could be biased in their direction, and other groups with equally legitimate interests could be left out. Provision of technical assistance can be a significant drain on the resources of a planning project. In some communities, agency-based technical assistance may be distrusted by the citizens as a result of past experiences which were negative; in such cases, independent technical assistance may offer a more effective method for interaction. (See Advocacy Planning and Community Planning Center.)

61

Potential for Resolving Issues

High-quality technical assistance enhances the possibility for resolving issues. The dialogue between the community group and the planning agency can lead to negotiation, trade-offs, compromise, as well as changes in perspective on both sides and a redefinition of goals.

Program Utilization

Technical assistance was required in all Model Cities programs. It has been provided to local communities by such State planning agencies as the Department of Community Affairs in Massachusetts, and the Urban Development Corporation in New York. The technique has also been used in many urban renewal, Headstart programs and comprehensive health planning projects.

In transportation planning, community technical assistance has been provided in highway planning in the New York City Westside Highway Project, in the Boston Transportation Restudy Project, and in several California location studies.

Costs Involved

Costs vary, depending on the complexity of the community and the technical issues involved. They involve professional staff or consultants assigned to work with the community group, additional office space, clerical support, and the reproduction and distribution of materials.

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Description and Strategy

Computer-based participation is a generic term describing a variety of experimental techniques which utilize technology to enhance participatory processes. Through application of computer technology, these techniques offer innovative methods for group communications, goals formulation, and problem-solving. The techniques, employing different types of hardware and directed toward different aspects of the participatory processes, cluster around four major themes: (A) Conferencing, (b) Polling, (C) Gaming or Simulation, and (d) Interactive Computer Graphics. While some of the techniques are only in developmental stages, others are currently available, though not widely tested.

1. Teleconferencing

Computer conferencing as a communication and problem-solving technique has evolved from a proposal to utilize the capacities of the computer to overcome some of the time lag, and therefore the number of possible iterations, in a face-to-face or mail Delphi process. (See Part D, p. 215 for a detailed description of the Delphi process.) In computer conferencing, participants who are geographically dispersed are linked up through remote terminal keyboards, connected to a central computer, with a cathode or plasma ray tube display and/or printer. The computer is programmed to sort, store, and transmit each participant's message. Participants "talk" and "listen" to each other by typing out their messages and reading those of the others.

Computer conferencing programs, each with distinctive features, have

64

been developed and are being experimented with under both public and private auspices. EMISARI, a management system program developed by Turoff and used by the former U.S. Office of Emergency Preparedness (OEP), allows the participants to interact at the same time or at a time convenient to them; messages can be retrieved, edited, or changed by participants, and specialized forms of information, such as charts and tables, can be displayed. As used by OEP, EMISARI has been described as being "in effect an unlimited-size electronic blackboard on which any of the participants could insert data, raise queries, or request revisions." The software for the conferencing aspects of EMISARI, created by Language Systems Development Corporation, is currently available as a computerized conferencing system.

Among other conferencing programs now in use or being developed are DISCUSS, a program devised by Umpleby and co-workers, which adds conferencing features to the computer-based instruction system known as PLATO, which utilizes a plasma ray tube to display messages in the form of either graphics or alphanumeric symbols, thereby expanding types of data and information available to the participants; IFTF, a program linking participants involved in the work of the U.S. Advanced Research Projects Agency, can tap into data files elsewhere by the use of codes punched into remote terminals and can combine the data with a computation capability; MAILBOX, a commercial application of computer conferencing developed by Scientific Time Sharing Corporation, links employees in more than 20 different locations, as well as customers, with the firm. MAILBOX is utilized for technical discussion among employees and information exchange with customers. In an experiment

with a program called DELPHI CONFERENCING, Turoff conducted a 13-week

conference involving 20 participants throughout the country. In this

demonstration, the computer maintained a record of the discussion items

and how the group voted on them. A developing system, MINERVA, projects

use of a terminal associated with a telephone or cable television set to

enable citizens to discuss and register their positions on public policy

issues. MINERVA researchers at Columbia University seek to combine

features of conferencing with polling.

For transportation agencies interested in involving citizens groups

which are geographically dispersed, as would be the case in highway

systems planning or in a corridor which extends through several com-

munities, computer conferencing offers a potential innovative approach

in the long term. With access in their own communities to terminals

connected to a computer at the central or regional planning agency,

citizens groups could engage in a discussion with each other and with

agency planners on the issues and problems involved. Data, including

graphics, could be made available to all participants in the same form

simultaneously, and it could be iterated and reiterated. The capacities

of the computer permit a dialogue, sharing of information, and the

reactions of the various parties-at-interest.

2. Polling

Researchers at the Community Dialog Project at the Massachusetts

Institute of Technology have been experimenting with the use of computer-

based polling technology in face-to-face meetings, In their approach,

utilizing hardware developed by T. B. Sheridan and Associates in

conjunction with the Public Broadcasting System, each participant in the

group indicates his response to statements, pictures, or actions through a hand-held console with a ten-position thumbwheel switch, connected to a special purpose digital mini-computer, which collects and stores the votes, which are then displayed on a large electronic "tote board." The system can be utilized for different modes of group meeting procedures, and has been used in more than 200 citizen meetings involving from ten to 90 participants, including an ad hoc citizen meeting on public transportation problems. The technology-augmented meeting procedures give all participants equal opportunity to register their votes with anonymity (if they so choose) and to get immediate visual feedback on the combined opinions and attitudes of the entire group. With the assistance of a skilled moderator, the polling system enables rapid appraisal of consensus/dissensus, allows participants to reveal needs for additional information, to discuss controversial questions without intimidation, and to ascertain priority interests of the group. An adapted version of the technology used by MIT is available commercially for approximately $3,000.

3. Games

Considerable research efforts have been directed toward the development and application of interactive computer-based games and/or simulations for complex areas of public policy planning and decision-making. (See Game Simulation technique for extensive discussion of simulations.) At the computer-based Education Research Laboratory at the University of Illinois, researchers are experimenting with the use of the teaching computer system, PLATO, for citizen sampling simulations directed toward

67

involving representative samples of a population in the discussion and exploration of policy alternatives. Several experimental programs have been developed and tested in the Illinois area. In one such experiment, citizens in the Champaign, Illinois, area explored a local environmental issue. The Illinois researchers feel that the teaching computer has a unique capability to incorporate data banks of social indicators and all-machine simulations into human player games. A case study of the computer-based-planning games, APEX, is included in Part B of this report. Additional discussion of game simulations may be found on page 97 of this Part of the report.

4. Interactive Graphics

Interactive graphics, relying on a graphics console for the input of data, human judgment, and the graphic display of information, are the basis of a number of experimental systems developed for transportation planning and design, used to date to a limited extent by various types of professionals for specific planning and design objectives. These systems generate graphic displays of physical masses such as buildings of highways. Among these experimental systems is GADS, a prototype geo-data analysis and display system developed by the Project of the IBM Research Laboratory in San Jose, and used by planners from the County of Santa Clara; and the prototype of an interactive graphic highway design system, developed by UCLA Systems Simulation Laboratory, that has the capability of dealing with almost all the major steps in generating and evaluating design alternatives, and can also generate perspective displays. This latter system is currently being developed into a fully operational system. Though still in developmental stages, computer-assisted interactive graphics systems, in demonstration, indicate their value in "translating" complex problems

68

into more easily understood terms. Experimental demonstrations of interactive graphics systems in transportation planning involving citizens and students, have been conducted at the University of Washington and the University of British Columbia.

Positive Features

Though still experimental, computer-based citizen participation offers new potential for enhancing the participatory process, particularly when the computer-based techniques are combined with a sustained participatory program. The unique capacities of the computer--its speed and memory capabilities--can be directed toward specific participatory problems. For example, computer conferencing can overcome the logistic problems of involving widely dispersed citizens groups by permitting groups of citizens at participating terminals to interact, identifying common interests, values, and areas of agreement and disagreement. Conferencing via computers makes possible a wide sharing of information which places citizens on a more equal status with each other and with planning technicians. Computer-based polling techniques, used in face-to-face meetings, could assist and augment natural discussions, permit all participants to be involved, offering anonymity when desired, and help the group to focus more quickly on the issues and trends, reducing the emotional level of the meeting. Simulations or gaming with computer-assisted interactive graphics can provide a mechanism for analysis and information with the clarity that a graphic presentation can offer. Use of non-verbal graphic symbols, in effect, creates a universal language, providing a common base of understanding.

Negative Features

For some citizens, computer-based participation may appear as an aspect of an Orwellian world in which the machine subjugates man to a programmed set of responses. Citizens who are distrustful of the transportation officials may view the use of "machines" as gimmicky, may be concerned about the validity of the computerized data, and may perceive it as a way to divert citizens from interacting directly with decision-makers. The use of computer technology for citizen participation raises substantive political and ethical issues as to the value judgments which are incorporated into programs, the right of access to information, the right of privacy through control of data generated through the participation of citizens, and the integrity of the institutions and persons which manage the computer facilities.

The potential for manipulation of citizens through computer-based techniques is heightened by the technology per se, since it can easily be used to persuade and to imply certainty about uncertain forecasting techniques. On a more immediate pragmatic level, the state-of-the-art of computer-based participation is still evolving. Some of the techniques are untried; others not widely tested. Little is known about the human factors involved in computer-based participation -- whether the technology is, in fact, dehumanizing, whether perceptions and reactions are affected and/or altered by the man-machine interactions. Hardware for computer-based participation is available, though expensive; the software, "the programs," are still highly experimental and largely unavailable. Use of computer-based techniques for citizen participation requires the availability of programmers and/or other technicians to assist

70

and involve the citizens, a factor which makes additional demands on the agency in securing this capability and on the citizens in investing their time and energy learning the assets and liabilities of the computer-based tools.

Potential for Resolving Issues

Experimental uses of computer-based participatory techniques have been limited. However, reports of demonstrations of polling techniques and computer conferencing appear to indicate that these techniques can assist in resolving issues. To the extent that any of the techniques aid in clarifying issues, in quantifying data, and improving the communication between citizens and planners, they can help toward changing the perspectives and in developing alternative solutions.

Program Utilization

As indicated earlier, computer conferencing was used by the U.S. Office of Emergency Preparedness, utilizing the EMISARI program. Derivatives of the program have been used in work on economic controls, assessment of fuel stocks, and production capabilities. A number of programs for exploration of alternative futures, utilizing the PLATO system, have been demonstrated in the Illinois area. Computer-based polling techniques were used in portions of a study conducted by the MIT Operations Research Center for the Massachusetts Department of Education. Interactive graphics have been used in a number of simulation programs designed for transportation planning and design, and demonstrated in Chicago, County of Santa Clara (California), and San Diego, where a regional planning agency developed an interactive graphic system for its

own use. Experimental work with students and citizens is also being conducted at the University of Washington, Massachusetts Institute of Technology, and the University of British Columbia.

Costs Involved

Costs involved in computer-based participatory techniques vary widely, depending on the system and program involved, e.g., installation of computer systems might range from $10,000 to several million dollars. Equipment prices for terminals have dropped over the past few years, and projections suggest that by 1980, they might be as low as a color TV; but present costs are still high. A PLATO, for example, could be available at about $7,500, plus long-distance telephone charges. Interactive computer terminals, which can handle both alpha-numeric and graphics, might cost between $2,700-$10,000. Monthly rental costs can be assumed to be about 1/36 of the purchase price. Commercial time-sharing costs for computer-based teleconferencing are about $20 per hour per user. The cost via dedicated mini-systems would be comparable to telephone rates, e.g., $2 per hour. Other types of costs involved in computer-based participation involve development of software programs and skilled staff required to operate the techniques for citizens.

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SECTION 14: COORDINATOR OR COORDINATOR-CATALYST

Description and Strategy

In the context of the participatory aspects of transportation planning, a Coordinator or Coordinator-Catalyst refers to an individual (and support staff) assigned the responsibility for personally providing the focus for involving citizens in a planning process. Such a person might be (1) the manager of the entire program who assumes the primary role for the participatory aspects, or (2) a special assistant or deputy to the program manager or director who takes on full-time responsibility for citizen participation as an adjunct to the program manager's responsibilities, or (3) a private consultant selected to serve as an interface between the technical team and the community. In any case, the Coordinator-Catalyst is a visible, identifiable, and responsible official of the particular planning or program structure who can speak with authority about the planning process and make programmatic decisions either alone or in concert with other high-level staff.

Bishop, Oglesby and Willeke distinguish between a Coordinator and a Coordinator-Catalyst: the role of the Coordinator is to remain in contact with and receive feedback from various parties at interest; the role of the Coordinator-Catalyst is to encourage interaction among these parties at interest. (See diagram from Bishop et al on the following page.)

The Coordinator's or Coordinator-Catalyst's functions might include the following:

1. Contacting directly groups and individuals with interest in the program and arranging for their participation.

74

FIGURE 1

COMPARISON OF THE ROLE OF
COORDINATOR AND COORDINATOR-CATALYST

The Coordinator

The Coordinator-Catalyst

Source: Bishop, Bruce A., C. H. Oglesby and G. E. Willeke,
Socio-economic and Community Factors in Planning
Urban Freeways, Stanford, California: Stanford
University Press, October 1969, p. 41.

75

2. Conducting the meetings and other features of the participatory process.

3. Synthesizing the views, attitudes and suggestions of the various parties at interest and incorporating them in the technical processes, where appropriate.

4. Maintaining liaison with various elements of the decision-making structure and acting as a link in the communications between these officials and various parties-at-interest.

5. Arranging (in the case of Coordinator-Catalyst) for the parties-at-interest to interact with each other by creating the mechanism for interaction (e.g., workshops) and providing the needed technical expertise.

Positive Features

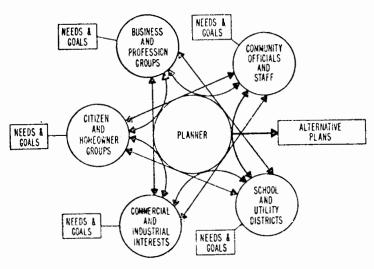A positive feature of a Coordinator as the focus of a participatory process is the concentration in one highly visible person of the responsibility for the participatory process. Once the Coordinator is identified, citizens know whom to contact and can look to the Coordinator to acquaint them with all relevant information about the planning process and its relevant critical actors. The Coordinator can also communicate directly with appropriate officials, handle grievances, and otherwise insure that the process operates up to its expectations. The assumption of such a role on the part of a program manager or someone in authority close to the planning process is usually a sign that there is a strong commitment to citizen participation on the part of the agencies involved.

76

Negative Features

Much rests on the capability and integrity of one person in this kind of role. Particularly in a highly controversial program, it may be difficult to find an individual with the diplomatic skills, the technical knowledge, the credibility, and the personality to relate to a wide variety of different groups and interests, and to cope with the constant pressures such a role involves. The Coordinator places himself squarely in the cross-fire of conflict, and if he or she cannot speak with authority, he becomes useless for resolving issues.

Potential for Resolving Issues

If the Coordinator has established sufficient trust and confidence of the various parties-at-interest in the agency and in the community, the potential for resolving issues is increased. Much depends on the nature of the planning issues involved, the nature and interests of the participating groups, and power and position in the planning structure of the Coordinator-Catalyst.

Program Utilization

In Boston, there is a Special Office of the Southwest Corridor Coordinator who is responsible for handling both the technical and participatory aspects of this very complicated transportation project. The Coordinator is appointed by and is directly responsible to the Governor. Many federally-funded programs utilize the services of a Coordinator or Coordinator-Catalyst, e.g., water resources planning, regional planning, and transportation planning.

77

Costs Involved

The major requirement is a highly talented full-time person, plus
backup staff (depending on complexity of the situation), with the potential
to be respected by all parties in the process. Talented specialists able
to play this role will probably be earning between $20,000 and $30,000
per year.

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SECTION 15: DESIGN-IN AND COLOR MAPPING

Description and Strategy

A Design-In is the term given to a variety of action-based, visually oriented, planning processes which enable citizens to work with maps, scale models and photographs of their neighborhood, to arrange and rearrange these items so that they and the planners can better visualize what effect alternative designs will have on their community. The concept is patterned after a technique which architects have used over the years, and employs the method of making pictures or models of a particular geographic area for which a facility or activity is planned, and superimposing various alternative designs on top of the model.

There are several different variations to a Design-In; some Design-Ins stress color mapping. Here, citizens are invited to come and, through the use of colored pencils, draw those areas which are the most important to them. A variation of this theme asks that they draw a picture of their community following use patterns: those areas which are used the most, those that are used the least, those which are used for public space, and those used for private space. This mapping process enables planners and citizens to highlight areas significant to the community.

In another variation of the Design-In, a model of a community is prepared (usually by planners or architects) which includes existing houses, buildings, roads, parks, shops, and other community landmarks. Citizens can take these models, move them around, and by superimposing

79

the proposed planning action (i.e., where to place a new road), provide the group with a "picture" of alternatives.

While there is no set format for a Design-In, there are a number of basic steps to the process. These steps may vary in sequence but include the following:

- The agency or organization proposing the planning alternative informs the community and invites citizens to participate in the process. Members are either selected from well-known rosters (i.e., questionnaires are distributed, community leaders are identified and asked to attend), or the invitation is extended at a public meeting, or through radio, television, fliers, newspaper articles, and posters.

- A self-selected group of community individuals or randomly interested citizens from the target area gather as a group. While there is no limit on the number that can make an input, the optimum-size group is between 25-30 people and should be no larger than 50 members.

- The group's first effort is to identify the issue(s) it wants to work on, and then agree on a policy for each, i.e., what problems do we want to work on and what actions do we want to take to solve these problems. A proposed list of issues and alternatives may be provided to the community group by the professional planners; however, the community group may also choose to draw up its own issues and alternatives.

- The group may choose to examine some historical information provided by the professional planners, which describes how other groups have dealt with similar planning issues, i.e., how have other groups tried to solve these same problems. The group may choose to use this information in coming up with their own design.

- At this point, the actual Design-In begins. The group may choose to work with maps and colored pencils and draw those areas of the community which are meaningful to them; they may choose to go and walk around their community and observe how their community is used, and then record these uses on maps; they may choose to take pictures of their community, and then put these together in a way that describes community use. The group may also be provided with materials by the planners with which to work. These may include a scale model of the geographic area and individual component pieces representing the potential actions to be taken. For example, if the action under consideration is where to put a new street, the group is given individual models of roadway sections, bridges, buildings, and other pieces that can be moved around. If the action being considered is where to build a new housing complex, the group is given models of housing pieces, parks, streets, recreation areas, stores, and other community segments that would be affected by where the housing was placed. The group then takes these pieces and

81

physically moves them around on a scale map and observes

what the various effects would be by choosing one

alternative over another. This process becomes

iterative, and designs are made and remade, pieces are

moved around, until in the end an alternative is arrived

at which allows for the greatest expression of community

choice.

- Design-Ins could elaborate on this process by plugging the
  various alternatives into an interactive graphics computer
  to obtain graphic displays of quantifiable impacts.

Through this actual design process, the professional planners

work closely with the community group and act in a resource capacity

by explaining and interpreting the effects of various actions,

providing technical information on those parts of the planning process

that cannot be changed (i.e., existing zoning regulations, historical

areas, State laws regarding layout of entrance and exit ramps on

highways, etc.) and by providing the materials and models that are

needed to conduct the Design-In.

Positive Features

The process allows citizen groups to show planners, through the

use of maps and models, what parts of their community are important to

them, what parts contain the greatest activity, what parts have

special value, etc. The process of moving model components around or

drawing maps helps them surface value-based inputs about their com-

munity. The Design-In also enables them to visualize what the proposed

changes might mean. Visualization is often a far more meaningful
process for the layman than reviewing written documents.

From the planner's point-of-view, the technique can result in new
alternative approaches which might have been overlooked. In addition,
it provides planners with a better sense of what tangible and intangible
aspects of a community hold the greatest value to its residents, so that
they can better anticipate and understand public reaction to alternatives.

Negative Features

Time and money place a limit on the number of citizens who can
participate in a Design-In. In addition, while the group may be self-
selected or preselected, generally only the most active citizens
will volunteer to participate in the process, and the results of the
Design-In are therefore likely to be skewed to their values and per-
ceptions which may overlook important value perspectives from other
sectors of the community. A major limitation of this process is that
many significant socio-economic and environmental impacts cannot be
demonstrated via the technique -- e.g., pollution emissions. Moreover,
planners are unlikely to help produce all the modular components needed
to be responsive to the citizens' proposed alternatives.

Potential for Resolving Issues

A Design-In has reasonably high potential for surfacing issues,
but needs to be joined with other participatory techniques for resolu-
tion of significant controversial issues. It is an excellent process
for exchange and change in perceptions on such issues as legal con-
straints and limitations, and individual value-based goals.

Program Utilization

While the concept of a Design-In has been in existence for some time, use of Design-Ins by citizens is not well documented. To date, the concept on how to use a Design-In has been spelled out by staff members at the Research Center for Urban and Environmental Planning at Princeton University, Princeton, New Jersey, and by the Georgia State Department of Transportation. The color-mapping process was used with residents of the Hill District in Pittsburgh, Pennsylvania, to indicate where they did and did not want a proposed transportation project to take place. Color mapping was also used by planners as a component of a general household survey in Hampton Roads, Virginia, to ascertain perceptions of neighborhood boundaries and travel destination points; the technique was used in this case to prepare an Environmental Impact Statement for proposed Interstate Route 664.

Costs Involved

A Design-In is a relatively inexpensive technique. The costs can vary widely, depending on the sophistication of material and professional advice that are made available to the process. On the simplest level, costs to be incurred are those of maps, colored pencils, paper, and other graphic materials (less than $100). On the more sophisticated level, costs include preparation of scale maps, modular design components, graphic background materials (i.e., zoning regulations, housing standards, etc.) (range of $1,000 to $5,000). In addition, professional time of in-house or consultant staff is involved.

84

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SECTION 16: DROP-IN CENTERS

Description and Strategy

Drop-In Centers are usually located in an accessible place in a neighborhood and community, where residents can stop by and see or pick up information on a particular project or plan of interest to them. They are staffed by people who are capable of answering questions and listening for citizen reactions, and transmitting information to other members of the agency.

Drop-In Centers can be stationary i.e. in a store front or a local public building, or mobile i.e. in a trailer which changes location from time to time. They can be relatively permanent, covering a substantial part of the time a project is being studied and debated, or they can be temporary, in existence only preceding some major procedural event like a public hearing. Centers can be operated by the planning agency itself, or some local neighborhood organization can be recruited to provide this service in their own facilities.

By having a variety of exhibits, charts, maps, written documents, reports, brochures, and staff available, they provide a method through which interested citizens can get information about plans and programs at their convenience without having to attend scheduled meetings or to travel long distances to get information that might directly affect them. Drop-In Centers can run the gamut from informal settings to sophisticated situation rooms. While complex situation rooms have become standard practice in military and space programs (e.g., the National Military Command Center and NASA's Goddard and Houston Mission Control Centers), in recent years, various social and environmental planning programs have

86

adopted the technique of using sophisticated audio-graphic-visual means of synthesis and display to improve decision-making. NSF is currently funding the design phase of a sophisticated regional situation room in Santa Barbara to demonstrate that graphic technology, managed in a neutral forum, can help citizens and policymakers vastly improve analysis and discussion of regional problems, options, and issues. The Santa Barbara project, known as ACCESS, will experiment with a situation room that employs such technologies as maps and physical models, aerial photography and satellite imagery, computer graphics, interactive cable TV, citizen polling and feedback systems, etc.

Operation of a Drop-In Center usually requires quite careful planning and effort. The following are the major factors:

1. Determining where and when a center (or centers) would be appropriate: in highway planning there is usually a period in the process where neighborhood interest and anxiety will tend to peak. This is probably the time when a center would be of most use. Hours of operation should be adjusted to the needs of the community; for example, housewives might drop in during the afternoon, but employed people would more likely come at night or on weekends.

2. Providing the kind of visual and written material that will be of most use to the affected neighborhood: comprehensible maps, charts, brochures, equipment, models.

3. Providing for staffing at the center: while centers could operate solely on an "exhibition"-type basis where citizens come in and look, it is usually preferable if the center is staffed with someone who can explain plans and programs to those who drop in and can listen to their comments and communicate them to appropriate staff or agency officials.

4. Determining the aegis under which the center should operate: sometimes it is desirable from a number of points-of-view to have the Drop-In Center operated by an existing neighborhood agency which provides similar services for other programs. This can perhaps maximize the exposure of the information to people who would otherwise not be aware of the particular transportation program.

5. Planning one or more open houses (with attendant publicity) as an effective way to get a Drop-In Center started: this can provide a relaxed informal event that draws attention to the facility and provides initial interaction among the parties-at-interest.

Positive Features

Drop-In Centers can provide a convenient way for people who should know about a program or a plan to find out what they would like to find out. In addition, they represent a tangible, visible commitment on the part of a planning organization to communicate with affected and interested citizens. People can study the proposals, maps, and models at their leisure, and can get explanations in private without the

88

prospect of asking a question at a public meeting in fear of being "put down" publicly. They provide a means for the public to become acquainted with the agency staff and for the staff to become more aware of public interests, perceptions, and concerns.

Negative Features

Operation of Drop-In Centers can be costly. In a typical highway planning project involving one eight-mile corridor traversing five different neighborhoods or communities, it would be desirable to operate at least one Drop-In Center in each of the affected neighborhoods for a significant period of time. For example, a Drop-In Center might be desirable for as much as three to six months during the course of the technical work formulating the alternatives and for perhaps, two to three months prior to public hearings and decisions. Without knowledgeable, responsible staff in each of the centers at all times, much misinformation can be communicated at the center which can actually alienate people. Use of mobile centers might be more efficient, but there are additional hardware costs associated with these. Another negative feature is that Drop-In Centers need to be carefully coordinated with the overall planning process to be sure that the centers don't raise expectations that the agency staff is unable or unwilling to fulfill.

To justify the operation of a center on a fairly substantial basis, one would have to determine that this method would indeed reach a significant number of people. If the level of interest in the particular planning issue is not high in a neighborhood, a Drop-In Center might be substantially underutilized.

89

Potential for Resolving Issues

Since there is little direct dialogue between and among parties-at interest, the ·potential for resolving issues through such a dialogue is low. The major use for this device is two-way information flow.

Program Utilization

Highway (Project level) planning has used both mobile and stationary Drop-In Centers extensively. Regional planning agencies and Model Cities programs have also used this technique.

Costs Involved

Costs are relatively high, since both staff and equipment are involved. Materials designed for lay understanding are also costly to produce.

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SECTION 17: FISHBOWL PLANNING

Description and Strategy

Fishbowl Planning is a relatively new method of involving citizens in a planning process. The technique was developed by Colonel Howard Sargent as a management planning process for work at the Department of Defense, and later introduced by him into the Army Corps of Engineers for water resources planning. The term "fishbowl" is used to denote an open planning process in which all parties-at-interest can express their support or opposition to an alternative before it has been adopted, thereby affecting or restructuring the plan to the point where it is acceptable to them.

In Fishbowl Planning, alternatives to a particular project are identified and described by the planner in a series of Public Brochures. Interested groups and individuals indicate why they are for or against each alternative, and their comments are reported in successive issues of the brochure, which is circulated to all parties-at-interest. The alternatives are then restructured, and, in the end, the proposed project can be redefined in terms of enhancing positive impacts and reducing negative impacts to various parties-at-interest. The process allows the planner to understand and, theoretically, discard the most controversial aspects of a plan; it also allows the general public to react, redefine, understand, and, if successful, support the final outcome.

There are four main components in Fishbowl Planning:

91

● Public Meetings. Public meetings are called at the
  beginning and throughout the planning process. They are
  open to everyone. Individuals, agencies, and groups
  present their thoughts, discuss proposed alternatives,
  and register their support or opposition to the
  alternatives.

● Public Brochures. Before each public meeting, agencies,
  organizations, and individuals interested in the proposed
  project put down in writing the alternatives they wish to
  have considered, and indicate the pros and cons that each
  alternative presents. These alternatives are then reduced
  to a two-page written statement and printed in a brochure.
  The left-hand side of the brochure describes the alterna-
  tives, while the right-hand side lists the pros and cons
  of each alternative. For every alternative, there is also
  a "no action" alternative. Rebuttal space is provided in
  the columns across from each pro and con. Each statement
  is signed by the individual or organization that registers
  its approval or disapproval.

The sponsor provides technical assistance to citizens in
drafting their own alternatives. The brochure provides
the opportunity for each party to clearly express itself
in writing, identify itself, and explain its particular
preference. The brochure is written and distributed before
each meeting, so that all the actors and their positions

92

(including changed positions) are identified.

- Workshops. Participants are invited to a workshop to discuss alternatives. These alternatives are used as input for the next brochure. Workshops are limited in their size, usually small groups under 30, and in the number of alternatives they consider. Sponsors are present to record the issues raised.

- Citizens' Committees. CITCOMS are self-selected groups which consist of representatives from various formal interest groups and local government agencies, who get together to suggest additional alternatives and to recruit citizen discussion leaders. These discussion leaders are selected to define a specific alternative in a public meeting or in a workshop. CITCOMS also work to pass on study information to interested groups, and are given administrative assistance by the sponsor or the initiator of the project.

These four components are used several times throughout the course of the planning process in a sequential series. Typically, the process calls for four public meetings, seven brochures, three workshops, and as many CITCOMS as may be necessary. The sequence usually begins with a general public meeting, followed by a brochure, a workshop, and a citizens' committee meeting.

Positive Features

Advocates of Fishbowl Planning note that the process allows the general public, special interest groups, and public agencies to become

93

involved in the planning process from its beginning. Each party is given the opportunity to present views in writing and to register support or opposition to other views. Each party-at-interest is identified. Participants come to public meetings knowing the alternatives under consideration, knowing where others stand, and sharing information. Each participant shares in the process, and there are no priorities granted to one group or individual over another. Participants receive constant feedback on where others stand, and can observe and affect how the issues and priorities change. The process of iteration that takes place allows the participants to screen out those alternatives that are unacceptable.

From the planner's point-of-view, all information is shared equally, and public opposition and support alert him to the most acceptable alternatives for the project. The public reacts to substantive issues, and much of the emotionalism surrounding the process is therefore dissipated. The planner can receive all this information before an alternative is selected and if the process is successful, can therefore expect to have a broad consensus at the time of implementation.

Negative Features

Critics of Fishbowl Planning argue that the public is presented with a limited amount of information to begin with and that the information has already been preselected by the sponsoring agency and is therefore limited, biased, and predisposed toward the sponsor's project. They argue that the public is not given all the necessary information, particularly the major analytical assumptions used to determine

94

feasibility of alternatives and the political decision-making affecting the planning process. Critics also report that the problem has been defined by the agency and that the public is only asked to respond to the agency's perception of the problem rather than define the problem from a broader standpoint. Another concern is that the public's choice of reacting to an alternative is limited by the need to respond pro or con and that there should be a mechanism for registering general comments on an alternative as well. In addition, the format of the Public Brochure is criticized as a rigid, technical, bureaucratic document which should be written in lay language.

Some organized citizen groups have complained that they are more informed on the issues than the general public, and therefore resent the fact that their more knowledgeable inputs carry no greater weight. There is the common complaint that only the well-established citizens' groups are informed of the projects (through the initial mass mailing) and that this method excludes other equally important, although less readily identifiable, groups.

Potential for Resolving Issues

While critics have argued about the limitations of Fishbowl Planning as it has been practiced in its developmental stages, evaluation findings suggest that if improvements are made in carrying out the process, it has high potential for raising and resolving issues, since it provides the framework for identifying parties-at-interest, engaging them in analysis of issues and alternatives, and enabling changes in perspectives, as well as modification of alternatives selected.

95

Program Utilization

To date, Fishbowl Planning in the public sector has been pioneered by the U. S. Army. Corps of Engineers, most notably in its Snohomish River Basin Study, the Snoqualmil River Joint Study, Nooksack River Basin Study, and Flathead River Levee.

Costs Involved

Fishbowl Planning is a relatively expensive process which involves a large number of actors and has a large number of steps. The sponsor must assign technical staff to work throughout the process with several meetings, workshops, and CITCOMS. In addition, there are dollar outlays for the production, distribution, and revision of the Public Brochures. Rough cost estimates range from 10 percent to 20 percent of a total study cost.

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SECTION 18: GAME SIMULATION

Description and Strategy

Game Simulation as a tool for urban planning is less than ten years old. The primary focus of Game Simulation is to enable various parties-at-interest to experiment in a risk-free "laboratory" with alternative policy options to determine the impacts of those alternative policies in a simulated environment where there is no actual capital investment and nothing of real consequence at stake. Thus, Game Simulation may be seen as a non-pedantic training tool which combines systematic analysis of a complex situation with dramatic elements of competition, conflict, tension, and reward for achieved insights.

Using the game as the medium players learn the structure and relationships among abstract concepts such as competing value bases, differing impacts of alternative actions, benefits and disbenefits of various impacts upon different parties-at-interest, and the principles of action and reaction within dynamic processes. A good game makes possible a comprehensive experience which includes both cognitive learning and affective experience.

Game Simulations fall into two broad categories: manual grid board games and computer-based gaming models. These games, of which there are now well over 100 in urban affairs planning, include simulations of problems in water pollution, transportation, land use, racial discrimination, urban politics, health planning, new town development, city growth, model cities planning, regional planning, land development, and urbanization. Most of the manual games are designed primarily as training tools,

97

while many of the computer-based games have been developed for both research and training purposes.

Games vary in complexity and in length of time required to play (three hours to five days), and some games emphasize playability, while others emphase "reality" (with the constant trade-off between these two evidenced in almost all games).

While the computer-assisted models generally try for greater comprehensiveness and quantitative "reality," the manual models generally seek to teach principles of relationships and behavior. Computer-based models are, of course, more expensive to develop and to operate, while the manual models can be more easily moved from location to location, and the rules of the game are easier to learn before play starts.

Many of the game simulations have transportation as a component issue, but only two are known to be solely devoted to transportation: "Transportation Planning Simulation," developed by Applied Decision Systems, and "Participation," developed by Professor John Seley of the University of Minnesota. "Participation" is designed to provide insight into the dynamics of public participation in the highway planning process. The game is deliberately biased in favor of the planners to reflect an unbalanced, non-zero sum conflict situation, and the game designer regards the game as being in the "rough" developmental stage. "Transportation Planning Simulation," which was funded by the Department of Transportation, is a computer-based model designed to provide insights on the dynamics of the urban system, the conflicting goals among the parties-at-interest, and the impacts of a participatory process. The three-day Game Simulation integrates quantitative information from a

98

metropolitan area of 750,000 population and underlines the trade-offs
between behavioral and technical considerations.

Positive Features

Game Simulation makes it possible to involve various parties at
interest, including agency officials, elected officials, and citizens,
in both a learning environment and an interactive communications
environment. Even if the game being played is not directly related to
the locale or the functional problem being addressed by the various
parties-at-interest, the game has value in teaching principles of
behavioral and systems dynamics. Players report that they emerge from
these games with a "feel for how it is," as well as an improved under-
standing of the physical, institutional, social, economic, environmental
relationships involved in coping with urban problems. Since one of the
chief difficulties in public participation is that citizens and public
officials frequently have different value bases, different vocabularies,
as well as different grasps of the technical options, the game is a
useful device for simultaneously coping with these individual problems
and their interrelationships.

Players learn from each other and can teach themselves as they get
immediate feedback (reinforcement) from the game on their actions.
Motivation to learn can be increased through the drama of the situation,
including the competitive element of the multi-player games.

In addition, Game Simulation offers a technique for teaching what cannot

be readily taught by more traditional methods: non-linear causality,
synergistic benefits, and non-zero sum options.

Negative Features

Gaming is still in its developmental stage. There are innumerable
games which purport to do more than they can actually deliver, parti-
cularly those games which purport to have a quantitative predictive
capability. Since many of the social impacts of transportation planning
are neither quantifiable nor subject to general scientific laws about
empirical events and objects, the game can be misleading to those who
are unaware of its empirical shortcomings. Gaming presumes that answers
are known to the extent that different courses of action are punished or
rewarded, but if these answers are based on inadequate theories and
unproved hypotheses, as they frequently are, they can be exceedingly
misleading. Since all game designers must face the issue between playa-
bility and reliability, many game models are too simplified and result
in superficial learning, while many other reality-based games may take
too long to learn and/or to play.

Potential for Resolving Issues

The technique is good to excellent for building an environment in
which real issues might be resolved on the basis of principles learned
and agreed to in the simulated environment. Games are also parti-
cularly good for helping to resolve issues with non-verbal, non-
articulate people who can play out their concerns more effectively than
they can articulate and defend them.   As the case study of game simulation
on page 119 of Part B relates, the large·time commitment required to what is
seen as only a learning process may be a great limitation on this techniques'
usefulness in resolving issues.

Program Utilization

The Model Cities Administration contracted with two firms to create Model Cities planning games especially designed for use by citizens and planners, and the Department of Transportation supported the Transportation Planning Simulation for the same purpose. CLUG, probably the oldest of the urban planning games, has been extensively used by State Cooperative Extension agencies. BUILD, which is a computer-based game that can reflect any small community or portion of a large metropolitan area by changing the data base, has been used by several Model Cities groups. APEX, funded by the National Air Pollution Control Administration, is designed to train pollution control officers, but has been used for environmental representatives as well. CITY I has been used by the Virginia Division of State Planning and Community Affairs for both agency officials and citizens. The Atomic Energy Commission, as part of its National Citizens Workshops program, uses a computer-based Energy Equipment Simulator, which enables citizen participants to examine the intricate interrelationships among energy demand, fuel supply, and environmental impacts; since its creation in 1973, the electronic game has been demonstrated approximately 1,500 times in about 200 cities.

Costs Involved

Many games relevant to public participation in transportation planning are available on a contract demonstration basis, with the game manager charging between $100 to $500 per day. A goodly number of the urban planning games which are relevant to transportation planning have been developed by university-based game designers who are eager to

demonstrate their game either at the university or in the local community

for a modest cost, sometimes limited to the computer-time fee.   To

develop a game using data from the local area, State, region, city or

neighborhood could cost between $10,000 and $2 million, depending upon

the objectives, complexity, and quantitative "reality" needs.

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SECTION 19: GROUP DYNAMICS

Description and Strategy

Group Dynamics is a generic term classifying a variety of (1) interpersonal techniques or exercises designed to facilitate group interaction and achievement of group goals, and (2) problem-solving techniques designed to clarify substantive issues.

Developed from the identification of, systematic study of, and research into the phenomena of small group behavior, each technique is designed to meet a specific objective toward enabling or assisting a group to work together more effectively and productively. While many of the techniques were developed in other areas of organized human activities, such as business development or group therapy, they have a direct application to issues and problems in citizen participation.

The battery of techniques vary in level of sophistication and degree of activity but share some common characteristics, such as:

- Small Group Involvement. Techniques are designed for small groups, ranging from five to 25 members. If utilized with a larger membership, participants are divided into small groups.

- Skilled Leadership. Techniques require the direction of a group leader knowledgeable in and comfortable with the use of the particular technique. The role of the leader involves setting the stage for a technique by providing a general introduction and rationale, directing the process and specific activities that may be required, and generally

104

keeping the process going to its conclusion.

- Structured Process. Each technique involves a controlled, specified activity or series of ordered activities and/or tasks for all the members of the group.

- Timing. Each technique covers a specific time span, ranging from 30 to 90 minutes for completion.

Group dynamic techniques can be employed at almost any stage of the planning process in which citizens are participating in a task force, an advisory committee, a neighborhood planning council, a neighborhood meeting, or in some structure in which citizens and agency staff are participating together or come together to work on a problem. Choice and use of any one particular technique is determined by such factors as the stage of development of the group and its pattern of functioning (first meeting, second meeting, degree of cohesiveness, etc.); the composition of the citizen group (diverse backgrounds, points-of-view, previous participatory experience, etc.); and the task or problem to be addressed (problem identification, issue clarification, selecting priorities, etc.). Selection of the appropriate technique or techniques at any particular stage requires professional analytical skill and familiarity with the various techniques and their specific objectives.

The interpersonal techniques or exercises are designed to enable and assist the group members to work together effectively by building group identification and commitment and/or removing barriers that impede or interfere with concentration and action on the issues which brought the group into being. Among such facilitating techniques are the following:

1. <u>Conflict Utilization Opinionnaire</u>   Through written exercises, participants record their attitudes and opinions on conflict and so identify their own particular "conflict style," and thereby better prepare (through new understanding and discussion) to face conflict.

2. <u>Empathy</u>   This is an exercise which enables each participant to compare his own observations on certain subjects with those of the other members of the group. This technique is based on the concept that, when members feel they are in tune with the group, they feel free to share their ideas and attitudes.

3. <u>Feedback</u>   This exercise is a process in which each member of the group communicates the effect of the behavior of one person or another, or on the group as a whole. Controlled by the group leader so that the information or observations are presented in a constructive manner, the exercise heightens self-awareness of the participants and leads to more effective group functioning.

4. <u>Relations Diagramming</u>   An exercise that visually demonstrates the relationship and interdependence patterns in the group, and thereby assists the participants in understanding how and why the group is functioning as it is.

5. <u>Video-Taped Group Review</u>   A video-tape of a previous meeting of the group or a video-taped discussion during a meeting is played to illustrate and demonstrate behavior within the group. The device enables the participants to literally

106

see how they interact with each other.

In the general classification of problem-solving techniques are a variety of exercises especially designed to enhance creativity, clarify issues, define problems, examine alternatives, and solve problems. Among such techniques are:

6. **Brainstorming.** A simple technique, the exercise calls for each participant to state his thoughts and ideas on a specific problem in a free-thinking process in which no negative reaction to any idea is permitted. Following this process, participants evaluate the ideas that have been vocalized. The technique is useful in generating new ideas and fresh approaches.

7. **Force Field Analysis.** Based on Lewin's theory of opposing forces and his conceptualization for a method of change, the exercise involves a process in which participants identify the goal to be achieved or the problem to be solved, the "helping or hindering" forces related to it, and devise appropriate planning strategies. Each participant works independently, and then the group evaluates the results.

8. **Nominal Group Process.** A sophisticated technique developed by Delbecq, the process is based on the concept that persons think most creatively while working in a group but working silently. The process, designed to generate creative ideas, provides a structure for decision-making. Working independently, each participant writes

down his ideas. All ideas are then listed and discussed,
one at a time. The silent process is then repeated with
each participant selecting from the list and recording
those ideas most important to him. Each idea is recorded
on a separate card; cards are then ranked and filed by
the participant in rank order of priority. This second
round of ideas and their ranking is shared with the group.
The process is helpful in the task of selecting priorities.

9. Role Play. Role play is a simulation exercise which gives
participants the opportunity to examine strategy alterna-
tives, outcomes, and attitudes through acting out a discrete
situation about the subject or particular problem at hand.
Although there are various approaches to role play, a
common format starts with the definition of the situation
given by the trainer or selected by the group. Appropriate
roles are then agreed upon by the group, and participants
are selected or volunteer for the role play, or the parti-
cipants are selected and asked to devise their own roles.
In the actual role play, the participants act as though
they were involved in a real-life situation and give their
own interpretations of how the characters they are playing
would react. Group members who are not participating in
the role play serve as observers. Following the role
play, actors and observers engage in discussion and
analysis of the reactions of the players and the outcome
of the situation. This evaluation is a critical element in

108

the role play technique.

10. Synetics. This exercise is based on the use of metaphor and is designed to develop new points-of-view to a problem and is useful when seemingly all possible solutions have been exhausted. The exercise gives participants a mental rest from concentrating on the problem at hand and encourages them to discuss completely unrelated subjects. At the close of a given period of time, the metaphorical discussion is terminated and analyzed for possible insights into the original problem.

11. Thrust Problem Analysis. Similar to force field analysis, this exercise requires each participant to specify the problem as he sees it and then identify the thrusting and counter-thrusting forces toward change. The process assists in clarifying issues and devising planning strategies.

Positive Features

When the agency is committed to citizen participation, the use of Group Dynamics can enhance the participatory process and the contribution of citizens to the planning process.

The interpersonal techniques help mold the participants into a working group and create a climate in which their attention and energy can be focused on the task at hand. The various exercises heighten the participants' awareness of themselves as individuals interacting with other members of the group and sensitize them to the behavior of the

group as a whole. Involvement in the techniques provides experiential learning that the participants can utilize in other participatory activities.

Generally, the problem-solving techniques give each person equal opportunity to participate. The structured processes put all participants on an equal footing, minimizing unequal statuses within the group. They also prevent the more articulate members of the group from dominating a meeting session. The task, accomplished through a particular technique, gives the participants a sense of progress and success, encouraging them toward further work.

Negative Features

Group Dynamics require skilled leadership experienced in directing the exercises. If the agency does not have such staff capability, staff training in Group Dynamics is required. On the other hand, if an agency elects to designate an outside person to serve as group leader, the introduction of an outsider can disrupt the functioning of the group, raising questions and suspicions about the motivations of the agency. Group Dynamics require some level of sophistication and trust among the participants. Participants may object to "playing games" and feel that they are being diverted from the task at hand; others may object to being controlled and directed in the technique activities. When the group includes persons not facile in verbal, reading or writing skills, the experience of engaging in the technique tasks requiring such skills can be particularly frustrating and non-productive.

Potential for Resolving Issues

The interpersonal techniques have no potential for resolving the substantive planning issues, though they can resolve some group dynamics problems within the group. The majority of the problem-solving techniques can lead to changes in perspective as the participants have the opportunity to see or hear and discuss each other's ideas and reach consensus.

Program Utilization

Group Dynamics have been used extensively in a variety of settings of organized human activity. Many of the social opportunity programs utilized group dynamics techniques in work with citizen-based advisory committees, boards, and planning councils. Similarly, many regional planning commissions and Model Cities programs have utilized the techniques to improve participatory processes.

Costs Involved

Costs involved in using group dynamics techniques are not extensive. Assuming a group leader is available within the agency, costs involve flip charts, newsprint, blackboard, paper and pencils, and video-tape when techniques requiring it are used. Costs for outside consultants range from $150 to $1,000 per day.

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111

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SECTION 20: HOTLINE

Description and Strategy

"Hotline" is the term given to a telephone-answering system in which a caller is able to telephone in a particular question and receive either personal response to a query or a recorded announcement. The Hotline is an "easy-to-remember" telephone number which is circulated to the public at large through community meetings, radio-TV spots, advertisements in a local newspaper, newsletters, etc. For State and regional agencies, the Hotline number is usually toll free to facilitate its use by the public.

Hotlines have been used in several different ways:

- To record and distribute specific pieces of information, such as the time and place of public hearings scheduled, the name and phone number of specific staff to call for different types of information, etc. In this instance, the caller dials the number and receives a tape-recorded message on the information being sought.

- To respond to straightforward inquiries about a transportation plan or planning process, such as "where will the meeting be held," or "at what intersection will the interchange be located." In this instance, the Hotline is usually manned by public information staff of the agency who answer questions on the basis of a wide variety of resource information at their fingertips, or are able to obtain answers to

unanticipated questions from other staff.

- To record public inquiries/complaints and the telephone number of the caller. At various intervals during the day, a staff member listens to the taped messages, transcribes them, researches the information being sought, and then returns the call with the desired information. In the case of complex queries or complaints, the telephone call is returned by the technical staff person most knowledgeable about the issue.

Positive Features

A Hotline creates ready access to information available to anyone who has access to a telephone. Since Hotline service, in most instances, is open 24 hours a day, it provides the point of contact to citizens at times that are most convenient to them. If the number of calls and the substance of the calls are tracked and analyzed, the agency has an additional indicator of community interest. By providing toll-free service for large geographic areas, the agency is facilitating citizen feedback.

Negative Features

A Hotline, by itself, cannot be considered a participatory process. More often, it is an information-dispensing device which provides specific, limited pieces of information, and answers to simple direct questions. One of the biggest difficulties with Hotlines is that the staff person assigned frequently lacks the information that is being requested, and reacts defensively or insensitively to complaints from citizens. When this occurs, the Hotline is perceived by the citizen as

114

an additional barrier between himself and the technical staff.

Potential for Resolving Issues

The Hotline is severely limited as a device for resolving conflict or potential issues. It is a participatory tool only in the broadest sense that anyone can use it to find out how to participate more actively, or to get specific information about a project or a plan.

Program Utilization

While it is known that various transportation agencies use Hotlines, there is virtually no literature on the subject. In most major cities, Hotlines have been used to provide information about time, weather, stockmarket, airline schedules, cultural events, etc. In addition, various public agencies have employed the technique for crisis counseling on social problems, such as suicide, alcohol, health, child runaways, etc.

Costs Involved

Hotline is an inexpensive tool. Appropriately, major costs are $40 for installation, plus $25 per two hours of recording service for recording equipment, and $50 installation, plus $185 per ten hours of regional toll-free service. Other costs involved may include general advertising of the Hotline number and salary for the staff who answer the line.

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SECTION 21:   INTERACTIVE CABLE TV-BASED PARTICIPATION

Description and Strategy

Recent technological advances in two-way coaxial cable TV offer the potential for new forums of interactive public participation. While the most frequently talked about potential subscriber uses for two-way cable include pay TV, utility meter reading, fire and burglar alarm monitoring, remote shopping, banking services, electronic mail and newspaper deliveries, these same future capabilities could be used for such things as public polling on local public issues, dial-up video displays, and teleconferencing of public meetings.

Despite the extensive literature on such uses of interactive cable, there are little hard data available on the technical feasibility, economic viability, and the social utility of such governmental information services and participatory processes. While most cities are not equipped with two-way cable, the innovation may proliferate and may become significant in the next ten years, since the 1972 FCC rules require that cable systems installed in the 100 largest television markets must provide a channel for municipal services and an eventual capacity for two-way services. Also increasing the near-term possibilities are a series of NSF grants to seven cities to develop design experiments for two-way applications, with four of the grantees experimenting with public participatory processes (Peoria, Illinois; El Segundo, California; Allentown-Bethlehem, Pennsylvania, and Reading, Pennsylvania).

Examples of possible participatory applications (listed in order of increasing technological complexity and increased cost) that deserve

examination from future oriented transportation planners include:

- After the presentation of a live or videotaped telecast on transportation alternatives, citizens could be polled on their preferences (through a digital signal that they initiate by pressing a button).

- Meetings of a planning commission, city council or transportation task force could be televised, and viewers could signal their approval or disapproval of the proceedings at stated intervals, enabling both the participants in the meeting and the home viewers to see at a glance the straw vote tally.

- Several hundred citizens could hold electronic conferences with public officials over a feedback channel which carries audio as well as digital signals simulating a town hall meeting.

- Several hundred citizens could be engaged in both audio and video feedback, with a planning commission or city council meeting, if the citizens were grouped at various public meeting places where the more complex and expensive point-to-point terminals could be installed, e.g., community centers, schools, and libraries.

- Citizens could hold monthly teleconferences with the transportation officials, learning of new developments, questioning existing or proposed policies, and expressing their view. Such point-to-point conferences could also employ the ad hoc use of visual aids, e.g., charts, graphs, maps, design sketches, etc.

117

● Subscribers could, on their own initiative, dial-up requests for audiotapes or still pictures, e.g., planning documents, maps of alternative bus routes, meetings to be held, etc.

● Citizens and officials in one metropolitan area could compare notes with citizens and/or officials in another area on problems of mutual interest (if two-way cable is linked with satellite).

Positive Features

Two-way cable has the potential for increasing communications between public officials and citizens (also among citizens) who are geographically dispersed. It also has particular potential for obtaining feedback from citizens who are not interested enough or are unable to attend a public hearing or a task force meeting on a transportation problem, but quite willing to turn on their TV set to express their opinion. Similarly, it offers such possibilities for the more shy and timid citizens.

Depending on the quality of the telecasting, citizens could be considerably better informed about plans and the potential impacts of the various alternatives, since it requires less effort to watch one's TV screen than to read a study or to participate in a meeting.

Two-way cable also enables citizens of like views to identify each other and form alliances to press for their point-of-view.

Negative Features

The most promising near-term possibilities for cable TV are limited to citizen polling, and many complex transportation alternatives do not lend themselves to meaningful votes on a simplistic yes-no basis without prior dialogue. There is also the risk that instantaneous reactions from viewers will be emotionally triggered, as opposed to more

thoughtful responses which might be made after more serious considera-
tion. Further, polls could be a misleading indicator of public opinion
if the viewing audience is unrepresentative.

The more sophisticated interactive possibilities are considerably
more costly, since they involve two-way, audio-video equipment which is
too expensive to place in each home. Thus, camera-equipped terminals
are likely to be restricted to public settings like libraries, schools,
and community centers.

If cable TV follows the path of software for computer-assisted
instruction, it is likely that the quality and relevance of the software
will leave much to be desired, since the production of the software is
costly. If this is the case, the quality of the two-way communication
will leave much to be desired, and citizens will prefer to watch motion
pictures and baseball games. Citizens may also become more alienated if the
telecasts are biased, and if they feel that their views are being heard
but not heeded.

Potential for Resolving Issues

Interactive cable TV is more likely to offer opportunities for
providing citizens with information than it is to enable issues to be
resolved. Communicating with each other and with officials on television
lacks the immediacy of person-to-person communication, and creates an
artificial environment with time constraints that are likely to interfere
with serious attempts to understand each other's point-of-view and arrive
at specific agreements.

Program Utilization

To date, interactive cable TV has not been used for transportation planning. Most of the NSF-funded experiments focus on social service delivery systems and participatory processes involving the mayor and the city council (thus, transportation issues might or might not come into play). A HUD-funded demonstration to explore the potential impact of cable TV or broadband communication on the urban environment is also primarily concerned with testing the delivery of social services.

Costs Involved

Simple two-way cable systems which involve upstream communications from the subscriber limited to data messages, such as votes on a proposed plan, require a digital code, a subscriber-response service terminal in subscriber's home, and a computer at the head end. Fourth generation experimental terminals have been produced in California for $400 each, and if the market expands, it is assumed that such terminals could be reduced to $100 each by 1980. Upstream video transmission is far more costly and is likely to be limited to public institutions, such as schools, hospitals, or local cable-casting studios. Telecasts, combined with information retrieval services, will be far more complex and costly, since such usage requires subscriber terminals that can deliver a still picture to the home. Even more complicated is the hardware that enables subscribers to simultaneously dial-up different still pictures, e.g., one might dial up the environmental impacts chart, while another wants to view the alternative route map.

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SECTION 22: MEDIA-BASED ISSUE BALLOTING

Description and Strategy

Media-Based Issue Balloting is a participatory process which uses the public media to involve large numbers of citizens in understanding and polling on public policy alternatives. The technique attempts to simulate the old New England Town Meeting concept by involving citizens in discussing issues of mutual concern and planning alternatives for their "town," which, in the 20th century, often translates into their sprawling metropolitan region. The issues are broad in scope and to date, have included housing, transportation, environment, poverty, urban growth, criminal justice, aging, education, land use, and recreation.

While Media-Based Issue Balloting is sometimes called by other names, e.g., town meetings, regional balloting, issue balloting, the process usually consists of three steps: issues are selected, alternatives or "choices" to each issue are presented via radio-TV-newspapers, and the public is invited to vote on the preferred alternatives through a ballot (and/or to participate with the broadcasters by calling into the TV station). The number of citizens involved can be as broad as the geographical limits which the media can reach. In the past two to three years, media balloting has been used in New York City, where a series of programs focused on transportation, housing, environment, and poverty. In Ottawa, Canada, it was used as part of a participatory program to consider alternatives on a controversial freeway. It has also been used in Chicago on public transit, and in Roanoke, Virginia, for a series on education, health care, and aging.

122

The component parts of the process have varied in terms of how often and in what sequence they are used, but have usually included the following steps:

- An agency, organization, or community group identifies issues or major public problem areas which are likely to impact a great many citizens and, therefore, need to be discussed widely. Alternatives or choices to each issue are drawn up by the group itself through citizen input and/ or professionals who will research the choices.

- Once the issues and choices have been identified, they are presented to a formally structured advisory panel, and then to a group of experts in the field, for their reaction. These individuals select the final number of issues which should be addressed. In many cases, this small group works to suggest additional issues which should be considered, or to discard those issues which they feel are not appropriate.

- When the issues and alternatives have been agreed upon, professionals are brought in to research them and to prepare background materials. These materials are then put together in the form of a book, a movie, a series of newspaper articles, a television documentary, a series of film strips, or any combination thereof. The written materials are then distributed to the public at large.

- During this same period of time, the sponsoring group works with a variety of civic groups, churches, schools, and other organizations to mobilize large numbers of citizens.

123

These citizens are asked to get together with their
friends and neighbors in small discussion groups while
the television program is being aired.

● Issue ballots are printed in local and regional newspapers
and magazines. The ballot is sometimes published as an
advertisement or in the form of a computerized card. It
lists the choices for each topics, and asks that each
respondent mark his choice and fill in the appropriate
demographic data, such as age, educational level, address,
etc. These ballots are circulated to the public at large
before or on the same day as the programs being aired; in
some cases, issue ballots are distributed widely through
grocery stores, schools, and other public places.

● The program is aired on one or more TV stations, usually at
staggered intervals. Depending on the resources of the
sponsoring groups, there may be several television programs
on different issues. During the course of the program,
each issue is defined, background materials are presented
in the form of a film strip or a documentary, and live
advocates for each alternative might talk about the issue.
Viewers may or may not be asked to telephone in their com-
ments, questions, and choices; they are, however, always asked
to indicate their choice by marking the ballot they have
received and mailing it into the sponsoring group or agency.

● In several instances where this technique has been used, a
feedback program is aired on television which reports how

124

the public responded to the issues, how the public "voted" through the ballots, and which of the various alternatives were chosen. In a few instances, the results of the balloting are distributed to public policy decision-makers; in other instances, the final outcome is simply shared on the feedback program.

The actual television program usually lasts one hour, but the preparation of the issues, the mobilization of individuals, and the heavy administrative work that is involved can take anywhere from three months to two years. To be successful, the process involves considerable advance preparation. It must be initiated by an organization which has a more or less "neutral" identity vis-a-vis the issues that are to be discussed, the ability to reach out to large numbers of citizens, and the ability to marshal funding sources and media participation to its side. The process also requires that the organization be able to incorporate citizen intput into the issues and their alternatives during the early formative stages of the process.

Positive Features

Advocates of Media-Based Issue Balloting note that the mechanism makes it possible to inform and involve massive numbers of individuals who share regional problems. By using the public media, it can gain ready access to these individuals, whom it would otherwise be difficult to reach. In those cities where the technique has been used, large numbers of citizens have, in fact, become involved, citizens who otherwise might never have been tapped. Media balloting also allows for

125

smaller groups of citizens' organizations to select appropriate issues for discussion and to set their priorities. In this respect, media balloting involves public participation from the very beginning of the planning process.

The method gives individuals the opportunity to express their views publicly through a balloting mechanism. The use of ballot feedback also allows the public to learn how others feel about the issues at hand. From the point-of-view of the public policy-makers, interactive media provides them with a way of educating the public and an opportunity to learn where the informed citizenry stands on certain issues before a particular alternative is chosen.

Negative Features

Critics of the process argue that media balloting is not a participatory process at all, in that only very limited numbers of individuals actually select the issues for discussion. (Supporters counter by saying that the process must really be seen as a mechanism for beginning public dialogue about important issues, and that this is, in itself, a very important advantage to the process; in addition, supporters often represent a variety of diverse community groups.) Critics also argue that the public is generally limited to making choices that exist on the ballot and cannot add or change the issues once they are put before them in a balloting format.

Media balloting is an extremely time-consuming and elaborate process which requires the full-time inputs of a group of professionals. The process also requires a sophisticated sponsor which can muster a wide

126

variety of skills necessary to the process, such as fund-raising,

film-making, issue analysis, and community organization.

There is no assurance that the public officials to whom the overall

process is directed will take the results of the balloting into account,

and therefore, the process is seen as a very limited, simplistic effort

at participation. Critics further argue that this process is basically

a "one-shot deal" in that the public is invited in only once during the

balloting process, and that it does not stimulate any interaction

among members of the audience which therefore reacts individually.

Perhaps the most serious criticism of this technique is that it

elicits responses from a self-selected group which is the more highly edu-

cated and middle-income group, and public officials may be grossly misguided

by extrapolating results to the total community. Also this group may be

very small. In the case study presented on page 124 of Part B less than 1 percent

of the population contacted responded.

Potential for Resolving Issues

The purpose of Media-Based Issue Balloting is not to resolve issues,

but rather to surface them, clarify them, and identify those options on

which there may or may not be a broad public consensus. It is primarily

a process for identifying issues and alternatives that are held to be

important by the public at large, and constructing a mechanism whereby

citizens can voice their choices before an action is taken. Its basic

purpose is to involve citizens in considering critical issues, and to

begin a public dialogue.

Program Utilization

Media balloting has been used by a number of public and private

groups, including one privately supported metropolitan research

organization (Regional Plan Association in New York); one Council of Governments (Roanoke's Fifth Planning District Commission); one State educational system (Massachusetts); several civic groups (Hartford's League of Women Voters, Chicago's Council on Population and Environment, and Cincinnati's Public Affairs Council); and two privately funded Metropolitan Goals programs (New Orleans and Corpus Christi).

Media balloting is a relatively new technique and bears the stamp of three individuals who have pioneered the process. These include Michael McManus of New York's Regional Plan Association, Janet Malone of Chicago's Council on Population and Environment, and Chandler Stevens from MIT; in many respects, the impact of the technique is just beginning to be felt, as analysts begin to examine the emerging long-term results of the process.

Costs Involved

Media balloting can be a very costly participatory process. Use of this technique to date has cost from $17,500 for a program sponsored by the Council on Population and Environment in Chicago to $1.5 million for the five programs sponsored by the New York City Regional Plan Association called "Choices for '76." The process requires a skilled staff, an organization which has access to funding and the public media, and a fairly complex and time-consuming administrative plan.

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SECTION 23:   MEETINGS – COMMUNITY-SPONSORED

Description and Strategy

Community-Sponsored Meetings are organized and chaired by a citizen
group, organization or association, focusing on a general planning program
or a specific project. While such meetings frequently take the form of an
open meeting, they may also be in the form of a debate, a forum, or a
seminar. Characteristically, such meetings are sponsored by neighborhood
groups, environmental and other interest groups, local business organiza-
tions, League of Women Voters, or civic associations. Their purpose is generally
to provide one or more parties-at-interest with citizen perspectives on the
planning process and/or issues of concern. The format of the meeting and
the role of the agency representatives are set by the sponsoring group.
The agency representatives may be asked to be responders, or to provide
technical assistance to the group in planning the meeting, or, in some
cases, when the citizens group's purpose is to enlighten the planners, agency
staff is asked to be present as the audience or as reactors-discussants.
These meetings may be as technically and organizationally well-prepared
as those conducted by the official planning agency, particularly when
the sponsoring group is sophisticated on the issue.

The Community-Sponsored Meeting is one of the most commonly used
techniques in response to any public program or issue, whether or not
the program is characterized by an extensive participatory process. (See
also Meetings – Neighborhood and Meetings – Open Information.)

130

Positive Features

Since these meetings are sponsored and chaired by the citizen group, the dialogue takes place in lay terms, and the citizens feel free to express their views. In such a climate, issues on which people feel strongly may surface and can provide the agency with significant insights into how people in one or more organizations view the agency, the program, or the project at issue. Such information should be useful to the agency in a general sense, but, more particularly, in framing appropriate responses, in identifying alternative solutions that might well not have been noted by the planners, or in anticipating technical and political problems at any early stage in the planning process. When the format allows, the meetings also provide an opportunity for the agency to present its point-of-view. Well-organized, constructive meetings can provide a mechanism for informing the public and for creating credibility for the critical actors and the planning process.

Negative Features

Meetings of this kind, if particularly hostile or uncommunicative, can cause long-term disruption in the relations between the citizen group and the planning agency, unless care is taken to follow up on concerns raised and insure continued communication. If the agency planner is not well-prepared in the technical aspects of the program or is unprepared for possible hostile reactions and becomes defensive or uncommunicative, the process is endangered and the credibility of the agency is at risk. Some community-sponsored meetings may be designed deliberately to embarrass the agency, to undercut the planning process, or to exacerbate the legiti-mate citizens' concerns with rhetoric.

131

Potential for Resolving Issues

Depending on the purpose of the meeting, it can exacerbate conflict and controversy, or it can bring about a change in perspectives and potentially a redefinition of goals and alternative approaches.

Program Utilization

Community-led meetings, as generally defined, are used in relation to virtually all public programs. The specific category of community-led seminars has been a feature of Model Cities programs, urban renewal, OEO programs, and other types of public and private neighborhood programs.

Costs Involved

Expenses for a community-led seminar are borne by the sponsoring organization, and can represent a financial hardship if the organization has limited resources. Agency costs are relatively minor, and include the staff invited to participate and any visual aids or printed material the agency may wish to utilize.

Selected Bibliographic References

No literature was found which discusses this technique with any depth.

SECTION 24: MEETINGS - NEIGHBORHOOD

Description and Strategy

Neighborhood Meetings are held for the residents of a specific neighborhood, as opposed to open public meetings held for anyone interested and workshops which are usually designed for those parties-at-interest who are seriously concerned about a specific issue. (See also Workshops, Community-Sponsored Meetings, and Open Information Meetings.) In highway planning, these Meetings are usually held in a neighborhood that has been or will be affected by a specific highway plan or project, either at an early stage in plan formulation, or at a stage when the plans have been well-developed. These Meetings are among the most sensitive and difficult of any that will be conducted in a participatory process, for they will involve basic issues of whose property might be taken, who might have to move, how relocation might be handled, what arrangements have been made for compensation, what impacts on neighborhood property will occur, etc.

Depending on the time a Neighborhood Meeting is held in the highway planning process, the Meeting will tend to have very different characteristics. If held early in the process, when the question of corridor location has not been resolved and the alternatives both to location and/or mode of facility are still open, the character of the Meeting will usually allow for exchange of information--questions, answers, recommendations, statements of concern, etc. Neighborhood meetings held early in the process provide the planners with valuable neighborhood-based perceptions of the impacts, and enable the planners to consider alternative

133

options which might be more equitable, less disruptive and/or more beneficial to the affected neighborhoods. If the Meeting is late in the process, after a decision has been made about the nature of a specific highway improvement, then the Meeting will have a different character -- usually concentrating on protests and hostile questions about how and when the agency plans to undertake various procedural steps.

Neighborhood Meetings can be initiated by the transportation agency or by neighborhood groups. Both can be instructive to the planners' education about the community, its life styles, and its sectors of concern.

To plan an effective role in a participatory process for highway and other transportation planning, Neighborhood Meetings should be held as early in the process as transportation corridors or facility locations are even tentatively identified. In the past, the credibility of the transportation planning process has been seriously jeopardized by the practice of holding Neighborhood Meetings to inform residents of impending projects only after much of the technical and design work has been completed and many decisions have already been made.

Under such circumstances, Neighborhood Meetings often were viewed with resentment by the affected neighborhood groups, for they were, in effect, told what was going to happen and offered little, if any, opportunity to change the result. In a participatory process, Neighborhood Meetings should be held early and often to allow affected residents, who will normally be the interest group most directly affected, the opportunity to react to the planning throughout the entire time span of the program. If the plans and programs can be changed to accommodate

134

the wishes of the neighborhood identified at these Meetings, the

participatory process will have paid off handsomely. In planning for

Neighborhood Meetings, the following factors come into play:

- Identification of the neighborhoods likely to be

  affected by the transportation planning process

  and/or specific projects emerging from the process.

- Identification of the groups and organizations

  (official or unofficial) active in the neighborhood.

- Preparation for conducting Neighborhood Meetings --

  this will usually require having a great deal of specific

  neighborhood-oriented information available to the agency

  person handling the Meeting or participating in a Meeting

  to which the agency has been invited.

- Advance preparation with information on questions likely

  to be asked by affected residents and graphic displays

  which help lay people understand the significant technical

  information.

- Identification of agency staff who are technically up-to-

  date and adept in interpersonal relations.

- Follow-up -- communication of results of Meetings and

  arrangement for subsequent meetings.

Positive Features

Neighborhood Meetings in the affected communities, if organized

early in the process and continued on through final decisions, will

go a long way toward improving the credibility of the planning process,

particularly if the agency or planning staff participants are honest, open, and responsive through the course of these Meetings. If efforts are made to hide plans that might receive negative reaction, or to not "come clean" with a proposal, or if there is no willingness to listen to the neighborhood's concerns and try to incorporate them into the planning that is done, then the whole process is likely to flounder. If, on the other hand, these Meetings are conducted honestly and willingly, the chances are more likely that the planning process will succeed. Frequently, such Meetings help to dispel rumors and surface the fact that some neighborhoods welcome a proposed improvement. If the neighborhood can see how it gains from a proposed project, the chances of the whole program getting widespread support are improved. For a technical planning staff, such Meetings often produce information on facts, values, and alternatives that are worth serious consideration.

Negative Features

Neighborhood Meetings may be exceedingly difficult to operate and participate in from the point-of-view of the responsible planners, project managers, and officials, depending on the nature of the issues on the agenda. If the proposal being discussed is something the neighborhood welcomes, a Meeting should go well. If the proposal is something the neighborhood does not want, a meeting will probably be difficult for both the planners and the neighborhood residents. On the part of those responsible for transportation planning, these meetings may require a higher level of preparation and a more detailed type of information than required for other types of Meetings. The chances for misunderstanding and disagreements, and resulting unpleasantness, are very high.

136

Neighborhood Meetings are generally held at night; thus, if a schedule is not carefully thought through, planners may find themselves so busy attending meetings that they will be unable to complete their assignments. If Neighborhood Meetings are organizationally based, planners should note that they have not reached the unorganized sectors of the community.

Potential for Resolving Issues

Potential is relatively high if serious consideration is given to neighborhood values, views of impacts, alternatives, etc. Potential is low if the Meetings are held after the fact; if agency staff are inept in handling legitimate concerns; or are perceived as insensitive to neighborhood issues.

Program Utilization

Neighborhood Meetings are a feature of almost any public program that impacts on a neighborhood -- notably the Model Cities, urban renewal, code enforcement programs of HUD, OEO programs, HEW's neighborhood-oriented programs, etc.

Costs Involved

The costs are relatively small involving predominantly staff time and graphic displays. In some cases, additional costs may be incurred for rental of the meeting facility or clean-up services.

Selected Bibliography

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137

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Wellman, Barry, <u>Strategy and Tactics for Public Participation in Transportation Planning in North America</u>, Toronto, Ontario: University of Toronto, July 1974, 31-32.

SECTION 25: MEETINGS – OPEN INFORMATION

Description and Strategy

Open Information Meetings are usually designed to present technical
information, planning proposals, or details about a specific work program
or project, to the general public prior to or during the period of work.
In the context of highway planning, open information meetings would
usually refer to those general meetings held at the beginning and during
the course of work on a specific highway project or on a more general
planning program, as opposed to a formally required public hearing which
is usually held at or near the end of the process.

Unlike Neighborhood Meetings or Community-Sponsored Meetings held
for citizens of a particular area or particular constituency or member-
ship, the open meeting is designed for and open to all interested parties
-- individual citizens, groups, etc. -- and is usually widely publicized
through a variety of methods. Characteristically, the meetings feature
a presentation by a program manager or senior technical specialist of a
broad range of items being worked on -- the work program, processes,
alternatives, impact, and the basic issues involved in the program or
proposal. A second characteristic feature is an extensive question-and-
answer period in which citizens have the opportunity to interact with
the agency staff. Reactions to proposals or ideas are sometimes solicited
through a show of hands or other informal polling methods. (See
also Meetings – Community-Sponsored and Meetings – Neighborhood.)

Positive Features

Open Information Meetings provide a forum for information exchange between citizens and agency representatives. They are useful in eliciting a generalized level of reaction to proposed agency plans. When meetings are held at the beginning and during the course of work on a specific project, citizens are more apt to have confidence that their reactions are genuinely being sought by the public officials. Their confidence is increased when open meetings are held in a series over time, and the constructive comments made by citizens at one meeting are reflected in revised ideas or proposals at subsequent meetings held during the planning process. Citizen reaction early in the process, and on a continuing basis, can signal potential problems and issues before a heavy investment in any one approach is made. Open Information Meetings are particularly useful for identifying citizens who are interested in more serious levels of interaction with the agency and other parties-at-interest.

Negative Features

Open Information Meetings are limited to an information exchange; they are not a suitable occasion for negotiation. At meetings with a large number of people representing a variety of interests and positions, it is usually difficult to focus attention on any one specific issue for any length of time so that a full exchange and understanding of views can be fully developed. More articulate and better prepared citizens tend to dominate the question period to the frustration of others. The meetings require skill and sensitivity in their chairing and planning logistics, as well as the preparation of visual aids and written material. When the agency

staff is inadequately prepared or not skilled in open meeting dynamics, their response to difficult questions and their reaction to hostility or anger on the part of some citizens can backfire, turning the audience against them. (See Group Dynamics.)

Potential for Resolving Issues

Open Information Meetings may be valuable in exposing points-of-view and recommendations of the various parties-at-interest to one another and to the public agency, but they are not usually useful in resolving conflicts because of their size and pattern of communication.

Program Utilization

Open Information Meetings are a common device in any public program where citizen participation is involved. They are widely used in many development programs, in addition to the highway program, urban renewal, Model Cities, public works projects like airport development, and others. They are also very often used in connection with such community development issues as zoning changes, land use planning, school and parks planning, and others.

Costs Involved

Costs per meeting can vary widely depending on the content, preparation required, and number of staff needed to be in attendance. Included in the costs are the meeting place, public advertisement of the meeting (newspaper notices, radio and TV spots, etc.), mailings, preparation of visual aids and hand-out materials, and, frequently, refreshments for meeting breaks.

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SECTION 26: NEIGHBORHOOD PLANNING COUNCIL

Description and Strategy

A Neighborhood Planning Council, a locally-based organization, is a technique which permits citizen participation in the decision-making process on policy and planning issues affecting their immediate geographic area. The council serves as an advisory body to the public agency in identifying neighborhood problems, formulating goals and priorities, and evaluating and reacting to the agency's proposed plans.

The Neighborhood Planning Council structure came into wide use in some OEO-sponsored, Model Cities and urban renewal programs. In urban renewal projects, the councils are more frequently called Project Area Committees or Councils. Establishment of the neighborhood-based programs creates the opportunity for citizens most directly affected by them to participate in planning for their immediate neighborhood. The model has been adapted in some large cities as part of a decentralized approach to local government planning activities, e.g., New York City's Planning Commission has now decentralized its planning functions.

Members of a council are usually democratically elected or appointed by the agency and serve on a voluntary basis, but may receive reimbursement of expenses and honoraria. Technical assistance for the council is generally provided by the agency's professional staff. For some specific planning tasks or policy issues, the agency may allocate funds to the council to contract for their own technical assistance, or the agency may employ special professional staff who are assigned to work with the council.

143

The purview of the council is the neighborhood, identified either by established political or geographical boundaries; however, the issues or plans before the council are usually a discrete component of a larger planning effort. Conceptually, the Neighborhood Planning Council reflects some of the goals of neighborhood government; however, since the council is an advisory body only, it is not a response to neighborhood control or neighborhood government models. The final planning and policy decisions rest and remain with the public agency.

Positive Features

Establishment of a Neighborhood Planning Council allows citizens in a local area the opportunity to bring their values and interests to bear on decisions which have an immediate effect on their neighborhood. The potential immediacy of impact enhances citizen motivation for participation, and members' identification with the neighborhood promotes communication and interaction. Though the membership may be diverse, the council's focus on the neighborhood permits participants to work effectively without being distracted or diverted by city-wide issues. Working in concert with the staff professionals on a continuing basis, the citizens become more experienced with the technical aspects of planning. For the public agency, the council provides timely feedback on proposed plans and allows for early identification of problems and issues. The council can represent and articulate to the wider community the agency's goals and the particular issues at hand. With adequate staff supervision and direction, the council can assist the agency in some planning tasks, such as surveys.

144

Negative Features

Operating on a neighborhood base removes the affected citizens from direct and regular interaction with the central agency's decision-makers. In this situation, interaction with the decision-makers is likely to occur primarily in controversies and conflicts in which the agency is then perceived as an adversary. In large geographic areas which necessitate organization of several Neighborhood Planning Councils, the council may compete against the contending interests represented by the other councils and may lose sight of those planning issues which cross neighborhood boundaries, e.g., air pollution, housing, economic development. Time-consuming planning efforts and the lack of an active role may discourage consistency in membership and attendance. Since the authority of the council is strictly advisory, the final agency decision may not reflect the priorities of the council, leaving participants frustrated and resentful. The Neighborhood Planning Council tends to attract the most vocal and articulate citizens; if it is not really representative of the neighborhood, it may be viewed by other citizens as a barrier to participatory efforts by the unrepresented sectors of the community. The council is dependent on the agency for valid and accurate information, as well as technical assistance, creating an opportunity for cooptation and manipulation by the agency.

Potential for Resolving Issues

The council represents a good mechanism for resolving neighborhood issues if both the agency staff and the council members are motivated to resolve them. Through persuasion, negotiation, and trade-offs, the

145

council can arrive at consensus. The council's input can also bring about a change in perspective or a redefinition of goals by the agency.

Program Utilization

Decentralized Neighborhood Planning Councils are currently utilized for all aspects of city planning in New York. Neighborhood Planning Councils have been utilized as a structure for citizen participation in OEO-funded community action programs, health planning and health centers, and some legal assistance programs. Model Cities and Planned Variations programs in numerous cities have used neighborhood councils, established within the Model Cities area.

Costs Involved

Costs involve professional staff time and consultant resources spent with the council, reproduction of materials, mailings, meeting space, and clerical support. Establishment of several Neighborhood Councils within an area or region can be expensive in terms of an agency's need to hire a large number of additional staff.

Selected Bibliography

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SECTION 27:   OMBUDSMAN

Description and Strategy

The Ombudsman is an independent, impartial administrative officer who serves as mediator between the citizen and government for the redress of citizen complaints and grievances.

The concept of the Ombudsman, "the people's representative," originated in Sweden in the early 19th century as an administrative response to and remedy for bureaucratic abuse and excess of authority. In the Swedish model, which has essentially been adopted in Finland, Denmark, New Zealand, and Great Britain, the Ombudsman is independent of the executive branch of government and accountable to the legislature.

In adaptations of the Ombudsman concept in this country, some programs have established an Ombudsman as an arm of the executive. In other programs, the Ombudsman is completely divorced from existing governmental systems and is accountable to a citizen group or board, or, in some cases, a private agency. However, the Ombudsman programs in this country all focus on ongoing established governmental agencies, programs or services.

Acting only on legitimate complaints and intervening only when all available remedies have been exhausted, the Ombudsman has the power to investigate citizen complaints. He has access to the actors, materials, and systems within the bureaucracy, can unravel the intricacies of administrative operations, and effect an administrative response to the citizen complaint. From his broad exposure to citizens' problems, he can propose recommendations for corrective agency action and improved

148

agency administration.

The Ombudsman is a mediator -- not an advocate. He uses the power of persuasion to resolve grievances and effect systematic changes. His effectiveness depends in large measure on his general competence, his knowledge of government and the agency, and the goodwill and cooperation of public officials. His accessibility to the general public necessitates wide publicity of his office and function, a factor which can serve as an additional source of power and effectiveness.

Experience in Ombudsman programs here has shown that citizen complaints generally concern administrative policies, procedures, and personnel. Evaluation of these programs indicates that citizens have made effective use of the Ombudsman's services.

Positive Features

The Ombudsman provides citizens with information on the agency's functions and purposes, creating greater citizen understanding and knowledge of government and administrative processes. He provides a means for citizen expression of dissatisfaction and a mechanism for the redress of his grievance. The accessibility and responsiveness of the Ombudsman can lead to improved attitudes and relations among citizens and public officials and increased citizen confidence in government. For agency staff, the Ombudsman provides an opportunity to educate the agency's clients to administrative rules and regulations. Staff may also use the Ombudsman to call attention to administrative problems or to recommend administrative changes that they are reluctant to discuss internally.

When established on a city-wide basis, the office of the Ombudsman provides citizen access to the bureaucracy through one central office. By exposure to and involvement with individual complaints, the Ombudsman can identify the magnitude of the problems and recommend systemic changes that affect a larger public

Negative Features

Interaction between citizens and the Ombudsman is on an individual basis and dependent generally on the initiative of the citizen. There is no exchange among citizens, and no opportunity for them to interact directly with the decision-makers in the agency. The powers of the Ombudsman are limited, dependent on the cooperation and willingness of public officials to respond. Intervening inappropriately or at the wrong time, the Ombudsman may cut off or interfere with the normal processes of government. Establishment of an Ombudsman may be viewed by agency staff as a threat to their status, efficiency and effectiveness. Agency staff and officials can use the Ombudsman as a way to avoid dealing directly with the citizens.

Potential for Resolving Issues

On a case-by-case basis, the Ombudsman can be very effective in resolving problems through mediation, arbitration, and negotiation. In serving as a communication link between the citizen and the agency, he can bring about a change in perspective, in both parties. Only through the accumulation of case experience and analysis can the Ombudsman offer any potential for resolving community-wide issues. However, when used along with other participatory techniques, the Ombudsman can enhance the participatory process by providing an additional avenue for expression of citizen views.

Program Utilization

State legislatures have created Ombudsmen in Hawaii, Iowa, Kansas, and Nebraska. As extensions of the executive, Ombudsmen have been established in the Office of Business Assistance in the U.S. Department of Commerce and in the following states: Illinois, Montana, Oregon, Ohio, North Carolina, and South Carolina. Demonstration programs divorced from existing government were established in Buffalo and Dayton, where the Ombudsman was accountable to citizen boards. Among other cities which have had or have an Ombudsman, usually connected with the mayor's or city manager's office, are Kansas City, Oakland, Newark, Wichita, and Erie, Pennsylvania. The Massachusetts Division of Employment Security established an agency Ombudsman in 1972, and an Ombudsman for the Connecticut prison system has recently been established, responsible to a private agency, the Hartford Institute of Criminal and Social Justice.

Costs Involved

Costs depend on the size and scope of the program. In the State program in Hawaii, cost has been estimated at approximately $100 per complaint. At a minimum, costs involve the salary of one person, telephone, office and clerical support. More ambitious programs may involve several professional staff, field offices, and clerical support. Ombudsman salaries appear to range from $18,000-$40,000.

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SECTION 28: PLURAL PLANNING

Description and Strategy

Plural Planning is a technique or strategy under which each party-at-interest has its own planner (or group of planners) to develop a proposed "best solution," based on the group's priority value-laden goals and objectives. Plural Planning is based on the approach frequently used in the design professions when a designer develops an ideal solution from a particular point-of-view, for the purpose of crystallizing the design problem, even though the designer does not intend to advocate the design developed in this manner.

As outlined by Bishop, Oglesby and Willeke, Plural Planning is a conceptual approach which would place the planners on a similar footing with each of the parties-at-interest in the community, in that the highway planners would also develop an alternative based on the agency's perspectives. A variation on the technique might call for the highway planners to refrain from developing their own alternative until after they have seen the proposals generated by each of the parties-at-interest

The technique would result in a wide range of proposed plans which reveal both what each interest group advocates and what is of greatest concern to each group. For example, the environmentalists might develop an approach that focuses on minimal negative environmental impacts, while the industrial group might propose an approach that focuses on minimum industrial dislocation and maximum industrial access; the homeowners might propose an alternative with minimum relocation and disruption of community cohesion; and the county planning agency might generate a plan

which highlights rapid access to the CBD and intercounty transportation.

Through a series of iterations with the various parties-at-interest, the agency planner merges the divergent ideal alternatives into a consolidated set of feasible alternatives from which a final plan might be selected. Or a final plan might be selected through the political decision-making process.

Positive Features

The plural-planning approach enables each party-at-interest to develop and articulate his own set of priorities and concerns in a coherent, nonemotional work process. The process surfaces needed information about value perspectives, and makes it possible for each of the parties-at-interest to give serious thought to his priorities, the implications of those priorities, and then to compare notes with other parties-at-interest who may have either competing or similar interests. Ideally, the process would result in a serious consideration of each other's priorities and reasonable trade-offs in a combined best solution. In addition, the technique surfaces the issues, as well as their potential impacts, in clear relief, and thus makes it possible for all parties-at-interest to better understand the technical and value problems involved in the planning process.

Negative Features

Since transportation agencies are usually the only organizations with the technical resources and competence to conduct such studies, it would be necessary to provide extensive consultative resources to most of the parties-at-interest to carry out such a schema. Further, the technique

154

would be subject to criticism from many quarters on the grounds that it is too costly and produces duplication of planning efforts. Of greater concern, it is quite possible that after **all** of the parties-at-interest invested both time and effort in their individual plans they might be so committed to their own product that they would be unable or unwilling to converge on a single consolidated plan, or even two or three consolidated alternatives. Another difficulty is the determination of who are the legitimate parties-at-interest, which ones should be supported to develop their own alternatives, and which ones are sufficiently small or have sufficiently similar interests so that they should be required to join forces in order to be eligible to obtain the consultant resources.

Program Utilization

So far as is known this technique has not been tested. In some communities, variations of it have occurred in that community group or public agencies have hired consultants to prepare alternative studies or to help them evaluate a proposed plan developed by a highway department, an urban renewal agency, an anti-poverty program, etc. However, in most cases, this has occurred after a group has decided that it needs a counter-plan, and the group uses the counter-plan to present at a public hearing, which is too late in the planning process for it to have a serious impact on those responsible for the publicly developed plan.

Costs Involved

It is reasonable to assume that in a given community there might be seven major parties-at-interest, and if each of them were provided with sufficient resources to develop a detailed plan, the costs would be out

155

of scale. On the other hand, if each were given consultant resources

between $50,000 and $100,000, this would be sufficient to develop a

reasonable schematic approach and a serious enough analysis of the impacts

for an adequate plural-planning process.

Selected Bibliography

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SECTION 29: POLICY CAPTURING

Description and Strategy

Policy Capturing is a highly sophisticated, experimental technique for citizen participation in public decision-making. Generally attributed to Kenneth R. Hammond of the University of Colorado, its methodology consists of construction of a mathematical description of the "judgmental policy" of the various parties at interest, and generating information on their points-of-view and the reasons behind them. The data can then be used to help them resolve their disagreements and/or to forecast future judgments and preferences of the participants on related planning problems and issues.

Conceptually, the technique addresses the complexity of individual decision-making. According to experimenters, people assign different weights or values to the variables in a problem situation and make implicit trade-offs in selecting some aspects of a problem as more important than others. When numbers of people are involved, the individualized weighting and trade-off process results in the formulation of different "policies" for the same problem. The technique is then directed toward "capturing" and making explicit the implicit values of the participants.

A policy capturing instrument requires a precise definition of the problem area and identification of its attendant dimensions, including the most important variables which can be described or represented conceptually on a value scale. Two different formats for obtaining

157

citizen preferences have been utilized in various experiments and models

devised by Flack, Hammond, Johnson and Johnson. In one format, each

participant, using a 20-point differential scale, indicates preferences

on questions and issues in the problem area on a series of bar graphs

presented to them on cards or pictorially on a computer graphics

terminal display. In the second format, the participants rank and

scale narrative scenarios of alternative solutions to the problem. With

either format, the judgment policies of each participant are analyzed

statistically, utilizing multiple linear regression techniques. The

information is then plotted and presented graphically, showing partici-

pants the variables on which their preferences and points-of-view are

based.

Interactive computer graphics programs can extend the usefulness of

the Policy Capturing procedures. In a water resource planning illustra-

tion, an interactive computer graphics system, called Cognograph, was

utilized and demonstrated to two decision-makers the similarities and

differences in their judgment policies. Through a series of steps, the

participants could see the effects of new policies, each devised con-

sistent with their own judgments, and to forecast implications of joint

policies. In this illustration, the combined techniques assisted the

decision-makers in resolving their differences. More information or computer-

graphics may be found on page 68 of this Part of this report.

In another study, citizens' judgments about the growth of their city

were examined. The study was related to the work of an ongoing

commission, the Area Growth Study Commission. Through the aid

of computer graphics procedures, citizens exercised their

judgment about the nature of the community they wanted to live in by

158

choosing a set of descriptors most important to them. Analysis of the
information revealed how the value judgments of each participant are
converted into specifics.

Policy Capturing, with or without computer graphics, could be
utilized experimentally as a participatory technique at various stages
in the highway planning process at the system, corridor, or project
level. With the technique, the decision-makers and planners could
assess the relative importance of various problem dimensions to citizens
once the problem had been defined.

Positive Features

Policy Capturing offers a potential method for enabling various
parties-at-interest to examine technically complex alternative plans in
terms of their own value sets which are made explicit through the
mathematical modeling. It focuses on surfacing the reasons for alterna-
tive points-of-view and does so in an unemotional setting in which the
participants are not distracted from their task by unrelated issues or
interpersonal problems. Participants who register their preferences
are on an equal footing in terms of status and available information.
Information is fed back in precise numerical form, giving participants
confidence that their views have not been misinterpreted in translation
to some other form.

Combining Policy Capturing with interactive devices, such as a
computer hooked to a public telephone booth as in one
experiment, or using a mobile van equipped with computer graphics terminals,
as suggested in some studies, would permit large numbers of citizens to

159

participate in the decision-making process.

Data could also be used to predict judgments on alternative policies which may later come under consideration.

Negative Features

Widespread use of Policy Capturing techniques for public participation raises ethical and moral questions. Through indicating their preferences on public issues, citizens are revealing and exposing their private values and how they make judgments, information which they may not consciously be aware of themselves. This possible invasion of privacy carries serious public policy questions regarding the use of the information by power-holders. Insights into how citizens arrive at their policy judgments offer opportunity for possible manipulation. Through such computer technology, information on large numbers of citizens could be generated and stored, subject to further analysis at some later date, unauthorized by the participants. Citizens have no claim on the data and cannot recall it once given. While the same may be said about data generated through other techniques, the type of data produced through a Policy Capturing instrument is more easily adaptable to other purposes.

If used as a single participatory technique without interaction with planners or decision-makers, Policy Capturing could be a dehumanizing method of participation.

Potential for Resolving Issues

The experimental technique has had mixed results to date. Some researchers hold that it can help resolve conflicts through consensus-building and compromise solutions. Other researchers have found that

160

value-based differences were not resolved by participants through overt surfacing of the issues. In some experiments, however, optional solutions were devised by the experimenters and accepted by the participants; the solutions were designed faster because, after the participants had been helped to assign true weights to the factors they considered important in a dispute, the experimenters could define a set of solutions that optimized across all of the weighted variables. As is pointed out in the case study of Policy Capturing on page 109 in Part B this technique provides a unique way for technician and citizen to communicate without either group having to learn the language of the other.

Program Utilization

As indicated, Policy Capturing is an experimental participatory technique which has been used in water resources planning, technology assessment, community goals development, foreign policy, and labor management relations.

Costs Involved

Costs involved in Policy Capturing vary, depending on the numbers of participants involved, the extent of computer resources used, and level of data analysis. Costs could range from inexpensive ($10-$20) for computer time to do a simple regression analysis, to $40,000 to devise an interactive computer graphics program.

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SECTION 30: PUBLIC HEARINGS

Description and Strategy

Public Hearings probably have the longest history of any participatory method, since they have been required in governmental decision-making at all levels for many years. A Public Hearing is usually required when some major public program is about to be implemented, or prior to legislative action on such public issue as zoning matters. In the highway program, 23 CFR 790 (FHPM 7-7-5) requires that each highway project receiving Federal funds be presented at two public hearings prior to final decisions; first, a corridor location hearing, required before the final alignment for a highway project is located; secondly, a design hearing, at which the final design of the specific facility is presented and discussed. A recent study of participatory approaches used in transportation in ten foreign countries reveals that the Public Hearing (and associated grievance procedures) is the primary technique used.

As legally required procedures, most Public Hearings are characterized by procedural formalities which include an agency hearing officer and an official transcript of the proceedings. Characteristically, the hearing agency presents its proposal or plan, followed by testimony of individuals recognized by the hearing officer. The hearings are generally open for any individual or representative of a citizens' group to present views for the official record.

Positive Features

Hearings are basically designed to let everyone be officially heard

163

before final decisions are reached. A legally required hearing assures citizens of the opportunity to be heard and the opportunity to challenge the actions of the public agency at the hearing itself. When citizens are well-prepared for the hearing through prior exposure and discussion of the issues, their presentation can be forceful and persuasive. When the hearing is held at the end of a technical planning process that has utilized other participatory techniques, it can provide an official record that is useful in decisionmaking.

Negative Features

Public Hearings offer only limited one-way communication. Citizens present their views as formal testimony but cannot interact with the agency representatives, thus more heat than light is generated. When insufficient information is available prior to the hearing, citizens tend to express uninformed views or tend to present their views in terms of narrow, specific interests. Depending on the issue (highway projects usually rank very high in terms of controversy), there are usually a relatively large number of speakers, characterized largely by adversely affected citizens who are hostile to the project. The emotionalism that is usually generated at a Public Hearing can lead the agency decision-makers to discount the testimony because it was irrational and confused. Hearings also can be counter-productive if the agency uses them for "official purposes only" and the citizens have a tendency to feel that the decisions have been already made and that the hearing is a method to achieve ratification of the results.

164

Potential for Resolving Issues

Because Public Hearings do not allow for interaction, they are more useful in summarizing positions on issues than they are for changing perceptions or resolving the issues themselves. They are useful to give decision-makers an understanding of how various citizens feel about a specific project prior to the time when the decisions are to be made, and they are best utilized in conjunction with other participatory techniques which make it possible to hold surprise-free hearings which serve to ratify agreements previously reached with parties-at-interest.

Program Utilization

Most public works projects, and most important planning decisions (such as local zoning changes), made by local government agencies require Public Hearings of one sort or another. In most instances, the hearings are legally prescribed and required. 23 CFR 790 (FHPM 7-7-5) is the official guideline for Public Hearings required for highway projects funded under the Federal highway acts. State highway agencies and local planning agencies also operate under similar regulations and guidelines.

Costs Involved

Costs include staff (hearing officer, technicians, stenographer), public notices in newspapers, mailed notification to interested parties, meeting place, and publication of the official transcript, and might range between $500 and $25,000, depending on complexity.

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SECTION 31: PUBLIC INFORMATION PROGRAMS

Description and Strategy

Public Information Programs are designed to provide the general public with information about a particular program or proposal. They range from programs which carry the aura of promotion of a position, or selling of an idea, to neutral presentation of essential information. In transportation planning, information programs can involve dissemination of both technical data and analysis and presentation of general and specific plans, proposals and projects. Public information techniques would usually be used as part of a program carried out over the entire time of the project, rather than undertaken on a one-time basis. (See also Hotline, Open Information Meetings, Citizen Training, and Drop-In Centers.)

Public Information Programs can employ a variety of tools and techniques. Among the most commonly used are:

- Press releases and feature stories to note specific events or present significant information coming out of a planning program.

- Direct mail for distribution of various types of material, each designed for a specific purpose, such as general education and information, or an invitation to a meeting or exhibit, or fact-finding through an invitation to respond. The material may be presented in the format of a newsletter, an editorial, brochure, fliers, or an information bulletin.

167

- Radio and TV public service programs and talk shows for spot announcements of a meeting or exhibit; speeches and debates to air issues and provide general information. Talk shows offer citizens opportunity to interact with agency staff, though the number of citizens who can participate is very limited.

- Displays, slide presentations, documentary films, videotapes, and other visual material for use in connection with talks, either given by those involved in the planning program, or loaned to interested outside groups.

- Exhibits which can be set up in convenient public locations for general viewing.

- Legal notices and paid advertisements.

- Responses to inquiries from the public.

Positive Features

A well-conceived and implemented Public Information Program can provide information fast and efficiently, particularly when the technical information is translated into terms understandable to the non-technician. By using a variety of imaginative tools and techniques, the agency can reach large numbers of citizens, and, in many instances, it is only through public information efforts that some of the parties-at-interest have the opportunity to get relevant and accurate information about the program. A Public Information Program is usually essential to insure that other participatory techniques e.g., public meetings

168

receive the publicity they need to be successful.

Negative Features

Public Information Programs are generally one-way communication techniques and do not allow for citizen interaction with the planning agency. If the information is too technical or too agency-oriented, it can raise suspicion about the commitment to an open participatory process. Also, if the citizens feel that they are being bombarded with publicity, their suspicion about the agency's motivations is aroused. Operating alone, a Public Information Program can insure only a minor amount of direct public involvement in a planning program, but, in concert with other techniques, it becomes an essential ingredient.

Potential for Resolving Issues

Public Information Programs can raise issues involved in a planning program, but they have no potential for resolving them, since they are a one-way form of communication.

Program Utilization

Public Information Programs are used in most public programs, including highway and other transportation planning, Model Cities, urban renewal, health planning, etc.

Costs Involved

Public Information Programs can be expensive, depending on how elaborate the program becomes. Costs include preparation of mailing lists, reproduction of materials, mailing, and considerable staff effort in translating technical information for general public consump-

tion, contacting the media, and making specific arrangements for imple-

menting the various techniques and tools employed. Estimates range from

$5,000 to $50,000, depending on level of effort.

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170

SECTION 32: TASK FORCE

Description and Strategy

A Task Force is an ad hoc citizen committee in which the parties-at-interest are actively engaged in a well-defined problem-solving or specific task effort in the planning process.

Created by the sponsoring agency, the Task Force may be part of a larger, ongoing participatory structure, such as an advisory committee or planning council, or it may be a single independent effort. The purpose of the Task Force is limited to a specific problem or task objective in the planning process. Therefore, it is a temporary structure whose function and existence generally terminates with the accomplishment of the task or solution of the problem.

The directed purpose of the Task Force necessitates a membership sufficiently limited in number to allow all members to participate actively and effectively. A membership of from eight to 20 participants is characteristic. Task force members may be selected and appointed by the planning agency or self-selected by interest groups identified by the agency and then formally appointed by the agency. In some transportation planning exercises, potential task force members have been self-identified, subject to ratification by the affected community as legitimate representatives of their interests. The goal in membership selection is representation from all affected interests to provide a wide spectrum of citizens' views on the issues at stake.

Generally, task force members tend to be fairly equal in status and responsibility, except for the chairman who occupies a key and

171

pivotal role in promoting interaction among members between and during

meetings, directing the progress of the Task Force, and coordinating its

efforts. Members of the Task Force generally are not equal with the

agency's professionals in either expertise or knowledge. The Task Force

relies on agency staff for technical assistance and support. The agency

may augment its own technical expertise by engaging outside experts to

assist the Task Force in its efforts, either on a one-time basis to

present testimony or on an ongoing basis.

Positive Features

The Task Force represents an opportunity for enlisting citizen in-

put in the planning process. With its focus on a specific task or problem,

the time and effort of the members can be effectively channeled to come to

grips with the issues at hand. The limited size of the Task Force

encourages communication and interaction among members and between the

Task Force and the staff of the planning agency, enhancing the capacity

of the Task Force to deal with complex problems. The diversity of its

membership presents different points-of-view and brings different interests

to bear on the issues. In the process, citizens learn from each other and

from the staff.

The Task Force can generate wider citizen participation through its

individual members involving their own constituencies in meetings to

discuss the issues. The Task Force can also undertake a variety of jobs

(data-gathering and analysis, etc.) essential to the planning process,

releasing agency staff to devote more time to the technical aspects of

the process.

172

Since the task is well-defined, limited in time, and membership is small, Task Force members can have an active role, and so are willing to make a commitment of their time and energies, promoting consistency in attendance. Participation in the Task Force is generally satisfying for the members, and their experience reflects positively on the agency.

Negative Features

The goals of a limited membership and representation from all affected interests are frequently in conflict, and one or the other may be sacrificed at a cost of efficiency and effectiveness. Lack of parity in technical expertise between the Task Force members and the agency professionals tends to limit the initiative of the members and may inhibit them from challenging the assumptions and values of the agency.

The sponsoring agency must make a considerable investment of staff time for orientation of the members to the task at hand, and for preparation of materials and information to them. In the process, Task Force members may be manipulated and coopted, either consciously or unconsciously, by the agency professionals to the extent that the members identify more with the agency than with the interests they represent.

When the Task Force is independent of any other citizen planning structure, it has little or no accountability to a larger public. As part of a larger structure, its independence to issue its reports and recommendations is limited.

The power and authority of the Task Force is limited to advice and recommendations on specific problems or tasks; thus, without special efforts, Task Forces can deny the citizens the opportunity to gain a broader perspective or to be involved in the full planning process.

173

Potential for Resolving Issues

The limited size and diverse membership of the Task Force encourage intense discussion and interaction, creating opportunities for trade-offs, negotiation, change in perspective, and compromise. It is an excellent technique for consensus-building if the agency staff is skilled in managing groups and is receptive to citizen inputs.

Program Utilization

The Task Force is a popular organizational structure, widely used in Federal programs at all levels of government. HEW has utilized Task Forces for such specialized assignments such as preparation for the White House Conferences on the Aging. HUD has established Task Forces for specific problem areas, as have many regional planning agencies and most Model Cities programs. The Task Force structure has been used by the New York State Department of Transportation in corridor planning, as has the Puget Sound Governmental Conference in its 1969 land-use study.

Costs Involved

Costs are relatively inexpensive, involving professional staff to provide the technical assistance and support for the Task Force, clerical support, and reproduction of materials, including the Task Force's final report. When other participatory techniques, such as visual displays, models and computer-assisted methods, are employed to assist the Task Force in its deliberations, costs increase.

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SECTION 33: VALUE ANALYSIS

Description and Strategy

Value Analysis, developed by Fielding, is designed for highway planning as a technique to involve various parties-at-interest in subjective ranking of community consequences of freeway proposals and their alternatives. Its objectives are to encourage the community, assisted by the transportation authority or consultants, to study proposed and alternate routes and select the option which is most beneficial and least detrimental in light of community goals; to develop a commitment to actively support that option within the affected community; and to assist in the diffusion of accurate information concerning the proposed and alternate routes. Thus, Value Analysis is a tool used to articulate community goals against which various alternative highway plans can be evaluated, to resolve community differences of opinion, and to obtain support for one of the planned alternatives.

Value Analysis encompases several parties-at-interest: the highway planner in the role of coordinator-catalyst; a citizens group appointed by the highway representatives to be the transportation committee (the spearhead of the activity); and panel groups, consisting of both community experts and interested citizens. Each of the panel groups studies a given impact of the alternate freeway routes -- coordinating through the transportation committee.

Products of the interaction among these parties-at-interest are socio-economic and environmental studies conducted by highway representatives; other studies as demanded by the panels and conducted by

176

outside consultants; and a series of attitude monitoring studies of citizens conducted by a survey research group. The technique relies on frequent meetings as well, to diffuse information to the public.

The antecedents of Value Analysis are found in the behavioral sciences: the social indicators movement which seeks to determine factors affecting one's sense of the "quality of life"; and the lifestyle movement, which seeks to delineate factors other than demographics to predict differences (e.g., isolating the "environmentalist," the "innovator," and so on) in behavior.

Fielding, in developing the Value Analysis technique, makes a number of assumptions on which the technique relies:

- There are no universal criteria for analyzing socio-economic and environmental impacts of various highway alternatives. Criteria are going to vary from group to group; the priorities among criteria will also vary; and the criteria will change during the participatory process as the parties-at-interest learn more about the issues.

- Citizens are confused and give contradictory messages about freeways; they do not know what they want in advance. Once a decision has been made, citizens will seek to overcome cognitive dissonance (data which contradicts the decision) in one of two ways: they will either discount the data, or they will deny the appropriateness of the decision.

- The largest stumbling block to highway planning in the past has been the lack of recognition of these factors
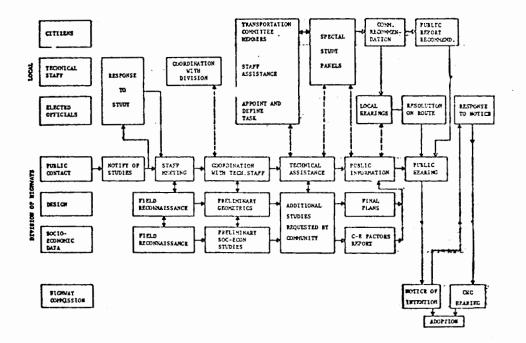
177

and ineffective utilization of them in a political way, to

achieve support around some alternative -- not necessarily

the <u>least costly</u> or the most <u>efficient</u> alternative but

the <u>least detrimental</u>, <u>most beneficial</u>.

The scope of Fielding's Value Analysis technique is broad: it

involves intensive interactive participation by small groups of citizens

and other parties-at-interest (the transportation committee and the

panels); it involves brief response from a larger sample (1-2 percent of the

population is recommended by Fielding for the survey, which occurs two

to three times -- though not with the same sample); and it involves meetings

open to the public involving all interested citizens.

Figure 2, taken from Fielding, shows a schema for the processes

and interactions involved. As can be seen from this figure, Value

Analysis is a highly complex technique; its focus is multidimensional.

Highway representatives planning the freeway at issue, after completion

of the geometrics, and simultaneously with the socio-economic and

environmental impact data collection, meet with technical staff and

elected representatives of the community to create a transportation

committee. Panels are a vehicle for acquiring knowledge and gaining

positive commitment to an alternative. There are two basic modes of

data collection: factual/judgmental impact studies conducted by con-

sultants and highway department representatives, and the surveys of

citizens. The surveys are intended to tap attitudes <u>and</u>, through

repeated iterations, to monitor attitude changes. Community meetings

are held to diffuse information and change attitudes. The overall

intent, as mentioned above, is to coalesce informed opinion around one

alternative, and to elicit activity on behalf of that opinion.

178

FIGURE 2

ROUTE LOCATION PROCEDURE TO INCORPORATE
CITIZEN PARTICIPATION

Source: Fielding, Gordan J., "Structuring Citizen Involvement in
Freeway Planning," Highway Research Record No. 380,
(Washington, D.C.: Highway Research Board, 1972), p. 26.

179

Positive Features

A small number of citizens (a highly interested and motivated group by virtue of their acceptance of their role and their continued participation over a considerable period of time) has the opportunity to become well-informed on the complexities of the impacts of alternative routes. Their new-founded expertise gives them a better understanding of the issues at stake, better information for their position, and a direct opportunity to participate in the planning in a continuous process. Word-of-mouth persuasion of peers at the meetings is a part of the process thus building a constituency from which to rally support for the chosen alternative. The process has the ability, missing in techniques which do not have a quantitative base, for assessing the magnitude of the opinions, segmenting the population along alternatives, and monitoring the effects of the process.

Negative Features

The process demands considerable effort over time; despite his six-month estimate, Fielding's study was over a two-year period, and the final decisions were yet to be made. Voluntary citizen support over that long a time may well erode. The methods used for weighting the goals of the community are highly subjective, as are the placement of certain items into impact categories. As Fielding mentions, the summing of the ordinal rank values is a state-of-the-art limitation.

A problem with Fielding's study is that, although he notes the issue, he ignores in his analysis the fact that a community is not one community but a collection of interest groups. He does not attempt to

180

segment these groups (except for comparing the transportation committee
with the community), determine which issues/values are paramount for
each, how the routes are perceived to impact on it, the strength of
their feelings, etc.

Costs Involved

Cost factors include: requested consultant studies; secretarial
assistance for the transportation committee/panels; survey design and
analystic costs; survey field costs (at $15-25 an interview). Another
cost factor is payment of panel or committee members. Since participa-
tion by low-income members is important, this may be the only means of
ensuring it over such an extended time period. Covering babysitter,
transportation, etc., costs should certainly be considered.

Program Utilization

Value Analysis has been used in freeway decisions; in education;
in business; and in academia; but the term has implied different things
to different people, and the processes involved in conducting value
analysis have little in common: they range from content-analyzing writings
to constructing scales of deprivation-enhancement.

181

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SECTION 34: WORKSHOPS

Description and Strategy

Workshops are working sessions. They provide a structure which enables the parties-at-interest to engage in mutual education by thoroughly discussing a technical issue or idea and by trying to reach some basic understanding about its nature, relevance, role in the particular study or project. Workshops in the highway planning process are most normally suitable to provide for citizen participation around a specific issue -- e.g., methods to handle an environmental impact, alternatives for rerouting traffic as a result of a proposed improvement, consideration of whether a highway or a public transit facility would best serve the needs of a particular corridor -- issues which have a specific focus and a specific set of potentially interested parties. Workshops can be a useful adjunct and supplement to public information meetings to follow up on specific issues raised but not resolved at these larger meetings.

Effective Workshops generally focus on a specific topic, and data are presented in language readily grasped by laymen. They usually involve a limited number of direct participants--from 12 to 25 is usually a manageable number, although workshops of from 40 to 100 people can be operated successfully, if the group is subdivided into small work groups.

Workshops can be open to all or by invitation only, but they usually work best when limited to the active parties-at-interest who are at the same general level of knowledge or understanding of the particular issue

183

at hand. While there is usually a Workshop chairman or discussion leader, the meeting is characterized by less agency presentation and more mutual discussion than larger open meetings can permit. Workshops usually result in the production of a written document, describing the issues and positions developed at the Workshop, the suggestions made, and the consensus, if any, reached by the participants. In a long transportation planning process, it is advisable to plan for a series of Workshops that coincide with important milestones of the process -- e.g., goal development, alternative options, impact analysis, etc.

Positive Features

Workshops offer one of the best ways for introducing alternative points of view and values to the study process at the technical and analytical level. They can provide the means through which both outside parties and agency staff can exchange ideas on the specifics, can identify and debate issues of mutual interest, can examine negative and positive effects on various parties-at-interest, and can try to persuade one another about solutions. By encouraging serious levels of interaction among participants, they make it difficult for aggressive people to dominate the session. Workshops initiated by the management or technical staff of an agency or highway planning project and integrated into the work program being undertaken can provide an excellent mechanism for testing alternatives, receiving feedback, and making more relevant the technical work, based on a quality input from outside parties-at-interest. Well-run Workshops can improve both the knowledge and the value-based perceptions of all the participants.

Negative Features

Workshops, to be effective, usually require some selectivity in the designation of active participants. As a result, Workshops may appear to be more exclusive and "closed" than other types of meetings. In a highway planning situation where there are a large number of different and conflicting interests, extensive reliance on Workshops without other, more open, public meetings and participatory devices being operated simultaneously may tend to alienate uninvited participants. When it is not possible to include all potential interests, consideration should be given to operating Workshops with observers invited and allowed to comment at an appropriate time. Care should be taken that the technical staff and/or other single parties-at-interest are not using the Workshop for manipulative or cooptive purposes.

Potential for Resolving Issues

Workshops have very good potential for resolving issues at the technical and analytical level, if they are well organized, well run, and healthy interaction is stimulated. See also Game Simulation, Group Dynamics, Fishbowl Planning, and Citizen Training.

Program Utilization

Workshops have been used in many federally funded public programs, e.g., HUD large-scale rehab, EIS statement preparation, water resources, transportation, etc.

Costs Involved

Most preparation and design costs, other than logistics, could be

absorbed within technical budgets -- approximately $500-$2,000, including

staff preparation and mailings. Cost of staff time -- 4 to 6 person-

hours per Workshop, depends on number of staff participants. It is some-

times useful to bring in outside advisers skilled in Workshop design to

help technical staff and others become sensitized to group dynamics and

interaction; consultants' charges range from $100-$1,000 per day.

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PART D

INDIRECT
PARTICIPATORY
TECHNIQUES

SECTION 1: DELPHI

Description and Strategy

As a method for systematically developing and expressing the views of a panel of individuals, the Delphi Technique has been in use for two decades. Developed by a research group at the RAND Corporation, it was originally used as a means of technological forecasting. In the past few years, however, the Delphi Technique has been extended to handle questions in the area of social planning. One result of these extensions has been termed the Policy Delphi. This is the form of Delphi most applicable to transportation planning.

A Policy Delphi basically involves a series of questionning rounds with a respondent panel composed of individuals representing various interest groups in a community and many times also including the experts who are associated with the major issues at hand. Although Policy Delphi has yet to be used in a transportation planning study, some of the interest groups involved could include: those who are opposed to a proposed route; those who favor one alternative route over another; ecology-minded groups who oppose highways because of destruction of natural surroundings; local residents; etc. The "experts" to be represented might include: highway planners, city planners, mass-transit directors, civil engineers, or any other individuals involved in the planning team. During the rounds, structured questionnaires are mailed to these panel members requesting them to respond to the issues, by listing their pro and con positions for each option being considered. Results of the panel member responses are described in terms of numbers of respondents who hold each position, and are then returned to the panel members along with a new questionnaire especially developed for the next round. After several

188

such cycles of judgement and feedback, there is usually some convergence toward a common set of goals, objectives and values, brought about the members re-thinking each issue several times and being exposed to new information input by the other panel members. This process many times builds toward a consensus, or in some instances, reveals the difficulties to be encountered in achieving it.

Although no hard and fast rules exist to guide the design of a particular Policy Delphi, it can be agreed that a Delphi involves at least two separate groups of individuals and at least four roles for these groups:

- <u>User Body</u>

  The individual or individuals expecting some sort of product from the exercise which is useful to their purpose (e.g., highway planners).

- <u>Design and Monitor Team</u>

  The group which designs the initial questionnaire, summarizes the returns and re-designs the following questionnaires (usually pro-fessionally-trained experts in Delphi technique.)

- <u>Respondent Group</u>

  The group chosen to respond to the questionnaires. The User Body (planners) is many times a subset of the respondent group.

A typical Policy Delphi could be conducted in the following manner, assuming the issue under consideration is a highway slated for construction in a particular community, and the planners have proposed two alternative routes for this highway. The User Body, the planners, would meet with the professional Delphi Design and Monitor Team to discuss the components

189

of the issue at hand, and to define objectives of the Delphi exercise,
(e.g., to learn the community response, preferences and objections for
each of the alternate routes; to determine what types of opposition
might be encountered in implementing either plan, etc.) Once the
objectives are clearly defined for both the User Body and the Design and
Monitor Team, the Design Team must decide who the members of the Respondent
Group should be, secure the cooperation of the respondents (this process
is discussed in more detail later), and design the first round questionnaire.

The first round questionnaire is mailed to the selected respondent panel
members, requesting them to respond to each option under consideration by
listing their pro and con positons, and the justification for holding these
position, for each alternative. Once respondents mail the questionnaires
back, the Design and Monitor Team analyzes the responses. Each position state-
ment is noted and tallied as to how often that particular argument is listed
by the respondent members and the second round questionnaire is prepared.

The second questionnaire begins by giving the panel members feeback from
the first round: presenting the position statements listed and the frequency
with which each was presented. Thus, each respondent is now made aware of
the opinions, viewpoints and new information input by other members of the panel,
as well as being given the opportunity to compare how his positions resemble
(or differ from) the others. For each of these positions, or information
statements listed, the panel members are requested to respond by indicating
their degree of confidence, agreement, acceptance, etc., on a rating scale
(to be discussed in more detail later). This "worksheet" method insures that
each panel member has at least thought through the many varying viewpoints,
formed some kind of a judgment about them, and now has a broader base of
information upon which to base subsequent opinions.

The remainder of the second questionnaire resembles the first, in that it again presents the issue at hand, and asks that the respondents express their pro and con attitudes toward each of the available options, and in addition requests them to explain the reasons underlying any shift or change their attitudes may have undergone since the first round.

This requestionning procedure can continue for as many as four or five rounds or terminate anywhere after the second, depending on how much more information the Design Team and User Group feel they would like to obtain.

Over the past few years, the Futures Group, of Glastonbury, Connecticut, has developed a modified approach to Delphi, one that simply involves substituting sequenced personal interviews for the written questionnaires.

These interviews are not just questions and answers. Members of the interview team usually begin by issuing the respondent a "deck of cards," each stating a social trend, variable, or feature related to the study at hand. This would correspond to a questionnaire item. Rather than asking the respondent to answer by checking one of five columns (as is the case with questionnaires), he is asked to sort the cards in five stacks. These stacks are labelled according to the subject matter and the type of response solicited. For example, various social trends might be sorted into stacks according to their importance in the future ("very important," "important," "slight importance," "not important"), or their likelihood (using various probabilities), or their trend direction ("increase greatly," "increase," "remain the same," "decrease," "decrease greatly,"), and so on. The option of no vote ("no opinion") on an issue is included to as to eliminate questions which the respondent does not feel qualified to answer or declines to comment on for other reasons. As the respondent is making these decisions, he is

191

encouraged to outline his assumptions and make other commentary on the subject at hand. At the completion of this card sorting, each respondent is asked to add to the list any items he feels should be included. These items are recorded on blank cards and sorted by the panelist. (In the second round, the other respondents will have the opportunity to assess these newly added statements.)

The information generated by all of the respondents is collated and fed back to them in a second round of interviews. For each area about which disagreement exists, respondents are presented with ranges of opinion and reasons for diverse views from Round 1 and allowed to re-evaluate their vote and perhaps vote again.

It should be emphasized that an important feature of most of these Delphi interviews is that they examine the same issues from both an exploratory and normative point of view. That is, the participants are asked not only to estimate what the future is likely to hold (in a "surprise-free" sense), but also to indicate what it could or should be like, and how specific governmental and institutional policies would help to bring it about.

1. Focus

The goal of the Delphi technique in this function is not so much to obtain a consensus as it is to establish all the differing positions advocated and the underlying assumptions leading up to the formation of those attitudinal positions. In many cases, first judgments are based on distorted perceptions of the effects a certain decision might produce. With the input from the other panel members, often new information is provided that proves these perceptions to be false or unreasonable. Because the Delphi

exercise gives each respondent the opportunity to alter his decisions with each round, it produces as an end result more thoroughly "considered" statements of opinion.

A Policy Delphi should be able to serve any one or any combination of the following objectives:

- To insure that all possible options have been put on the table for consideration.

- To estimate the impact and consequences of any particular option.

- To examine and estimate the acceptability of any particular option.

Once a Policy Delphi has been accomplished, a small working committee can utilize the results to formulate the required decisions.

2. Scope

A Policy Delphi can be given to anywhere from 15 to 50 people as a precursor to committee activity. It allows for the utilization of larger numbers of people than can effectively be employed in a single focused group discussion, or by the committee approach. For many issues, a larger number of respondents, in the area of 20 or more, is commensurate with the number of differing interests that must often be considered in the increasingly complex issues facing highway planning.

It is preferable that respondent groups be composed of individuals with a fairly high level of responsibility, within their interest groups in the community, to assure that they will give careful and considered response to each Delphi questionnaire. These types of individuals will not be willing to spend their time educating the Design group on the major issues. They must gain the feeling that the Designers and Monitors of the

193

exercise understand the subject well enough to recognize the implications of their abbreviated comments. They are not likely to write essays and are not likely to comment at all if they feel they will not be understood. The Design Team must insure that all the obvious questions and sub-issues have been included in the inital questionnaire. Because of this requirement, the advance preparation of the Design and Monitor Team is crucial to the success of this technique.

One method of recruiting these respondents (used quite frequently in focused group discussion research) is to locate various vocal groups in the community (Chamber of Commerce, League of Women Voters, Environmental Protection adovcates, etc.) who have been active in protest or support of the issues to be discussed at present or in the past, and then to recruit leaders of these organizations. It takes considerable time and testing among all parties to determine who are considered the leaders in various groups. One process is to ask for names from as many sources in each community as possible: clergy, public officials, local service program personnel, etc., and selecting those mentioned by as diverse a group as possible. One danger of this approach, however, is the possibility of not locating or including members of the "silent majority," and thus losing the information, attitudes or preferences that their input could supply.

Another approach that could be used when the planning is in its very early stages, and no route alternatives have yet been defined, is to recruit members from each of the neighborhoods in the community, or perhaps business owners and homeowners from each neighborhood in order to assess their feelings about the need for a highway, their attitudes toward highways in general,

their preferences for the location of a new route, etc. With this information, the planners can then begin to map out possible route alternatives to be considered, which might have the least perceived negative impacts.

Other possible respondent group members could be the business and industrial community, for purposes of determining their needs for transportation routes for out-going or in-coming products or raw materials. Commuters, shoppers, public transportation employees (bus drivers, taxi drivers, etc.) can also provide important insight into the needs for new routes, difficulties and problems with existing routes, or peak traffic congestion areas.

The important consideration in respondent selection is to take caution not over- or under-represent any important segments of the population to be sampled. This will reduce the chance of conducting the Delphi with respondents holding virtually the same viewpoints, which would give planners a biased impression of how the community as a whole would react.

The composition of the respondent group itself is also very important. In principle, respondents should represent diverse positions on specific policy issues. The use of a heterogeneous group is the best way to stimulate a systematic exploration of all the pros and cons on specific resolutions. This has the added benefit of possibly eliminating a potential one-sided outcome. However, if some common foundations of agreement can be exposed among such a diverse group, then the Delphi could prove twice as useful.

3. Limitations of Data

Policy Delphi exercises yield data collected from a particular type of mail survey of a specially selected group of respondents, a non-representative

195

sample of the population being studied, and therefore cannot be expected to speak for the community as a whole. The crux of the matter is that there is really no generally acceptable means of gauging the validity or accuracy of the output of any such procedure. The internal consistency of items can be checked, but the output is still, at best, an opinion, and must be treated as such.

4. Approach

Success of the Delphi exercise (i.e., utility of the results) is totally dependent upon the close cooperation between the Design Team and the intended User Body, or at least a clear understanding by the Design Team of the goals and requirments of the exercise.

In general, well-designed Delphi makes very efficient use of the time expended by the respondent group. In practice, however, a well-designed Delphi does require a significant effort on the part of the Design and Monitor Team and typically requires the use of experts in formulating the issues to be presented to the respondents. The total effort involved is probably as great or greater than (in terms of energy expended), most other mechanisms (e.g., committee, focused groups or interview studies, etc.) designed to obtain the same results.

Development of Rating Scales.--A Policy Delphi deals largely with statements, arguments, comments and discussions. To establish some means of evaluating the expressions of the respondent groups, rating scales must be established for these items such as the relative importance, desirability, confidence and feasibility of various political and issues. Furthermore, these scales must be carefully determined so that there is some reasonable degree

196

of assurance that the individual respondents make compatible distinctions

between concepts such as "very important" and "important."

The respondents are frequently asked to rate statements both for the importance

they feel the issue has, and for the confidence they have in the validity of

that argument. For example, a respondent might feel a particular statement

is very important because a significant group of people have high confidence

in it; but he, himself, may have low confidence in the validity of that state-

ment. The same concept applies to specific proposals which respondents may

feel to be highly desirable but impractical. For these four scales (relative

importance, desirability, confidence and feasibility), no neutral answer is

allowed. The respondent has to feel the item is either a "little important"

or a "little unimportant." In the judgment of many design teams, a neutral

answer is equivalent to no judgment and is considered as such. This design

choice illustrates the emphasis on developing the pros and cons as opposed to

emphasizing a possible consensus. Pros and cons or discussion points entered

by a respondent are sometimes evaluated by the Design Team only for the degree

of confidence the group has in the statement. It is felt that the importance

of the statement will show up, through a shift in the number of respondents

voting on the particular issue toward which the statement was directed.

The development of the scales is just one of the major responsibilities of

the Delphi Team. The importance of the expertise of this team cannot be over-

emphasized. The Delphi questionnaires differs from the typical questionnaire

in that it does not have to appear to be easy to complete. In fact, the respond-

ent should be made aware that he will have to think through his answers in order

to remain consistent in answering the different parts of the questionnaires.

197

Materials for the Respondents.--The Design Team prepares a package for each respondent, which contains the following materials:

(1)   A set of briefing charts on the Delphi technique, itemizing the procedure to be followed.

(2)   A sample question illustrating the response, summary and re-design through three hypothetical Delphi rounds. The sample can be in a different subject area.

(3)   A factual summary of the current and past programs affecting the areas to be considered.

(4)   A general information and instruction summary for the respondents with definitions of the evaluation rating scales to be used.

(5)   Two copies of the questionnaire so the respondent may retain a copy of his answers.

This complete package is usually prepared only for the initial round of the Delphi exercise; however, two copies of each later questionnaire are usually mailed to each respondent, so that he can keep track of his statements from round to round.

Maintaining Respondent Participation.--Especially due to the lack of personal interaction, continuing total respondent participation is difficult to maintain. This "respondent dropout" may occur because of competing time constraints or because of lack of interest or alienation when theparticular respondent's position appears to be in a "hopeless minority." It is the responsibility of the Design and Monitor Team to see that "respondent dropout" is reduced to a minimum. This necessitates frequent telephone conversations with the respondents: informing them that

198

a new questionnaire is in the mail to them; reminding them to complete the questionnaires and mail them in on time; and, cajoling "drop-outs" into completing the exercise because their opinions are vital to the success of it.

It is generally standard procedure that Delphi respondents are reimbursed for their participation. The size of this reimbursement varies anywhere from as little as $20 to as much as $100, depending upon the difficulty in securing agreement to participate. This payment serves not only as a compensation for their time expended, but also tends to instill in the respondents a higher sense of commitment and responsibility to the project. When an individual respondent realizes that his responses are so valuable to the success of the Delphi, he is less likely to discontinue his participation before all rounds are completed.

Maintaining a Workable Communication Structure.--In some instances, the respondent group may overconcentrate its efforts on some issues to the detriment of the consideration of others. This may occur because the respondent group finally obtained was not as diversified as needed or planned for the total scope of the exercise. With proper knowledge of the subject material, the Design Team can stimulate consideration of the neglected issues by interjecting comments in the summaries for consideration by the respondents. It is a matter of the integrity of the Design Team to use this privilege sparingly to stimulate consideration of all sides of an issue and not to sway the respondent group toward one particular resolution of an issue.

The process of designing a workable communication structure for any specific Policy Delphi appears to be more of an art than a science. However,,

199

a number of general reasons for failure have come to light from some
of the less successful attempts:

- Utilizing a blank sheet of paper on the first round and thereby
  implying that the respondents should waste their time
  educating the Design and Monitor Team;

- Poor techniques of summarizing and presenting the group responses
  and insuring the common interpretation of the evaluation rating
  scales utilized in the exercise;

- Ignoring the fact that respondents to a Delphi are acting in a
  consultant role in what may be a demanding exercise, and should
  therefore be involved as a part of their normal job function, or
  should receive normal consulting fees for participation; and,

- Ignoring or not fully exploring disagreements so that discouraged
  dissenters drop out and an artificial consensus is generated.

5. Data Reduction

Analysis of a Policy Delphi consists primarily of subjective judgments
and interpretations of the Design Team. As the responses of the various
interest groups are reviewed over all rounds, the Design Team can fit the
respondents' reactions into a general scheme derived from their understanding
of the process of the group's reactions. This "content analysis" of the
group response is classified in such a fashion to allow similar attitudes to
be grouped together and later to provide important insight for the User
Body into the following areas:

(1) They will be able to identify the effect that new information
    had on the strength and durability of some of the major

200

opponents' positions. For example, it may be found that several
of the most vehement objections were based on misinformation and
subsequently decreased in strength when more information was provided.
This finding could reveal the necessity for a new or improved
approach to introducing the opposed highway plan to the public or for
the need to inform the public before introducing the plan.

(2) Certain opposing positions can be identified as firmly held, without
shift or compromise, by noting those cases in which new information
produced no change whatsoever in the attitudes of the proponents
of those viewpoints throughout the Delphi rounds. This provides the
planning committee with a list of objections that will be encountered
and must be overcome if their future efforts are to be productive.

(3) And thirdly, common interests can be identified among the various
opposing interest groups, that can be useful in supplying a list
of possible negotiation points that the planning committee can put
to future use.

6. Timing

At least one month to six weeks should be allowed for the advance prepara-
tion stage for the Policy Delphi, depending upon how difficult respondents are
to locate, how much time the education of the Design Team will require, etc.
During this period, the User Body must meet with the Design and Monitor Team
to discuss the issues to be considered and decide what objectives the Delphi
exercise is to meet; the types of panel respondents must be decided upon,
(identified through the processes described earlier); the initial information
pages must be prepared for mailing to the respondents; rating scales should be
developed; and the first-round questionnaire must be completed.

An actual "round" of a Delphi exercise will take approximately two weeks, from the initial mailing of the questionnaires to the summarizing of the responses and preparation of the following questionnaire. This two weeks varies with the promptness with which the respondents return their responses and depends a great deal upon the dedication with which the Monitor Team devotes itself to telephone encouragement of the respondents.

A Policy Delphi usually requires at least four to five rounds. This is often the result of the necessity to reword some of the positions as described by the respondents and the inherent difficult in common interpretation of written statements on policy issues. On some issues where strong polarization exists in the respondent group, it has been discovered that each side on obtaining the summary of the first round does not really believe that the other held so completely different a view and felt that a few casual comments would shift the other groups to their "logical" position. Upon getting the results of the second round this belief is usually shattered. In essence, it is sometimes not until the third round that the majority of the respondents react to seriously polarized issues.

Processes Involved

In general, the Policy Delphi procedure has two features: (1) anonymity; and, (2) controlled feedback. Anonymity effected by the use of questionnaires or other formal communication channels, such as on-line computer communication, is way of reducing the effect of dominant individuals. Controlled feedback - conducting the exercise in a sequence of rounds between which a summary of the results of the previous round are communicated to the participants - is a device for reducing noise.

There are several properties of the Delphi exercise that should be pointed out. The procedure is, if handled expertly, a relatively efficient way to "cream the top of the heads" of a group of knowledgeable people. In general, it involves much less effort for a participant to respond to a well-designed questionnaire than, for example, to participate in a conference. A Delphi exercise, properly managed, can be highly motivating environment for respondents. The feedback, if the group of respondents involved is mutually self-respecting, can be novel and interesting to all. The use of systematic procedures lends an air of objectivity to the outcome that may or may not be spurious, but which is at least reassuring. And finally, anonymity and group response allow a sharing of responsibility that releases respondent inhibitions.

Experience has shown that the solutions produced during an exercise have a high degree of acceptability to those involved in it; respondents are usually motivated to help in any community action that is indicated for the future.

Positive Feature

In addition to advantages described in earlier sections regarding the anonymity provided the respondents, controlled feedback and generation of typical respondent group support for the ultimate decisions to be implemented, the Policy Delphi has other positive features.

Certainly one asset the Delphi shares with Focused Group Discussions is the diversity of opinion they bring to bear, thus minimizing the possibility of overlooking some obvious facet of a question. This property is enhanced by requesting all participants to state the reasons for their position statements.

The "worksheet" process insures that all respondents have carefully

examined all position statements from the various interest groups participating

in the Delphi, thereby hopefully assuring that stated opinions and beliefs

are more firmly based on complete information than those obtained through

survey techniques.

The limited time utilization of the respondents allows the use of

individuals in the respondent group who may not have the available time

required for participation in committees or other group mechanisms.

Because there is a 2 week lapse between Delphi rounds, the respondents

can discuss issues with members of the community groups they represent,

thus providing the possibility that the respondents' statements are representing

more than just their own personal opinions. This facet of the Delphi is

an advantage over the Focused Group Discussion.

As previously noted, the questions included in the Delphi exercises can

be more complex, and therefore delve deeper into underlying assumptions than

is possible with a survey.

Because the interaction process in the Delphi is not on a face-to-face

basis, many mechanisms are avoided such as:

- The domineering personality, or loud-spoken individuals that
  take over the group process.

- The unwillingness of individuals to take a position on an issue
  before all the facts are in or before it is known which way the
  majority is headed.

- The difficulty of publicly contradicting individuals in higher
  social positions.

- And, the unwillingness to abandon a position once it is publicly
  taken.

The mail questionnaire technique also many times makes it possible to include respondents who would not be able to participate in a group or committee meeting procedure that requires traveling to a designated meeting place at a specified time. The Policy Delphi enables an individual to respond without leaving his home or office, and he can respond at his own convenience even if that convenience happens to be at 3 o'clock in the morning. This feature also is an added convenience for the Design and Monitor Teams: They do not have to contend with juggling meeting times to suit individual respondent's personal schedules, in order to find a date and time which allows them to secure the participation of all respondents.

Finally, the series of rounds reacted to by the respondents over a period of time provides a unique insight into: the strength and durability of positions held by various interest groups, possible points where opposition must be met and contended with; and, possible negotiation points to be utilized in eventual implementation of a proposed program that cannot be obtained with other mechanisms.

Negative Features

In addition to the considerations for implementation discussed in previous sections (considerable advance preparation by the Design Group, development of rating scales, and the number of rounds which would extend the actual Delphi process to at least 10 weeks), there are other constraints which should be brought to attention.

- The non-random selection of respondents limits the ability of the Delphi method to avoid drawing a biased or non-representative sample, as opposed to a scientifically selected sample such as those used in interviewing practices.

● Unfortunately, the less literate segments of the population find it difficult to respond to such a technique. This limitation usually reduces the number of respondents who can represent the disadvantaged, lower socio-economic, or less-educated groups within the community. In the case of transportation planning, this is a serious shortcoming because the decisions to be made will affect all residents of the community regardless of social or educational status.

● Mail questionnaires lower the chance of maintaining a 100 percent response rate, thus requiring staff time spent on follow-ups of non-returnees.

● Another potential limitation of the Policy Delphi exercise is severe constraints on the diversity of the respondent group and the resulting limit on the meaningfulness of the exercise. The Delphi exercise seeks to, initially at least, explore any alternative introduced by any single respondent even if it is known to be in direct conflict with the intentions of the planning body requesting the exercise or with the rest of the respondents. As a consequence, we have the following possibility:

> An item under consideration in the Delphi may be lifted out of the context of the exercise and made public by one of the respondents as a supposed item under construction by the planning body.

> One can see that the chance of this occurring increases with the increasing diversity of the respondent group.

While the design team can suggest the amount of diversity
required to explore adequately the issues in question,
because of the above risk, the choice or approval of the
individuals making up the respondent group should be
the prerogative of the planning body.

● The secretarial workload is comparatively massive and is not well
distributed, time-wise, during the re-design period between the
rounds. This could be cut to some extent by the use of one of the
on-line text editing and composition systems now available on a
number of time-shared computer systems. If the exercise happens to
be in an environment where each respondent has access to an alpha
numeric display terminal tied into a central computer, much of
the tedious work in the summarizing of the voting could be automated
provided the available text handling software is flexible enough
to allow quick modification, by non-programmers, to a Delphi control
program.

● Also, it may be more convenient and effective to obtain the
participation of the respondent group on a continuous basis for
three to four days. This would provide a "total involvement"
atmosphere for the respondent, but possibly eliminate their "rethink"
time on the subject material and their ability to check back with
their groups as is allowed with the 2 week program.

- And finally, the results of the Delphi exercise can be summarized, only by an entirely subjective or intuitive analysis by the professional Design Team. Thus these results can only be considered as opinions and not as "hard facts."

Costs Involved

Policy Delphi exercises will vary in cost depending on the number of rounds executed, the number of respondents participating, the complexity of the issue to be considered, the difficulties in identifying respondents and persuading them to continue participation, etc. When trying to estimate the total cost of a Policy Delphi, it is necessary to take the following into consideration:

- The professional Design/Monitor Team fees (and expenses) for design of questionnaires, implementation, analysis and report writing;

- The cost of clerical, secretarial staff time for typing question-naries, tallying responses, and following-up on "drop-out" respondents;

- Reimbursements or "consulting fees" paid to respondents, if necessary; and,

- Postage, phone bills, duplicating and printing costs.

Program Utilization

A review of the literature reveals that the greatest use of the Delphi technique has been in technological forecasting. Regarding policy issues, however, the Delphi has been used to assess the needs of older Americans, to define public service needs of urban residents and to assess attitudes toward Civil Defense Programs and policies.

The Delphi technique has also been used to establish occupation safety hazard levels, to study the impact of ratings of safety and cost of operation of new automobiles on the sale of new automobiles and secondary impact on gasoline usage and employment in the auto industry, to determine the future role of public broadcasting and its impact on the banking industry, and to study the trends in utilization of photo-voltaic solar energy devices.

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SECTION 2: FOCUSED GROUP DISCUSSIONS

Description and Strategy

Focused Group Discussions--talking with people in groups rather than individually--appeared on the marketing research scene shortly after World War II as a part of "motivation research." It was based on the premise that there is a greater sum total of knowledge and information in a group than in any of its members. Thus, problems that require the consideration of more than one opinion should give groups an advantage over individuals. Today, Focused Group Discussions are used in many different situations where the reactions of the public must be known in order to implement a plan of action successfully.

The typical Focused Group Discussion usually includes six to ten respondents selected in some specified manner for the purpose of the discussion, and a professionally-trained group moderator. In the group situation, a person is asked to express an opinion about something--in this case: feelings about the need for a new highway or preferences among proposed highway routes. In contrast to the individual interview, in which the respondent speaks only to the interviewer, the group setting encourages the opinions of each person to be considered and reacted to by the others in the group. Each individual is therefore exposed to the ideas of others and to reactions to his own ideas.

Topics for discussion are selected by the moderator working in conjunction with the highway planner. Before doing anything else, the moderator must find out what is to be learned from the group discussions. This step cannot be overemphasized because the moderator does not normally ask a structured set of questions. He or she must be able to follow-up new

213

areas of discussion and hunt for answers or opinions that may not have
been anticipated. If the moderator does not recognize areas that may
yield new ideas, much relevant information may be lost.

Once the objectives of the discussion are understood, a list of questions
is developed: questions to be answered by the results of the research. This
detailed set of questions has two purposes. It ensures that both the highway
planner and the moderator have thought about what they really want to
know, and it ensures agreement on specific objectives before the study
begins.

From this set of detailed questions, the moderator usually prepares a
topic outline or interview guide. Instead of a specific set of questions to
be asked in a predetermined order, the moderator uses this guide as a set of
cues to help ensure that all important points are covered in the interview.

1. Focus

The objectives of the Focused Group Discussion can be one or a combination
of the following: to elicit information, attitudes and opinions about the
major issues being considered; to provide a way of dealing with issues
before people make public commitments or statements about the issues (so
that a more flexible and broader range of negotiation can take place); to
work toward support-building for a program rather than the more prevalent
negative or veto activity of groups; to obtain reactions to a proposed new
route; to obtain preferences among route alternatives; to work toward a
consensus of support for an alternative; or, to provide the planner with the
range of opinions present in the community to be used later as a base for
designing a survey of the population.

2. Scope

Any one group can involve up to 10 to 12 people. Very small groups are inefficient because they provide less than the maximum number of respondent hours per hour of moderator time. They also tend to lose the mutual stimulation among members that makes the group setting unique from the individual interviews. When groups are too large, they are difficult to manage; and in very large groups, less vocal respondents hesitate to speak. Most moderators prefer groups with a minimum of six and a maximum of 10.

It is usually a good idea to over-recruit: recruiting 12 when 10 are needed will assure an appropriate number. Focused Group Discussions require the appearance by designated individuals in a specific place at a pre-set time. In almost every group a situation occurs which interferes with attendance (baby-sitters don't show up, friends dropped in, the weather got bad).

Some methods of increasing the number of respondents who agree to participate are to: provide baby-sitters for the respondents with children; recruit only respondents who express a high level of interest in the issues to be discussed; or, to offer some form of reimbursement, e.g., paying each respondent for his time. This latter incentive becomes especially important when dealing with upper-level professional people who feel their time is valuable and lower-income groups who cannot easily affort baby-sitters or transportation to and from the group discussion.

While these methods will increase the chances of getting people to say that they will participate, seeing in fact that they do come to the scheduled session is another matter. It is advisable that each respondent be telephoned the day prior to the group discussion to remind him of the time and place and to assure that he is planning to attend.

215

The composition of the group itself is very important. A group can be considered homogeneous (composed of people with similar interests) or heterogeneous (composed of people with differing interests). Homogeneity of the group lends itself to having a better chance of reaching a consensus of opinion directed toward various options, with less debate, side-taking, and greater chance of reaching a unanimously approved plan of action. A research program need not limit itself to all of one type or the other in any given situation. Sometimes homogeneous groups are held first to allow the various interest groups to arrive at internally agreed upon objectives, followed by heterogeneous groups composed of representatives from the initial sessions, now attempting to propose at least a mutually agreeable, if not unanimous, decision.

Another consideration in group composition arises from the varying social status, education, expertise and income levels of the participants. When these levels are mixed, the presence of more literate and articulate or higher-class respondents may suppress participation by less educated, non-expert or lower-class members who feel that they are less qualified or less important. This can usually be overcome by assembling people in groups which have relatively equal socio-economic status and having the moderator stress interest in everyone's opinion.

A frequently used method of recruiting respondents is to locate various vocal groups in the community (Chamber of Commerce, League of Women Voters, environmentalist or other interest groups) who have been active in protest or support of the issues to be discussed at present or in the past, and then recruit "leaders" of these organizations. Considerable time and testing among all parties is required to determine who are considered the leaders

216

in various groups. One process is to ask for names from as many sources in each community as possible: clergy, public officials, local service program personnel, etc., and to select those mentioned by as diverse a group as possible. One danger of this approach, however, is the possibility of not locating or including members of the "silent majority," and thus losing their viewpoint.

Sometimes another approach used when the planning is in its very early stages and no route alternatives have yet been defined is to hold groups with members from each of the neighborhoods in the community, or perhaps one group with business owners and one with homeowners from each neighborhood in order to assess their attitudes toward the need for a highway, their attitudes toward highways in general, their preferences for the location of a new route, etc. With this information, the planners could then begin to map out possible route alternatives to be considered which might meet with the least opposition.

Other possible groups could be made up of the business and industrial community for purposes of determining their needs for transportation routes for delivery of out-going or in-coming products, or raw materials. Commuters, shoppers, public transportation employees (bus drivers, taxi drivers, etc.) can also provide important insight into the needs for new routes, difficulties and problems with existing routes, or peak traffic congestion areas.

It is very important in respondent selection to take caution not to over- or under-represent any significant segment of the population to be sampled. This will reduce the chance of conducting all the group discussions with respondents holding the same viewpoints, and resulting in a biased impression of the reaction of the whole community.

217

3. Data Collection

Focused Group Discussions yield data collected from a statistically non-representative sample of the population being studied and therefore cannot be expected to speak for the community as a whole. Data collected through group discussions can include responses to short questionnaires as well as the information obtained from the discussions themselves.

4. Approach

Site.—Group discussions can be conducted in the highway planner's office building, in some more neutral setting, or in the respondents' homes.

Conducting the discussion at the highway planner's home base greatly increases the probability that the planner will attend, and for this reason alone should be considered where planner participation is desired. Holding discussions in the planner's office building greatly simplifies the mechanics of setting up tape recorders, motion picture projectors, samples and props, if the same room can be left set up during the entire study. On the other hand, holding discussions there makes recruiting of certain types of respondents exceedingly difficult because of the obvious connection with the planners. The poor or less educated may feel that the planners will have no interest in their viewpoints, the opponents to the proposed highway may not want to come to the "enemy's turf," others may fear cooption and so on.

"Neutral site" group discussions incur out-of-pocket costs for trnasportation and room rental, may reduce the probability of the planner participating, and may require transportation and set-up of equipment

218

in rooms not designed for the purpose. In return, it makes getting some respondents easier by avoiding the problems of the home base location where the planners are automatically identified as sponsoring the group. Using a neutral site may reduce the number of interruptions resulting from office or home telephones, visitors, etc. The location can be selected for proximity to the respondents' homes or businesses and relocated for various groups in different residential or business areas to improve the likelihood of attendance.

Holding group discussions in respondents' homes makes it relatively easy to recruit interviewees who will not have to go far from their own neighborhoods, and is often the best method of promoting a relaxed atmosphere. On the other hand, private homes are usually harder for respondents to locate than a well-known school, motel or office building on a much-travelled city street. Equipment must be moved from home to home for each group session, where the other methods usually allow at least two or more groups to use the same facilities. And finally, not all homes will be found to have the necessary space, seating accommodations, or freedom from interruptions from the telephone, other family members in that home, and unexpected visitors that can be found with the other site selections.

Site selection is frequently dependent upon the characteristics of the issue itself. For example, if the representative members of the various community groups hold highly conflicting positions, it is best that a neutral site be chosen for the discussions. Holding them in one of the respondents' homes invariably places opponents on "enemy turf." If the respondents' positions conflict with the planner's, again neutral sites are recommended over the planner's home base.

219

Equipment.--Most group discussions are tape-recorded for later listening or transcription. This allows the moderator freedom to follow the discussion without having to worry about note-taking. If it is important to be able to identify the respondents or if the groups' gestures and other non-verbal gestures are to be recorded, video-tapes can be made of each group. Although these types of recording equipment may make the respondents self-conscious for the first few minutes, after they have become involved in the discussion they appear to forget that any equipment is present.

In addition to recording equipment, there may be a need for maps of the city showing proposed routes, displays, graphs, cost tables, etc., which are necessary to provide the group members with more complete or accurate information about the topics they are discussing.

The Moderator

A trained moderator brought in for the work is generally preferred for these types of discussions, since those connected with highway planning may have great difficulty in remaining neutral moderators (e.g., refraining from: stating their own opinions, arguing points with respondents, or becoming flustered over hostile, aggressive comments). Also, trained moderators are more likely to be able to use techniques for asserting subtle control over the group--controlling "bandwagoning" due to a dominant personality, encouraging the more silent to voice their views, and keeping the discussion focused without forcing its direction. The trained moderator knows how to interpret nonverbal clues (such things as body set, eye and mouth movement, and so on) and use them to advantage to encourage silent respondents and to discourage overly-verbose respondents. (For example, avoiding eye contact with verbose respondents often cuts down their conversation without their being conscious of anything happening; smiling and nodding at a silent member who is

showing discomfort—a frown or a headshake—with a statement can often open

him/her up for conversation.) Trained moderators are generally more likely to

use neutral words and to avoid emotionally-laden words in conversation and to

phrase questions neutrally than are untrained moderators.

Selecting a moderator is a difficult task, however. There are many

moderators who claim to have the credentials but who lack the essential skills

outlined above. The only way to discover their deficiencies is to observe them or

listen to tapes of their work; this is often not possible to do. Certain

moderators have achieved a national reputation and can be assumed to be competent

by virtue of this reputation. However, they are also in great demand and

may be too costly for the planner's budget. Obtaining a skilled moderator

thus requires a search process and some trial-and-error can be expected before

a moderator meeting your needs is found.

It may be preferable to train a member of the highway department (when,

for example, a large number of groups are to be moderated, or it is expected

that groups will be conducted periodically or if you plan to have someone as

a resource for a number of planners). Training is a fairly complex process

taking considerable time. Potential moderators should have taken some behavioral

science courses, in such areas as personality theory, interpersonal behavior,

etc. Goldman feels that a trained psychologist makes the best moderator. Wells

suggests clinical training, coupled with a personality profile of an open-minded,

contemplative person. Specific moderator training, it is generally agreed, is

on-the-job: first observing another moderator; listening to tapes; and experi-

ence in moderation itself, with an observer to critique the performance. Clearly,

training your own moderator can only be justified if there is a long-range

demand for the moderator's services.

221

Evaluating moderators, whether brought in or trained, requires noting their rapport with respondents--**do** they appear to put people at ease; does the conversation flow naturally after the initial break-in period, or does it ebb and flow in response to the moderator; do people interact with each other rather than with the moderator; does each participant contribute to the conversation, or is the conversation dominated by one or two indivudals; are respondents encouraged to pursue lines of reasoning through non-directive probes (e.g., "Want to say a little more about that;" "In what way;" "I'm not sure I under-stand," etc.); does the moderator maintain neutrality (allowing equal "air time" to opposing views; avoiding the use of loaded terms, avoiding opinion-giving, etc.); are side-conversations, gratuitous comments, and tangential con-versations kept to a minimum; is the moderator's attitude one of interest and concern, or does he/she sound patronizing, "expert," condescending, or sarcastic; and so on. A moderator must be evaluated according to the objec-tives of the group discussions. Some moderators will be more skilled at consensus building; others at acting the part of the uninformed observer; still others at playing a "Devil's advocate" role. Some moderators are more comfortable in a totally non-directive "let-it-all-hang-out" role; others are only comfortable in a highly directive role. Some skilled moderators will be able to handle all roles. However, in evaluating a moderator's performance, the actual role required in the situation must be delineated and judged. If the role was meant to be directive, for example, you cannot fault the moderator for being directive.

An outside moderator generally is not responsible for bringing together respondents; however, many moderators are connected with services which will make all arrangements for a fee, if requested to do so. The moderator is

222

generally responsible (in conjunction with the highway planner) for the design

of the Focused Group Discussions, including the moderator's guide and any

data forms required (check sheets, mini-questionnaires, etc.). In addition to

moderating the groups, the moderator's function is, in most cases, to analyze

and report on the group discussions, as will be described later on.

Style of Moderation

Moderating styles diverge along a continuum that runs from non-directive

at one extreme to directive at the other. At the non-directive extreme, the

moderator participates only enough to get·the conversation started and keep

it from wandering too far from topics of interest to the planners. The emphasis

is on the group, on the dynamics of the group interaction, and on the latent

significance of what is said. When the moderator finds a group member asking

questions of the group, he will not question them himself.

The rationale for encouraging spontaneous interchange among group mem-

bers is that this sort of discussion may reveal material that would not

emerge otherwise. The approach is based on the notion that people allowed

to be spontaneous in a non-evaluative, non-threatening environment, will be

encouraged to reveal much about themselves and their inner priorities that

they would usually suppress. Because of the interchange that takes place in

the group situation, the respondents are responding to their own needs as

well as the needs of others and observation of these responses adds valuable

information that could not be obtained in a survey.

At the directive extreme of the style continuum, the interviewer keeps

control of the discussion, does most of the questioning himself and shuts

off verbal interchanges among group members unless the exchanges are clearly

223

to the point. In this style, the effort is to keep the discussion orderly, to follow a pre-determined sequence of topics and to explore each topic one at a time. No attempt is made to generate "group cohesion," or to plumb the unconscious.

The style the moderator initally uses is sometimes determined by the nature of the group. With alert and articulate people the moderator can usually assume a non-directive approach. In an especially talkative group, or at the other extreme, with a very quiet group, a more directive role will be required.

The non-directive style has an advantage in that it frequently generates more relevant information about problems or alternatives than the moderator and client had previously anticipated. Its drawback, however, is that this style of moderation may require a longer time period to cover all the major issues noted on the moderator's interview guide.

The directive style, obviously has the reverse qualities. The time required to cover the pre-arranged topics is shorter, while fewer group topics are generated and discussed and respondents may not be given the opportunity to discuss what is really important to them.

Another factor determining moderator style is the objective of the group discussions. When ideas and opinions are to be generated for the purpose of later designing a questionnaire for an interview survey, the least direction is required by the moderator. If the purpose of the group discussion is to arrive at a consensus of opinion among group members, the moderator must sometimes act as a negotiator, being sure that each group member is finally satisfied. When a large number of issues are to be reacted to for the purpose of determining what positions are advocated, the moderator

may need to take a more directive approach, to ensure that all important topics are discussed during the session. As a final example, when the purpose is to provide a more accurate understanding of the problem, the moderator may have to follow a role similar to that of an instructor, by explaining each new piece of information presented, utilizing slides or maps to show exactly where proposed routes will be located, and being equipped to answer any technical questions that may arise.

Sometimes it is preferable to inform the respondents of the topic areas to be discussed in advance so that the respondents arrive at the session with carefully thought-out responses to the questions at hand. If this "respondent homework" is desired, additional time must be allowed to cover the mailing of information to the respondents, and to allow the respondents a reasonable period to sort out their thoughts before the discussions are begun.

5. Data Reduction

Analyses of the results of a Focused Group Discussion range from cursory to extensive. At one extreme, when time is at a premium or only surface opinions are needed, the moderator can prepare a brief impressionistic summary of the principal findings from memory, as soon as each discussion has been completed. This method is most often used as an intermediary step to improve upon group discussions to follow, by noting key points and new topics to be pursued without taking advantage of the wealth of insight which further analysis would bring to light if the interactions within the group discussion were carefully examined.

A more intensive anlaysis involves the trained analyst listening carefully several times to the tapes, copying down important exchanges, and fitting the

225

respondents' reactions into a more general scheme derived from his under-
standing of the history and present status of the problem. Under this second
method, referred to as "content analysis," the relevant content of the group
interview is classified in a fashion to allow similar attitudes to be grouped
together and later reported in a organized, coherent written report.

If the content of the interview session must be preserved intact, the tapes
can be transcribed by a typist. This, however, is a time consuming practice
and is not used with great frequency.

6. Timing

From three to six weeks should be allotted to the preparation stage for
group discussions, depending upon whether or not information is to be mailed
out prior to the discussion sessions, how hard the respondents are to locate,
etc. During this period, the list is developed as to what questions must be
answered by the research, the types of panel respondents must be decided
upon (they must be identified through the necessary inquiries or field work
described earlier); mailing pieces (if necessary) need to be written and
mailed; the discussion guide must be developed; potential respondents must
be contacted to learn if they will agree to participate, and if so, what times
and dates they have available; meeting rooms or locations must be reserved;
and groups have to be scheduled.

The actual group discussions require relatively little time. A typical
group session should not last longer than 2 to 2½ hours, unless the respondents
are highly enthusiastic and prefer to keep going. Due to time constraints,
when a group is to include working people, the evening hours and weekends
are the only times available for scheduling. The 2 to 2½ hour interview is

226

almost an upper limit of endurance even for an interested participant
in the evenings - and participants are usually hard to "tie down" on week-
ends. The quality of moderating tends to decline under the pressure of
extended daily groups; if time limits are such that several groups must be
run in a short period of time, it is advisable to utilize several moderators,
so that each will have a chance to digest the results of previous sessions be-
fore plunging into the next.

The time required for analysis of the group interviews depends on the
number of groups conducted, the degree of detail required and whether or not
each group is to be summarized separately (which is generally preferred)
or if the results of all groups are to be combined in a final report.

7. Uses of the Data

The use to which data is put is primarily a function of the objectives
for which the Focused Group Discussions were held.

In the private sector, the most frequent use of the focused group data
is to generate a salient, meaningful questionnaire based on the hypotheses,
language, and insights coming from the focused groups. For example, an imported
beverage had miniscule sales in the United States. The firm wanted to
determine how the product could be positioned in the U.S. marketplace in such
a way as to increase sales. Focused groups appeared to indicate that those
who had tried the product were more likely to be innovators. The major
stumbling block to sales appeared to be the U.S. consumers' unfamiliarity
with the product. Also, the type of product was foreign to U.S. behavior
patterns, and thus it appeared that cosmopolitanism might also be important
in sales. A questionnaire was designed using life style indicators, coupled

227

with a taste-test, to test the hypotheses generated in the focused groups.
Based on the survey results, it was recommended to concentrate attention on
those markets deemed more innovative and cosmopolitan—e.g., New York City,
Los Angeles, San Francisco, Washington, D.C., and New Orleans.

With focused groups whose purpose is to achieve consensus around an
alternative, the data are used to amend the alternatives, as necessary, to meet
consensus requirements. However, even in this instance, the amended alternative
should be tested against broader citizen group—through a survey, for example—
if at all possible.

It is not always possible to conduct a survey within given time and budget
constraints. In this case, the data would be used directly to assist in
the planning process, for example (again in the private sector), a firm wished
to determine which of three R&D innovations should be pursued for a line of
consumer products. A series of focused group interviews indicated that one of
the three innovations was perceived as most convenient, and most worth-
while, even with the knowledge that resulting products would cost more to
purchase. Furthermore, all three were perceived to have an advantage not
perceived by the manufacturer—increased safety, which made them more
appearing than the present line of products. It was recommended, based on consumer
reactions and a technical assessment, that the firm proceed with the product
perceived as most convient and most worthwhile.

A hypothetical example of how to use focused group data in transportation
planning follows. A series of focused groups centering around reactions to a
proposed new highway indicates that although many people have very fixed opinions
about the highway often they soften or modify their opinions when presented with data
on the impact of highway. Many myths are uncovered, based on inflammatory and

distorted information previously available to them. They distrust highway
planners as sources of information, placing their faith in a newspaper known
for its embarrassing "scoops" on irregularities in government dealings. The
biggest concern was disruption of traditional neighborhoods and transportation
routes due to the highway. Given these insights, a concerted campaign to
educate citizens should prove beneficial in counterbalancing the rumors and
half-truths surrounding highway construction. Education direct from the
distrusted highway department, or indeed from a government source, may be
discounted. But cooperation from the trusted newspaper and, perhaps, other
trusted local agencies might modify presently-help opinions. Focus of such a
campaign must include some suggestions or tentative plans for avoiding the
destruction of neighborhood environments. Once the campaign has been launched,
a survey, designed around those issues most salient in the discussions, could
quantify present sentiment toward the proposed highway.

An inappropriate use of focused group information is to develop statistics
from it or to otherwise generalize to the entire population. For example, if
70 percent of those who attended a session approved a given highway route, it
is inappropriate to infer 70 percent of the population will do. Only a
rigorously designed, probability sample can give you percentages of the
population.

Potential for Resolving Issues

The value of the group interview lies in respondents' ability to interact
with each other in a relaxed fashion, and to feel free to discuss their
attitudes in greater depth than is usually possible in a personal interview.
As a result, the information gathered is generally greater than the sum of
the individual respondent's comments. The interaction itself provides

findings otherwise unattainable, which when summarized produce insight into the primary motivators of action, the ordering of priorities, the salience of various issues and possible negotiating points to be considered in implementing any one of the alternative programs. This insight if properly incorporated into the feedback, given the community as a whole, can serve as a facilitator for resolution of issues between the agency and the community.

The group process in itself is interactive; and if the planner is present, it allows complete interaction with feedback from both sides. These group discussions, however, are traditionally only conducted once with each group; and so do not provide continuity or a means of resolving issues over time. Since they are not statistically representative of the population, they do not allow planners to gauge the magnitude of the reactions. Thus, they are most effectively used in conjunction with other techniques.

Positive Features

Group discussions can be, and often are, fast and relatively inexpensive. Three or four discussions can be conducted, analyzed and reported in less than a week once the preparatory steps are completed.

A second, related, advantage is that the group discussion is a superb mechanism for generating hypotheses when little is known about the issues. When other sources of information are sparse or lacking, or when the researchers need to zero in on important issues to pursue in subsequent surveys, group discussions are highly productive breeders of important issues to be addressed.

230

A third important advantage is that the group method drastically reduces the distance between the respondent who produces research information and the client who uses it.

In group discussions, the number of discussions is so small and the time consumed so short that the planner can directly participate in most or all of the sessions himself, either by providing feedback to the interviewer on the relevance of the material being produced, by asking questions himself as the interview unfolds or vicariously by listening to the tapes or viewing the video tapes.

Another advantage of the group discussion, an advantage it shares with the individual "depth" interview, is its ability to handle contingencies. Much of human behavior is "if . . . and . . . otherwise." "If the day is hot and I am in a hurry, I will take Brown Street to work, otherwise I will take the longer Lake Drive." "If I knew that route A would improve the appearance of the West side by clearing the slums, and it wasn't too near my property, I would prefer A, otherwise I would prefer route B on the east side of town." Single survey questions can obtain all these elements separately; but unless the relationships are already well knwon, it is hard to design questions that can pick up the contingencies that link the preferences.

The interaction among group members also stimulates new ideas regarding the topic under discussion that may never be mentioned in individual interviewing. These "build-ons" reveal either reinforcement or rejection for another idea. When a group member does bring up a new idea, however tangential, the group as a whole is given opportunity to react to it in a variety of ways that indicate its interest to the group.

231

The levels of these reactions to various topics provide some idea of the strengths and dynamics of the attitudes and opinions being voiced. The flexibility or rigidity with which an opinion is held is better exposed in a group setting than in an individual interview. Within the two hours of a typical group session, an opinion that is stated with finality and apparent deep conviction can be modified a number of times by the social pressures or new information that may be provided by the group. As the discussion proceeds, some group members modify their initial reactions, some define them even more, and some admit confusion. In this way, the group setting offers some idea of the dynamics of opinion - its initiation and modification, and its intensity and resistance to change. These patterns of modification in opinion are often enlightening to the planner with regard to understanding the motives underlying opinions initially stated, knowing the range of opinions stated, determining the strength with which a position is held, and learning just which factors might induce compromises or make alternatives more acceptable.

And finally, the group discussions provide a better medium for presenting and describing new concepts or ideas in more detail--using props, slides, displays, maps, etc.--than is feasible in an individual interview study.

Negative Features

The major problem with group discussions is that they are not a truly representative sample of the population under study. Furthermore, even though the greatest care may be taken to include a member of all possible sub-groups, the small number of respondents increases the chance that all views will not be tapped.

A second related problem stems from the fact that group interviews are entirely dependent on the attendance of the respondent. Because they require more time and effort on the part of the respondent, refusal rates are higher, making participants harder to get. If certain groups have high levels of absenteeism, those groups may be of little use. Follow-ups for the no-show respondents are often impossible unless two or three groups composed of similar interest respondents are scheduled for the same study, such that re-scheduling for a later group can be achieved.

Group discussions involve fewer actual respondents than surveys, so that a smaller proportion of the total community is reached.

A drawback for analytic purposes is that group interviews cannot be standardized. In other words, in no two groups will issues be discussed in exactly the same way. This aspect of the variance between groups makes it impossible to compare and contrast accurately various groups' opinions in a scientifically approved manner, because they depend entirely upon the subjective interpretation of the person writing the reports.

And finally, there is the effect of social and peer group pressure operating in group situations which may not be present to the same extent in the individual surveys. Social pressure is a major force toward conformity. The desire to be a good member of a group and to be accepted tends to work against the individuals participating (bandwagoning), thus distorting the picture of the true feelings of the respondents. A skilled moderator, however, can do much to set the tone for non-punitive disagreement.

233

Costs Involved

Group discussions will vary in cost depending on the number of groups, the difficulty in locating respondents and persuading them to attend, the content of the discussions (e.g., the need for visual displays, printed materials, etc.) and the level of detail desired in analysis. When trying to estimate the total cost of group discussons, it is necessary to take the following into consideration:

- (If a moderator is hired) the professional moderator's fees (and expenses) for design, moderation and analysis;

- the cost of clerical staff time for contacting respondents, mailing information sheets, typing reports, etc.;

- rental fees for meeting rooms, tape recorders, etc.

- reimbursements to respondents (if given);

- transportation to and from the interview site (if provided);

- babysitting services (if provided); and,

- postage, phone bills, etc.

Program Utilization

Group discussions have primarily been used in the private sector--to assist in developing questionnaire items, to generate hypotheses about reactions to new products, concepts, etc., in group dynamics work for companies facing personnel problems such as high turnover and absenteeism, and in conjunction with product tests (e.g., blind paired comparison taste tests). They are less frequently used in the public sector, though they are applicable to these areas. Some selected examples follow.

Federal Government.--In February 1969, the Department of Transportation engaged Arthur D. Little, Inc. and three subcontractors (Skidmore, Owings and Merrill, Real Estate Research Corporation and Wilbur Smith and Associates) for a major effort to gather information for improving transportation in the center of American cities. Five cities were chosen to initiate the project: Atlanta, Dallas, Denver, Pittsburgh, and Seattle.

A significant portion of the study was devoted to consumer needs and wants in transportation; consumer attitudes toward and use of downtown areas; and consumer attitudes toward mass transportation, particularly systems which had been suggested for these cities. Substantial surveys were designed and administered for all cities except Pittsburgh. For the purposes of illustration, the Denver study is mentioned here in more detail.

A number of Focused Group Discussions were held with various citizen groups (those working downtown; those using public transportation; those not using public transportation; etc.) to determine the salience of public transportation; issues involved in transportation; and reactions to public transportation alternatives. Based on these discussions, a questionnaire was designed. During late January and early February 1970, a door-to-door survey was conducted throughout metropolitan Denver in order to: (1) define downtown Denver in terms of area and use from the viewpoint of Denver citizens, (2) delineate citizens' attitudes toward Denver transportation in general and public transportation in particular, and (3) assess the interest in and likely use of the "park and ride" system of transportation in view of responses to 1 and 2.

Most Denver residents were found to be accustomed to getting around downtown on foot from parking lots. While a majority (59 percent) indicated some form of interest in the park and ride concept, only about third were "very interested." Furthermore, the concept would be extremely price-sensitive in view of the present ease of parking close enough to walk to work.

State Government.--The State of Connecticut was faced with an increasing demand for public housing and increased delays and costs in completing housing. A consultant was asked to assist in determing the role technology could play in putting up housing more quickly and at a lower costs. Part of the task was to identify consumer needs and wants which could be translated into housing design requirements. Therefore, "consumer panels" made up of mothers receiving Aid to Dependent Children, young couples living in housing projects, and people renting or owning homes outside housing projects were convened. Respondents attended two sessions on successive nights. The first evening was spent discussing their present residence and its neighborhood. They were then asked to think about what they would like to see in a residence and come back the next night to plan the residence. Needs and preferences in housing design were thus identified partly through discussion and partly through a "Design Your Own Home" kit. The latter (conducted on the second night), allowed panelists to specify their housing needs and

wants and then to modify these specifications to meet realistic rent

levels. An analysis of the original designs, items removed, and items

substituted provided not only design priorities but also provided

information on people's perceptions and aspirations in regard to housing,

the extent to which these are realistic, and the manner in which they

influence housing decisions. However, from the discussions, it was

clear that the overriding concerns were not space-oriented, but dealt

with such issues as social isolation, the delivery of services, and the

living environment (crime and delinquency in the neighborhood, nearness

to stores and churches, and so on). Consumer panel findings underscored

the destructive effects of isolating low-income housing and the importance

of addressing the housing problem as a system of which low-income

housing is an integral part.

The California State legislature had tried for several years, without

success, to legislate reorganization of large urban school districts. A

committee was formed: The Joint Committee on Reorganization of Large

Urban School Districts. Los Angeles was selected as the target area, and

a consultant was hired to recommend alternative school district organization

forms. A major part of the study involved an assessment of the attitudes,

goals, and criteria of all parties-at-interest. Using in-depth inter-

views with educators, administrators, school board members, parents and

organization leaders, a set of criteria was developed against which

reorganization alternatives were to be measured. The consultant then

developed five alternative reorgnization plans, describing for each

237

its ability to achieve the criteria and probable impacts of the alternative. These alternatives were then presented to community leaders in Focused Group Discussions aimed at developing consensus around an alternative. Alternatives were modified based on these group discussions, and recommendations were made to the Joint Committee. The alternative selected received sufficient support to pass through both legislative bodies, but was vetoed by the governor at the eleventh hour.

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SECTION 3: SURVEY OF CITIZENS' ATTITUDES AND OPINIONS

Description and Strategy

1. Background

As a relatively inexpensive way to gather information, attitudes and opinions from a large number of people, the survey has many positive features. It provides planners with the information they need to make policies which will have the most chance for success. It is the only technique, other than talking to every citizen, which is capable of being statistically representative of all citizens, including the "silent majority;" it thus measures opinions and attitudes in a way which allows planners to understand the depth and magnitude of various points of view. As such, it provides an aid to planning. In an era of change, where important issues revolve around people's responses to major events, it is valuable to contact the people affected to learn about and understand them better--for example, one can ask people what has changed, how it changed, and why they feel as they do about the change.

The survey has two important advantages over other types of data collection procedures. First is the possibility of designing a survey with a degree of precision which will permit the projection of results to the whole population. Appropriate sampling procedures can create a survey which is truly representative of the population from which the sample was drawn. Second, because it can reach out to every segment of a

population, a survey can reach the "silent majority" whose views would other-
wise be missed through hearings, group discussions, etc. The inclusion of
all elements of a population--even the silent elements--is what gives the
survey the potential for being truly representative and projectable to the
total population. As will be noted later, the survey is not truly inter-
active; citizens cannot communicate directly with the planners and policy-
makers and have their concerns answered directly; nor do they interact with
each other. Citizens may thus feel they have been able to speak their
piece, but they receive no response and may well feel that nothing will
happen as a result of the survey. Thus, a survey cannot be construed to be
a substitute for interpersonal communication between citizen and planner.

On the other hand, acting solely on the basis of majority rule may be
misguided. The fact that 25 percent of the population is indifferent to a parti-
cular highway route and 50 percent favor it does not mean that implementing
the proposed highway will not be hampered by citizen protest. It is well
documented that a small, but active, minority can effectively delay a pro-
ject if their needs are not addressed. Thus, the purpose of a survey is not
simply to get a vote from the public, but to try to determine the rationale
behind the vote, so that planners can work to ameliorate fears and concerns
of citizens and to facilitate the planning process. The survey must be con-
sidered an aid to understanding the population, a guide to planning, and a key
to the type of informational and educational programs which may be necessary.

241

Surveys are best used when they are designed to reflect the total population's attitudes and opinions, when the findings can be shared with the population for greater mutual understanding by all, and when plans are made to include as many of the identified viewpoints as possible, not simply the most frequent viewpoints . Identifying all of the values in the population is crucial to forming plans which will be successful in reflecting the greatest welfare for the community.

In recent years four trends have gathered speed to work against the success of any survey. One trend is that more and more people appear to be uninterested in taking part in a survey. This has been caused in part by social scientists themselves--too frequent surveys, with poorly designed or inappropriate questions, raising the hopes of the respondent without justification, and disregard for the feelings and rights of respondents. The second trend concerns the increasing number of people who are afraid to talk to interviewers either in person or on the phone due to the heightened impact of fraudulent salesmen, robberies, and assualts. The third trend involves the increasing concern by citizens about the invasion of their privacy. They worry that any data collected may be misused against their own best interests and thus are unwilling to respond to a questionnaire of any type. A fourth trend has been more prevalent among minorities or those holding minority viewpoints (e.g., those holding extreme conservationist views, those calling for decreased government roles in transportation, education, etc.): the feeling that they have been surveyed to death and nothing has ever come of it --e.g., the futility of responding to questions because surveys do not lead to action or change.

However, significant advances in the state-of-the-art of surveys have worked in favor of the success of surveys. Social scientists have diligently worked to develop questions which will more accurately reflect the respondent's true feelings and more reliably predict their likelihood to behave in a given way. A great deal of effort has been placed on "life style analysis," in recognition of the fact that there are many elements in an individual's background which affect his behavior, and that these elements combine in different ways to produce different life styles and behaviors. For example, within a particular household, income and education category, life style is dramatically affected by the number of people in a household contributing to the income and by their expectations of future earnings.

Technology has also made a significant contribution to the art of surveys. Special computer programs have been designed to analyze survey results more quickly and thoroughly than ever before. Prior to the computer, summarizing the results of a survey sample was not possible, since the deadline for decision-making did not permit the time it would take to tabulate results by hand. Now, with the proper planning and design, computer tabulations can be available instantaneously in some cases, and within a few days in most other cases. Moreover, the tabulations can include weighting of some answers, the formation of scales to grade others, and results which can be summarized in a variety of ways. Sophisticated programs have been developed which can select variables according to their importance in determining or correlating with other variables.

With the progress in social science and technology, the survey has an exciting potential to serve as a tool for gaining citizen input for highway planning. The discouraging trends of citizen resistance to surveys and guarding of privacy cannot be ignored. They must be recognized and addressed

243

with positive and creative countermeasures. Publicity in the local papers

about the survey and its goals is only one example of a way to enlist the

interest and participation of the citizens. In some communities, interviewers

must register with the local authorities before contacting residents. More

thought can be given to providing potential respondents with meaningful creden-

tials, such as a letter preceding the interview which explains why the

study is being done and which gives a phone number where a worried respondent

can call to verify the legitimacy of the survey. At the very least, personal

interviews must include a calling card of some type to leave with the respondent

after the interview is completed.

2. Various Focus Possibilities

The words "attitude" and "opinion" are often used interchangeably,

but it is helpful to distinguish between the two. There is general agreement

that the term "attitude" refers to a person's deeper and more permanent

emotional evaluations, while the term "opinion" refers to a person's more

changeable intellectual views. Each concept can be dealt with in a survey.

For example, a survey might gather information to assess a citizen's opinion

on a particular highway in light of his attitudes toward growth and development

of his city.

In addition to attitudes and opinions, surveys can also be designed

to collect a third type of information: to assess citizens' knowledge of

the subject at hand. This serves as a valuable tool in understanding how

to deal with the expressed attitudes and opinions, and ways which some opinions

might be changed. Those who have negative attitudes and opinions and have

a high degree of knowledge of the subject are to be reckoned with in a

different manner than are those who are also opposed but have no knowledge of what they are talking about. This latter group may well have opinion change if given access to factual information. If it is appropriate to the purpose of the survey, responses can be weighted based on the knowledge of the respondent.

To collect a broad base of information on the citizen's knowledge, attitudes and opinions on a variety of subjects would be a formidable task, and the resulting length of the interview is almost certain to lose the respondent's interest and cooperation. Thus, the designer of a survey must determine a focus for the interview, and include questions which are appropriate to that focus and thus to the goals of the survey.

The survey can be designed to include one or more of the following focus possibilities:

- To gather information on citizens' present knowledge, attitudes and opinions on a particular subject.
- To present a new idea or concept and collect citizens' reactions to the idea.
- To search for new ideas or modifications suitable for solving a problem.
- To measure change in attitudes and opinions over a period of time.
- To raise the consciousness of a group of people on a particular subject, and present new ideas for them to consider.

3. When to Survey

When to conduct a survey is dependent upon the focus of the survey.

245

If you want to collect baseline data of citizen attitudes, values, and opinions, the survey should be conducted before plans are developed for specific projects. These data then would be used by planners in the planning process. More on the use of data will be found in a later section.

If you want to test a plan on citizens, before the plan is finalized, a description of it should be presented via a survey. The data in this case would be used to amend the plan, as appropriate, based on citizen reactions.

If you want to get reactions to where a highway should be routed, the survey needs to precede final route selection. The same is true if you wish to get citizens to choose between alternate routes.

If you wish to measure changes in attitudes and opinions as a result of some intervention on the part of the highway department, two or more surveys are called for—one to measure the attitudes and opinions prior to the intervention; at least one to measure them again after the intervention (e.g., after a media campaign to inform the public). If your desire is to give citizens an opportunity to have a voice in planning and you are not providing another mechanism (we suggest you should use other mechanisms in addition to a survey), a survey conducted well into the planning process, which merely allows a "vote" on alternatives, will not satisfy citizens who wish to be involved in the planning process.

4. Questionnaire Design

The design of the questionnaire is critical to the success of the survey. Improperly worded questions or incomplete coverage of the subject matter result in information which will most likely be wrong. This is worse than no survey

and no results, for people tend to accept results as facts, regardless of their quality, and use them in decision-making. A poorly designed survey questionnaire can lead many well-intended decision-makers down the wrong road very easily.

General.--Questions should follow a logical pattern so the train of thought is easy to follow. Generally speaking, questions should be in a "funnel" order--going from general to more specific. Sensitive questions should not be placed at the very beginning of the questionnaire. The logic for including specific questions must be apparent to the respondent. With the right context, where the respondent can understand why questions are being asked, willingness to answer honestly will increase, and the sensitivity to some questions will decrease. In changing topics, a transitional sentence helps--e.g., "Now, a few questions about yourself."

Language should be simple and easily understood. Since people often have different frames of reference for words, care should be taken to define any such words which are going to be used. An example is the term "transportation"--does it include public and private transportation; are you considering air transportation, the transportation of goods (e.g., trucks), etc.? Thus, the exact context in which respondents are to consider the term "transportation" must be spelled out.

Questions which seek information based on the respondent's knowledge must be very carefully designed. In some instances, the respondent will not be able to give facts or answers accurately--e.g., will the respondent remember how many miles he/she drove last year? In other instances, he/she will not have any information on the subject--e.g., the administration of Highway Trust Funds. It may be the intention of the survey to determine the

247

degree of misconception and misinformation extant in the population, but where accurate information is desired, the respondent's limited ability to recall the past, and his inhibitions about responding to his present situation must be considered.

Questions should be asked in such a manner that all answers are seen as equally possible. While this is most critical with a telephone or personal interview, it also holds true for a self-administered questionnaire, since respondents do pick up subtle clues as to what answers are expected and may bias their responses accordingly. For example, instead of asking, "Do you think the proposed solution to our traffic problem will help the situation?" one might add, "Do you feel that other alternatives should be explored, or what?" In another case, the question, "Do you prefer Location A or Location B for the highway" could be changed to, "Do you prefer Location A, Location B, another location, or do you feel that no highway should be built?"

Respondent bias refers to the fact that fatigue and other factors such as a tendency to agree with statements consistently may work against a true response.   To avoid this, questions which ask for agree-disagree type responses, for example, can be divided between positively worded and negatively worded statements.

For sensitive questions, sanctioning statements help to ease socially unacceptable responses. A classic example is in questions about voting, where rather than asking, "Did you vote in the last election?" one might say, "Many people didn't get a chance to go to the polls in the last election. Did you happen to go to the polls, or not?" In some instances, the issue may be sufficiently sensitive that it needs to be asked in the third rather than the

first person (since people tend to project their own feelings on others).

For example, rather than asking, "Would you take any action to prohibit

highway construction?" one can ask, "On the basis of your experience in

this neighborhood, do you think people will take any action to prevent highway

construction, or not?"

Format.--There are two forms of questions: closed end, where the interviewer

or the respondent checks an answer from given alternatives, and open end, where

the respondent or the interviewer records the response in the respondent's

own words. Examples of the two types are given below.

Do you favor locating the new highway north or south of Main Street?

North _____

South _____

Where do you favor locating the new highway?

_____

_____

Closed end questions are preferable where the information desired   is

factual (e.g., age, income, education, size of family, type of transportation

use for various activities), where you want a measure (e.g., agree/disagree),

and when the range of reasons is fairly well known (e.g., economic considerations,

aesthetic considerations, etc.). They are obviously the easiest to deal with,

since frequency counts can be made for each category.

Open end questions, on the other hand, allow for a great depth of

response and greater insight into motivations, etc. As will be noted later on,

open end questions are not particularly well suited for self-administered

249

questionnaires, as people generally are more willing to talk than they are to write. Moreover, open end questions are more difficult to code and analyze.

If a question has closed end responses for "sensitive" questions such as age, income, and education, responses should include large enough intervals so that respondents feel "protected;" for example, income should generally not be grouped in $1,000 intervals. Also, in questions about income and education no one wants to be in the lowest group (and for age, many do not want to be in the highest) so the first grouping (or with age, the last) should be small enough to exclude nearly everyone (for example, income under $3,000).

When items to be included are the same items found in other data sources (such as the U.S. Census data) which may be used for comparison, care should taken to make corresponding categories for the comparison. For example, the U.S. Bureau of the Census uses the following income categories:

$1 to $999 or less	$7,000 to $7,999
$1,000 to $1,999	$8,000 to $9,999
$2,000 to $2,999	$10,000 to $14,999
$3,000 to $3,999	$15,000 to $24,999
$4,000 to $4,999	$25,000 to $49,000
$5,000 to $5,999	$50,000 or more
$6,000 to $6,999	

In grouping income categories, the categories should be compatible with the Census categories, For example:

_____ 1. Under $3,000	_____ 4. $10,000 - 14,999
_____ 2. $3,000 - 6,999	_____ 5. $15,000 - 24,999
_____ 3. $7,000 - 9,999	_____ 6. $25,000 or more

The questionnaire needs an introduction and a set of instructions. The former gives information about why the survey is being conducted and what will be done with the data (stressing anonymity). The latter informs the respondent or the interviewer how to respond to questions.

At times there can be more than one answer to a question. For example, a commuter might use car, train and bus to get to the city. Provision can be made for this type of situation by wording the question to allow for "multiple responses." Several can be checked (with equal rating) or the respondent might be asked to rank the modes in order of their frequency of use, by using "1" for most frequent, "2" for second most frequent, etc. Whatever is wanted must be explicitly stated for the respondent or the interviewer. Examples are given below:

Self-administered: Please check below the single
                                            most important factor for not
                                            using public transportation
                                            (check only one).

Interviewer-administered: What mode of transportation do
                                            you most frequently use to go
                                            to work? (check only one).

In a personal interview where a question includes a number of items to be asked about, it is useful to hand the question printed on a card to the respondent. The interviewer still records the answers on the form, but the respondent is able to see what he is being asked.

The layout of the questionnaire should look clean and uncluttered, and should be easy to follow. It is advisable to use two kinds of type, such as

roman and italic--one for questions and one for instructions. Unless a question takes up more than a full page, it should not be split up between two pages.

Types of Questions.--Several types of question can be asked. These include factual background questions (age, marital status, size of family, home owner or renter, income, education, occupation, years of residence, etc.), behavioral questions (modes of transportation used, frequency of various types of trips, etc.), attitudinal questions (attitudes toward public transportation, conservation, etc.), and knowledge questions (how well-informed the respondent is regarding: the impact of highway construction, mass transportation planning, etc.).

There are a number of ways of asking questions, particularly attitudinal ones. Many techniques are available, from a 5-point Likert-type scale (strongly agree, agree somewhat, neutral, disagree somewhat, strongly disagree) to the semantic differential, which asks respondents to place themselves along a spectrum bounded by extreme opinions, for instance:

Inconvenient	____	____	____	____	____	Convenient
Vacant	____	____	____	____	____	Crowded
Expensive	____	____	____	____	____	Cheap

etc.

In the spectrum type of question it is a good idea to have enough response choices (for instance, 5 rather than 3) so that respondents can express an opinion without being at the extreme end of the scale. Whole books and chapters are devoted to the measurement of attitudes, and anyone designing a questionnaire for this purpose would do well to review some of that material.[1]

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[1] See, for example, Robinson, John P. and Shauer, Phillip K., Measures of Social Psychological Attitude (Ann Arbor: Survey Research Center University of Michigan, 1969), Also Selltiz, C., Jahoda, M., Deutsch, M. and Cook, S., Research Methods in Social Relations (New York: Holt, Rinehart and Winston, 1951, 1959), pp. 243-55, 279-314, and 343-384.

252

In addition to questions "in words," it is possible to use projective techniques to gather information, such as questions "in a scenario." The respondent can be shown a picture of a situation (such as a highway built near a school and a factory) and asked to describe what is happening. A specially-trained analyst then can determine the feelings the picture arouses. Or, the respondent can be asked to draw an illustration of where they think a road should go, or what they consider the boundaries of their neighborhood to be. Sentence completion is another project technique. For example:

"The thing I like most about driving my car is _____."

"If there's one thing I can't stand about using public transportation it's _____."

"People who think that no more highways should be built are _____ _____."

It is often useful to make consistency checks and question-order-bias checks. The former consist of checks to make sure responses are consistent throughout the questionnaire. For example, one can ask about mass transit use in one place and then later ask questions relying on the earlier data. Responses to the two questions can then be compared for consistency. Inconsistent responses are a reminder that the survey results, while valuable, do not necessarily represent gospel truth in all cases.

5. The Scope of the Questions

The scope and range of topics covered in questions should be determined by analyzing the critical issues. For example, attitudes toward construction of a new highway facility in a neighborhood might be the major issue. The issue might be further broken down to specific issues:

253

- Do you feel the highway is needed?

- Where would you use the highway to go?

- What effect do you feel the highway would have on the value of your home?

- What effect would you feel the highway would have on your neighborhood?

- What alternatives to constructing the highway would you propose?

As many of the pertinent aspects of the issue should be covered as possible.

Often, the nature and range of issues is not clear. In this case, focused group discussions with a small number of participants may provide an excellent means for testing for major issues.

6. The Size of the Survey

The size of any survey is defined by several basic factors: the nature of the issues to be covered, the degree of accuracy required for decision-making, the money available for exploring the subject, and the time available for information collection. The overriding concern at all times should be the quality of information collected, not the quantity of data gathered. If time and money are severely limited, planners are better served if they concentrate on a smaller number of well administered interviews than if they are supplied with a great bulk of questionable data. If time and money are so limited that a quality survey is impossible, one should not be conducted.

The type of sample used, size of the sample, and type of interview conducted are the three major factors contributing to the quality of the survey. The first two factors are discussed below, with the third factor more fully described in the section entitled "Data Collection" beginning on page 257.

Type of Sample Used.--It is seldom possible or necessary to reach every

member of the community population (nationwide surveys most frequently sample

between 1,000-2,000 people). The sampling unit might be individuals, families

or households, or groups (e.g., businesses, citizen organizations, etc.).

There are many methods to select a sample, some of which give a statistically

representative sample and some of which do not. The major consideration in

choosing the method of sampling is the degree to which the sample selected will

represent the total population. In a statistically representative sample, the

survey results can be projected to indicate the views of the total population

within given confidence intervals (e.g., "in 95 cases out of 100").

To achieve statistical representativeness, some form of a probability

sample should be used. The first requirement of this procedure is to identify

the population to be considered (e.g., all residents within certain geographic

boundaries, all workers in a downtown area, etc.). A systematic procedure is

then developed for the selection of respondents, in which the probability of

being selected is known for each member of the population.[2] Simple random

sampling is a method of sample selection that gives each possible element an

equal probability of being chosen before the sample is selected. Systematic

random sampling, a variation within simple random sampling is a mechanism whereby

every nth element in the population is selected for the sample, with the

starting point among the first n determined at random. The primary advantage

of this technique, compared to the simple random sampling, is that it is easier

and less costly to make the sample selections providing there is some list from

which to choose every nth (e.g., a city directory, centers of housing, etc., in

which every dwelling unit is listed and every nth dwelling unit can be selected).

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[2] For a discussion of the theory of random sampling, refer to Cochran, W. G.,
Sampling Techniques (New York: Wiley, 1963) or Deming, W. E., Some Theory
of Sampling (New York: Wiley, 1950).

<u>Stratified random sampling</u> is aimed at avoiding certain types of sampling error coming from the other two methods. Most simply stated, it is a method whereby the total population is divided into a number of mutually exclusive subpopulations, each of which is sampled independently, using either the simple or systematic methods. All three methods are time-consuming and costly.

Deliberately oversampling certain subgroups of the population which have special importance for the objectives of the survey but are known to be a relatively small fraction of the total population is also possible. Weighting procedures can then be used to bring them back into their true proportion of the population for analytic purposes.

Other sampling procedures which are used do not elicit representative samples which is a severe drawback. "Non-probability" (where individuals do not have a known probability of being selected) samples are more convenient and less costly to administer. An "accidental sample" e.g., street-corner inter-views) is likely to be most convenient and least expensive, but cannot be considered to represent the true population. "Quota" sampling to make provisions to guarantee inclusion of diverse population elements (e.g., interview 11 blacks and 89 whites) is possible, as is a purposive sample when "hand-picked" cases are selected, but these are not random and therefore, cannot be considered representative of the total population.

<u>Size of the Sample</u>.--One of the first questions usually asked in planning a survey is "How many respondents do we need?" The answer is seldom easy, and is never "the more the better." Determining the correct sample size is a highly complex process requiring a pilot test to estimate distributions, decisions as to the size of error tolerated, and so on. The book by C. A. Moser that is cited in the biblography has a good discussion of this process. As a practicality, however, most samples are not drawn in this manner.

256

It should be recognized at the outset that in taking the sample there is no easy solution sample size, since the size of the sample depends on available resources, inherent variability of the data, comparisons and tests to be made, and so on. Samples are usually drawn using a rule of thumb. The sample size should be roughly 2-10 percent of the total population at interest; but not less than 400, nor more than 2,000 (although certain of the sophisticated techniques for choosing predictor variables require minimum samples of from 1,000 to 4,000).3/ A statistician can be valuable in assisting you to sort out priorities and determine the sample size.

The size of the sample and the type of sampling procedure will both affect the cost of the survey. If funds are limited, the type of sample selected may be a less expensive, nonrepresentative one, so that a sufficient number of respondents can be more easily contacted. It would be preferable, however, to modify the type of data collection, the length of the interview, or the size of the sample.

7. Data Collection

Having decided upon the scope and content of the survey, there are three traditional techniques for collecting the data. These are:

- Personal Interview
- Telephone Interview
- Mailed Questionnaire

In addition to these are less conventional techniques such as:

- Newspaper Questionnaires
- Magazine Questionnaires
- Television Questionnaires

3/ This is based on the assumption that there is an equal probability of choosing any answer and the coefficient of variation is 10 percent.

If time and budget permit, a personal interview is preferred, since it is more flexible in terms of length, variety of techniques that are appropriate to it, and use of visual materials. A brief description of each technique's advantages and drawbacks follows.

Mailed or Self-Administered Questionnaires.--The self-administered questionnaire is least costly and generally allows a larger sample. Since this type of questionnaire most frequently relies on the use of the mails, however, the time required for the questionnaire to be "in the field" generally exceeds all others.

In cases where a considered response is desired, or you want a careful consideration of printed or visual material, mailed questionnaires allow more "think time" for respondents. On the other hand, they are not appropriate if you want "first reactions" or if you want the respondent's answers without consultation to peer groups, family, friends, and so on. Likewise, they are inappropriate when you wish to test knowledge (since respondents could obtain knowledge before responding), if you wish to use consistency checks (respondents can go back and change answers), if you wish an unaided question (where the data will later be listed), or if you need to have a certain sequence of questions (since the order in which a questionnaires is filled in cannot be controlled, nor can you control a respondent reading the whole before responding).

Those with lower levels of education find written questionnaires difficult to deal with and there is considerable danger of misinterpreting a question or an inability to follow directions (ranking, for example, is generally unwise in self-administered questionnaires, since respondents may not--despite instructions--rank properly; some may use 10 as best; some as worst; the presence of two 3's may mean a mistake or may mean equal weight; blanks may be a mistake or may mean a 0, and so on).

258

Respondents also have the least incentive to respond (they don't have to say "no" to anyone). As a general rule, this is reflected in two ways: an extremely low response rate (vis-a-vis other methods)--a "normal" rate is around 30 percent, and selective response to questions (e.g., more "refusals" on certain questions). Also, there is a general disinterest in having to write and the number of comments or the length of written responses is much less than when respondents are talking with interviewers. Since there is no chance to "probe" written comments, their meaning is often unclear.

Mailed questionnaires are obviously inappropriate where observations are needed (e.g., the state of deterioriation of housing was needed in conjunction with a survey on the impact of the property tax on urban blight).

<u>Telephone Interviews</u>.--With telephone interviews, the length of the questionnaire must be shorter. Long lists of things to which a respondents must reply are inappropriate, since they must be read and the respondent quickly loses interest. Semantic differentials are inappropriate for the same reasons, as is aided adjective selection. No visuals can be used with telephone interviews; this rules out Thematic Apperception Tests. Likewise, where observation is required, telephone interviewing is inappropriate.

Respondents feel less obligated to the telephone than to the personal interviewer, so the overall response rate and individual question response rates are apt to be lower than for a personal interview (but higher than for a mailed questionnaire). On the other hand, except for those without phones, there may be less bias than with personal interviews, where interviewers tend to avoid minority or crime-ridden areas and where respondents often refuse to open their doors to strangers.

259

Telephone interviewing tends to be quicker than personal interviewing or mail questionnaires. Random digit dialing although more costly than using telephone directories (because many numbers are not in service, are connected to businesses, etc.), does overcome the problems of unlisted phones. The number of unlisted phones is proportionately greater in such cities as New York and Los Angeles.

Like the personal interview, one can control the order in which questions are asked, probe for the exact response and clarify any questions the respondent might have.

Personal Interviews.--Personal interviews are most costly, most effective and can require special approaches in some neighborhoods. Nontheless, they are the most flexible, and they permit the use of visuals and observations. Also, because of a feeling of obligation toward the interviewer, non-response-- in total, and per question--has traditionally been lower than for any other method. This may change, and is changing, as people feel less safe in their homes and on the streets. Even today some cities are prohibitive for personal interviews. Quoted costs per interviews in New York City, for example, now range from $50-75, as interviewers go out in teams and elaborate measures must be taken to get respondents to be interviewed. These may include prescheduling appointments, providing special identification for the interviewer, and selecting interviewers such as women and older persons whom people are most likely to admit to their homes.

Personal interview field work time tends to fall in between that of mailed questionnaires and telephone interviews.

In the personal interview one is able to control the order in which qestions are asked. Thus, they are appropriate for a sequential type of question, for

260

questions on knowledge, for asking unaided questions, for obtaining quick

response' answers without consultation to information sources, or significant

others.

The interviewer also can probe responses to clarify meanings, to be sure

the respondent understood correctly, and test a respondent's response (e.g.,

if two items were given an equal ranking). Interviews are easier for less well

educated respondents, because reading is not required—or answers can be read

for respondents.

Finally, because respondents can speak rather than write, responses tend

to be more complete than with a mailed questionnaire.

Some surveys have been successfully designed to include a combination of

these techniques to compensate for the drawbacks inherent to any one type. For

example, personal interviews can be used to gather in-depth information on

some subjects, supported by a larger number of telephone interviews to quantify

other characteristics of the population; it is recommended that mail surveys

be augmented by telephone interviews of nonrespondents to correct for non-

response bias.

Less traditional forms of surveys are also possible. Surveys through the

media have been successful in measuring the attitudes of self-selected parti-

cipants. For example, questionnaires printed in newspapers and magazines have

collected information from large numbers of readers. T.V. programs such as

"The Advocates" have also conducted informal surveys on a variety of subjects.

However, these methods do not tap the "silent majority," and are by no means

representative of the whole community.

Each survey method might be used in several ways, depending on the

objectives of the survey. For most surveys the "one shot" survey is appropriate,

where contact with the respondent is limited to one interview and the data

refers to one point in time. If changes and trends are required, "longitudinal" surveys are the appropriate method by which information is collected for two or more points in time. This can be accomplished by repeat contacts with the same respondents, or--less reliably--by asking a respondent about the present time and some time in the past during the same visit. It can also be accomplished (given a strict adherence to proper sampling techniques) by contacts with representative samples of respondents at different points in time. (The Survey Research Center at the University of Michigan has a yearly survey of households concerning finances, augmented by quarterly surveys. Although the actual respondents are different each time, sampling and interview protocols are such that trends in attitudes can be noted and compared over time.)

8. The Pretest

Before a questionnaire is administered to a respondent sample, it should be tested with a small number of respondents under the actual conditions of the survey. Each respondent should be asked to point out questions that were confusing or response categories that were confusing, misleading, or inappropriate. The questionnaires can then be revised, printed, and made ready for the survey.

9. Data Reduction

Responses need to be edited to make sure that there are no double answers where single answers were required. When this occurs in a list of responses, the higher numbered response should generally be used; for example, if response 2 and response 5 are both checked, response 5 should be chosen. Observation of respondent behavior has shown most often an individual will have checked the first number only to discover that a later number is more desirable and forget to change his initial response. If the answers are

conflicting (e.g., "yes" and "no"), the next question should be reviewed
to see if it indicates which is right. If not, the question is left blank.
Open end questions are read and coded numerically, and each questionnaire is
scanned to eliminate those interviews which were improperly completed. At
this point, each respondent is assigned a unique identification number for
entry into the computer.

Except in unusual cases where the amount of data collected is small, it
is advisable to design the data collection instrument (questionnaire or
interview guide) so that the data can be tabulated by computer. Many computer
programs have already been designed to cross-tabulate and analyze questionnaires.
Whenever, possible, the survey instrument should be designed to fit an existing
program package, to avoid the time and cost spent in developing a new program.

There are several ways for data to be entered in a computer; normally
the second way is preferred.

- Answers can be transferred to a code sheet, then keypunched
  onto IBM cards or computer tape.

- Answers can be keypunched directly from the questionnaire to
  card or tape, avoiding the code sheet process.

- Answers can be made on the questionnaire in a fashion that
  can be "read" by machine ("mark-sense").

- Answers from respondents can be entered on a computer directly.

The first two methods have the advantage of offering the opportunity for
some questions to be content-analyzed. The first requires personnel time and
another step in which errors can occur. The last two methods can offer a higher
degree of accuracy since there is less chance for human error in coding

263

or punching, but there is no way to catch a respondent's error in completing a question. Mark-sense questionnaires also need checking to see that there are no stray marks or crossouts on the sheet which will affect reading of the questionnaire. Their significant advantage, however, is speed. In the most sophisticated examples, tabulations may be extracted while the study is in progress and complete results obtained as soon as the study is completed.

In the computer processing, several functions can be performed:

- Weights given to particular subgroups.

- Consistency checks made to ascertain whether or not the respondent's answers on a particular subject are internally consistent.

- Editing to eliminate any unnecessary questions asked of a particular respondent (improper "skip" patterns, etc.).

- Formation of scales, combination of questions, etc.

- Frequency counts of each question, showing the number and percent of respondents in each response item.

- Cross-tabulations of various questions. Cross-tabulations can be of several types, including responses by background data (e.g., age, marital status, etc.), consistency checks (responses to one question by response to another), cross-tabulations of one attitude against another, cross-tabulations of attitudes against behavior.

- Multivariant analyses (to determine the ability of variables to predict attitudes/behavior).

- Tests of significant difference (to determine if differences are due to chance or if they are related to other factors).

264

Once the data have been tabulated in terms of frequency counts and cross-tabulations, it remains to analyze the data; that is, interpret the results by applying statistical estimation and testing techniques which lead to valid conclusions about the population group from which the sample has·been taken.

An effective technique for determining statistical significance is provided by the chi-square (x^2) test.[4/] In this application, the chi-square (x^2) test statistic is used to determine whether two variables are statistically independent. If someone with a statistical background is available, it is simpler to have that person handle the data analysis; however, a description of the x^2 technique is given in Appendix A. Another useful technique, described in Appendix B, the T-test, is particularly appropriate for before-and-after situations such as those measuring changes in knowledge, attitudes, or behavior.

Other standard statistical methods, such as regression and correlation analysis, should be applicable for interpreting the data. These and other techniques, far too numerous to describe here, are described in detail in the texts that have been cited.

10. What To Do With The Data

How the data is used in the planning process is a function of the objectives of the study.

The purpose of the analysis not simply to get a vote by citizens on each question, but to understand behavior and attitude patterns of groups. These patterns can lend insight into publicity campaigns, to modifications of plans to meeting citizen criteria, and so on.

[4/] For a discussion of theory, see Ostle, Barnard, Statistics in Research (Ames, Iowa: Iowa State College Press, 1956).

If the survey has been conducted to learn the attitudes, values and opinions of citizens, then citizen groups having distinct patterns of attitudes, values and opinions can be placed along a spectrum, can be numerically determined, and project planning can take these patterns into consideration. If measures of attitude change show no change in response to publicity campaigns, the campaigns should be altered; if knowledge is found to be low among certain groups, plans to reach that group with information appropriate to that group can be made. If a proposed alternative is found to be unpopular, but an underpass or bypass would resolve the situation, the more costly alternative may well be "cost-effective" in the end, due to lessened opposition.

It is difficult to deal with this subject in the abstract. Two examples illustrating the use of data follow.

(1) A study of recent purchasers of air conditioners sought to determine the purchase process, the impact of cost-of-operation and energy-efficiency data on the purchase process, and to test incentives for consumers to purchase high-efficiency air conditioners. The survey found that:

- Knowledge of cost-of-operation and energy-efficiency was low among those who had not attended college.

- Knowledge of cost-of-operation and energy-efficiency was not related to the efficiency rating of the air conditioner purchased.

- Consumers did not feel it costs much to run an air conditioner; they could not recall the efficiency rating of their air conditioner (although they could recall its BTU's)

266

- Shopping for a new air conditioner varied from no search (went to one store and bought the one air conditioner looked at) to high search (went to more than one store, looked at more than one model and more than one brand), but the nature of the search was unrelated to the efficiency of the machine purchased. Furthermore, the major reasons for going to more than one store centered around price and BTU's.

- A ban on air conditioners was projected to be most effective. Second most effective was seen to be a consumer information service. A $10 point-of-sale tax on inefficient machines was considered least effective.

From the data it was concluded that energy efficiency, despite all the attention paid it recently, was not a salient issue when it came to air conditioners. Purchasers were unconcerned with the cost of running an air conditioner, they did not act on their knowledge of efficiency differences in air conditioners, and generally were quite price-conscious, often shopping around for price. Why then did anyone buy a high-efficiency unit? It turned out that those that had bought high-efficiency units had high BTU machines. Due to the nature of wiring constraints where they lived, the only units they could buy with high BTU's had to be highly efficient. Those who had a choice, those with lower BTU units, overwhelmingly had low-efficiency units. Thus, the most effective incentive would be to ban air conditioners not meeting certain efficiency standards. Since most shoppers were low-search shoppers, they would be unlikely to go out-of-state to buy a less efficient (and cheaper) unit. A second type of incentive would be a cash rebate, on high-efficiency units

(which the automobile dealers have recently used with some success). Many
more consumers need to become aware of energy efficiency concepts; however,
knowledge alone is an insufficient incentive. Any incentive, it is clear,
must be visible and direct at the time of purchase, rather than delayed.

(2) A manufacturer who specialized in wooden toys wanted to change his
mix by adding some less expensive but durable plastic toys. The
study sought to determine who bought wooden toys, their criteris
for toys, and their reaction to plastic toys. A very strong positive
statistical correlation between education and the purchase of wooden
toys was found. Wooden toys (which the manufacturer had been
selling under the word "educational") were described as "different,"
"durable," "developmental." In other words, wooden toys were seen
as a cut above the rest because they lasted and could be handed down
from child to child (and thus were "worth" their extra cost),
because they had a distinctive texture which was pleasurable in it-
self and not harmful, and, because they were not working-model
replicas like many plastic toys, they required the child to use
imagination in the use--leading to more child development. Plastic
toys were not well regarded, and interestingly there were strong feelings
against guns and war toys among purchasers of wooden toys. It was
recommended that the manufacturer advertise in magazines whose
readers are well-educated, such as Harper or Atlantic (the manufacturer
thought his purchasers were blue collar workers and was advertising
accordingly), to continue his line of (expensive) wooden toys and to
keep any plastic toys in his line toward the back of the catalog.

11. Timing

The three basic components involved in the scheduling of a survey are:

● Development and Preparation of the Questionnaire

including identification of issues and questions to be asked designing the questionnaire, administering a pretest of the questionnaire, incorporating any changes to be made, and finally, the printing of the questionnaire. This generally requires one to two weeks to complete.

● Administering the Questionnaire

including the training of any interviewers, distributing the questionnaire, and conducting the interviews (or waiting for mailed returns), with a follow-up on missed respondents or non-response. The time required will vary depending on the number of interviewers available. The telephone interview period might take 1-2 weeks, the personal interview 2-3 weeks, and the mail questionnaire 3-4 weeks.

● Analyzing the Results

including the editing, processing and computer tabulations, followed by the synthesis and reporting of results. This requires from 1-4 weeks, depending on the complexity of the task. Individuals without experience with surveys may require double these times.

Potential for Resolving Issues

In conducting a survey, contact with the citizenry is primarily found in the development of the questionnaire (if citizens are contacted to identify

issues and subject matter) and the actual interviewing itself (where citizen

opinions and attitudes are collected). These are stages where citizens are

providing inputs to the policy formation stage of planning. During these

stages, there is little opportunity for resolution of issues. However, there

is much to be gained through the public relations aspect of reaching out to

the public for answers to existing problems and in adopting appropriate means

of interacting with those citizens who have been identifed as concerned about

or opposed to the program being planned.

The processes involved in conducting a survey vary from one situation to

the next. The amount and nature of contacts with citizens depend primarily

on the focus of the survey. Gathering information on citizen knowledge,

attitudes and opinions generally involves a minimal amount of citizen inter-

action and participation. However, in some in-depth interviews where new

ideas or concepts are explored, or where new ideas or modifications for problem

solutions are being sought, the degree of interaction and feeling of participa-

tion are somewhat greater. Similarly, the feeling of participation is greater

when surveys are done by contact with respondents over a period of time to

measure changes in attitudes and opinions, particularly if results of previous

surveys are shared with respondents.

A survey very often serves to heighten citizen interest in the subject

under consideration. Someone who had given the matter little thought previously

might be stimulated by his respondent role in a survey, or attending a hearing

to speak out more vociferously. This consciousness-raising is a subtle and

often ignored part of the survey process. It behooves the survey designer

to consider this to make sure that the feelings and ideas left behind with

the respondent are appropriate.

The analysis of the results of a survey provides a greater opportunity for resolution of issues. As citizen opinions are explored and considered, policy formation has a greater chance of reflecting the public interest more accurately. Feedback of survey results and subsequent policy formation to the public provides a good mechanism for persuading the public that their interests and concerns have been heard.

Positive Features of the Survey Process

The advantages of a survey center on its ability to reach out to a large number of people and collect their attitudes and opinions on a variety of subjects. The biggest advantage to a properly designed survey is its ability to be representative of the whole population.

Respondents are frequently willing to express themselves in an anonymous interview when they would be unable or unwilling to express themselves in a more public fashion, such as a group meeting or hearing. Thus, contact is made with the "silent majority." In an interview situation it is also possible to collect a greater amount of detail than is possible in a public forum. It is also a good way to monitor changes in attitudes and opinions which respondents might otherwise be unwilling to admit.

In most instances, surveys are highly cost-effective in terms of yielding a great deal of information for their costs.

Negative Features of the Survey Process

Despite the enthusiasm of those familiar with surveys, there are some features which might be considered as drawbacks to a survey.

- Respondents may not be willing to participate because the survey calls upon some who may be indifferent to the subject matter. Persuasion may be necessary.

- Only superficial or socially acceptable answers may be given unless every effort is made to convey the seriousness of the survey and its desire to "hear it like it is."

- Respondents may not know the answers being sought.

- Its non-interactive nature limits the generation of and response to new ideas.

- Its ability to involve citizens in real and continuous participation in planning is limited.

- It risks the chance of raising false expectations among participants— "Now that I've had my say, they'll change their plan and do it my way!"—at the extreme, and expectation of action at the least.

Costs Involved

The cost of a survey depends on the following factors:

- Degrees of difficulty in developing survey design

- Size of the sample

- Type of sample (probability vs. non-probability)

- Type of interviews, mail, telephone, or personal

- Degree of interviewer skill necessary (executive interviewers are most costly; student interviewers least costly)

- Amount of interviewer training necessary

- Length of interview

- Location of interview (ghetto, suburb, etc.)

272

- Time of day (day, evening, etc.)

- Type of respondent (executive, housewives, blue collar, etc.)

- Follow-up of non-response

- Expenses for coding and editing (increases with amount, type
  and complexity of interviews)!

- Amount of computer analysis or other form of tabulation

- Length and type of report desired

- Miscellaneous factors - (delays due to snowstorms, vacation, etc.)

Obviously, the most expensive type of survey is the large sample survey administered through personal in-depth interviews conducted in the evening in all parts of a large metropolitan area. Conversely, a short mail questionnaire can be completed at a much lower cost.

Without including costs for editing and analysis estimated costs are: $1.00 per mailed questionnaire, $5-10.00 per landed telephone interview, and $10-20.00 per landed personal interview. Cost estimates for a 20 minute interview including coding punching, and basic analysis per completed interview are: $3-5.00 for mailed questionnaires, $10-15.00 for telephone interviews, and $15-30.00 for personal interviews. (These are 1975 costs.)

Program Utilization

Surveys have been the mainstay of commercial market research for decades. They have been increasingly utilized in the public sector as well. Transportation planners have long used the original destination-type survey and have more recently used attitude surveys. The survey technique has been used in the private sector, in commercial transportation studies, in public sector studies in transportation, health, education, urban planning, and other

273

social service studies. Table 1 shows how surveys have been used for a variety of objectives, and how they have provided information in excess of the relatively simple origin-destination data collected in surveys.

TABLE I–SELECTED ILLUSTR
IN HIGI

Study Title	Research Organization/Sponsor	Purpose of Survey	Sample Size [a]
"Experiences and Opinions of Residents Along Elevated, Depressed, and Ongrade Freeway Sections in Houston, Texas"	Texas Transportation Institute/ Texas Highway Department	Measure impact of freeway design on residential areas	229 households, ra (Katy Freeway)
"An Opinion Survey Relating to the Proposed East Papago and Indian Bend Urban Freeway in Metropolitan Phoenix"	Consultant/Arizona Highway Department	Consider need for freeway, aesthetic considerations of alternate designs, distances, preferences, and concerns	900 households prc ple, 100 businessm(leaders, judgment : (Papago and India
"Public Attitude Towards Location of Major Highways"	Consultant/Federal Highway Administration	Consider residents' attitudes about close proximity to highways	2,046 households
"Attitudes Opinions and Expectations of Businessmen in a Planned Freeway Corridor"	Texas Transportation Institute/ Texas Highway Department	Determine businessmens' attitudes on proposed freeway	175 businessmen (S 225-Houston)
"Anticipation of the Effects of an Urban Highway Improvement on the Highway Corridor"	Consultant/Federal Highway Administration	Measure behavioral aspects of anticipated urban highway changes	400 (80 interviews i borhoods, 60 with bu respondents)
"Group Dynamics in the Urban Freeway Decision Process"	University of California/California Division of Highways	Evaluate alternate freeway proposals by comparing individual values	353 households (Stat proposed)
"The Views and Values of the Community Effected by a Major Transportation Project"	University of Wisconsin–Milwaukee/Wisconsin Department of Transportation	Obtain balanced community view of proposed freeway	373 households (Stac way) rural add-on pi

[a] Sampling ratios varied from less than 1 percent to 10 percent. In some cases (e.g., Texas studies) more households close
tests used included chi-square tests and multivariate analysis except in the case of the national panel where the representa

Study Title	Research Organization/Sponsor		Comments
"Community Transportation Survey" (ongoing)	Socio-Economic Studies Division/Federal Highway Administration	ıd	Attempt to develop standardized sampling techniques and survey form
"Transportation Choices in Northern Virginia: Options and Community Preferences"	Bureau of Social Science Research Virginia Department of Highways	ı- city 66	
"Evaluation of an Attitudinal Criterion for Measuring Public Reaction to Proposed Highway Projects"	University of Tennessee/Federal Highway Administration	ıl- in	
"Environmental Effects on Property Values"	Pennsylvania State University/Federal Highway Administration	and	
		nigh-	
"Mass Transit in Scotlandville; Demand and Response"	Southern University/University Research and Training Program of the Urban Mass Transportation Administration	ved ex- the mely wly	Citizen input directly used in planning process.
"Social Characteristics of Neighborhoods as Indicators of the Effects of Highway Improvements"	Consultants/Federal Highway Administration	ıl the rns ef- ın.	A secondary objective is to establish the primary service area for neighborhood facilities.

276

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APPENDIX A

DESCRIPTION OF THE X^2 TEST

Suppose that program staff wish to determine whether there is a relationship between opposition to a proposed highway and age and that 1,000 citizens, chosen randomly, have been interviewed. From questionnaire results, the contingency table (cross-tabulation) shown in Table 2 could be constructed. Each of the boxes in this table where a value has been entered is called a "cell." (If a cell's frequency count is less than 5, it is combined with an adjacent cell to create a broader class.)

At a glance, it appears from Table 2 that there is a relationship between opposition and age; younger citizens appear to be in opposition more than older citizens. However, to confirm that there is a dependency between the variables (age, opposition), it is necessary to develop the appropriate test statistic in order to establish one of two possible inferences:

I_1: Age and opposition <u>are</u> statistically independent, or

I_2: Age and opposition <u>are not</u> statistically independent
(that is, they are strongly related, since a relationship
that is only slight will show up as "independent" in the
calculations).

TABLE 2

CONTINGENCY TABLE SHOWING AGE VERSUS OPPOSITION

Sample of 1,000 Citizens

Opposition	(B_1) 45 or less	Age (B_2) 46-65	(B_3) 66+	TOTAL
Opposed	**205**	80	15	300
In Favor	395	220	85	700
TOTAL	600	300	100	1,000

A step-by-step procedure for calculating the test statistic follows. Note that the values in each cell of the contingency table are the actual sample counts of favor/opposition relative to age. In the calculations which follow, estimates are made of the expected counts. or frequencies, if, in fact, conclusion I_1 is true; that is, age and opposition are independent.

Step 1: Compute the expected frequencies for each cell in the table by multiplying a cell's row total by its column total and dividing by the sample (grand) total.

For example, the expected frequency of the cell containing those in favor who are 46 years old or less (A_1, B_1) is computed as follows:

$$\frac{(300)\ (600)}{1,000} = 180$$

281

Step 2: Insert the expected frequency in each cell along with the actual

count. Circle the expected frequencies.

		Age			
	45 or less	46-65	66+	TOTAL	
Opposed					
In Favor					
TOTAL					

Step 3: Calculate the test statistic (V) using the "Calculation of Test

Statistic for Statistical Independence" shown in Table 3.

TABLE 3

CALCULATION OF TEST STATISTIC
FOR STATISTICAL INDEPENDENCE*

Joint Classification	Sample Count (f_s)	Expected Frequency (f_e)	Deviation $(f_s - f_e)$	Squared Deviation $(f_s - f_e)^2$	Relative Squared Deviation $\dfrac{(f_s - f_e)^2}{f_e}$
A_1 and B_1	205	180	+25	625	3.472
A_1 and B_2	80	90	-10	100	1.111
A_1 and B_3	15	30	-15	225	7.500
A_2 and B_1	395	420	-25	625	1.488
A_2 and B_2	220	210	+10	100	0.476
A_2 and B_3	85	70	+15	225	3.214
	1,000	1,000	0		V = 17,261**

*   Entries in first 3 columns are from Table 1; the rest are calculated

from these.

** The formula for this calculation reads

$$V = \sum \frac{(f_s - f_e)^2}{f_e} = 17.261 \quad (\sum \text{ means "the sum of"}).$$

282

Step 4: Compare the text statistic (V) to a Chi-square (X^2) distribution with (R-1) x (C-1) degrees of freedom. As explained below, R and C refer to the number of rows and columns in Table 3. Chi-square (X^2) distributions are shown in Table 4. The theory of this analysis will not be detailed here. It is sufficient for present purposes to say that statistical theory shows that for the type of problem under consideration, if I_1 is true (that is, if age and opposition are independent), the test statistic (V) will be equal to or less than a Chi-square distribution with (R-1) (C-1) degrees of freedom, where,

   R = the number of classes (rows) into which one of

       the variables is classified;

   C = the number of classes (columns) of the other variable.

To conclude this step it is necessary to:

a. Compute the degrees of freedom, (R-1) (C-1). The contingency table has two rows and three columns, so R=2 and C-3. Thus, (R-1) (C-1) = (2-1) (3-1) = 2.

b. Determine the acceptable level of risk that the conclusion will be erroneous. The usual practice is to tolerate a risk (or chance of error) of .05. This means that the chance is only 1 in 20 that the calculation will show I_2 to be correct when in fact I_1 is correct; that is, the chance is only 1 in 20 that the two variables will appear to have a statistically significant relationship when they are really independent. Note that the Chi-square (X^2) distribution table, Table 4, display risk levels of .01 (1 in 100), .02 (2 in 100), .05 (1 in 20), .10 (1 in 10). In this discussion, the conventional one, .05, is used.

283

TABLE 4

THE X^2 DISTRIBUTION

Degrees of Freedom	.10	.05	.02	.01
1	2.706	3.841	5.412	6.635
2	4.605	5.991	7.824	9.210
3	6.251	7.815	9.837	11.341
4	7.779	9.488	11.668	13.277
5	9.236	11.070	13.388	15.086
6	10.645	12.592	15.033	16.812
7	12.017	14.067	16.622	18.475
8	13.362	15.507	18.168	20.090
9	14.684	16.919	19.679	21.666
10	15.987	18.307	21.161	23.209
11	17.275	19.675	22.618	24.725
12	18.549	21.026	24.054	26.217
13	19.812	22.362	25.472	27.688
14	21.064	23.685	26.873	29.141
15	22.307	24.996	28.259	30.578
16	23.542	26.296	29.633	32.000
17	24.769	27.587	30.995	33.409
18	25.989	28.869	32.346	34.805
19	27.204	30.144	33.687	36.191
20	28.412	31.410	35.020	37.566
21	29.615	32.671	36.343	38.932
22	30.813	33.924	37.659	40.239
23	32.007	35.172	38.968	41.638
24	33.196	36.415	40.270	42.980
25	34.382	37.652	41.566	44.314
26	35.563	38.885	42.856	45.642
27	26.741	40.113	44.140	46.963
28	37.916	41.337	45.419	48.278
29	39.087	42.557	46.693	49.588
30	40.256	43.773	47.962	50.892

SOURCE: R. A. Fisher, <u>Statistical Methods for Research Workers</u>, (Edinburgh: Oliver and Boyd, 1934-1944).

c. Read the Chi-square value from the table using the appropriate degrees of freedom (in this case 2) and an assumed .05 risk of error. In this example, the tabular $X^2 = 5.991$.

d. Set up a decision rule as follows:

If $V \leq 5.991$, conclude I_1 (age and opposition are independent).

If $V > 5.991$, conclude I_2 (age and opposition are not independent; that is, the data indicate a strong relationship).

In the example $V = 17.261$. This shows that age and opposition are not independent (I_2). Note by looking at Table 4 that one would reach the same conclusion by running the risk of being in error only 1 in 100 times; in other words, the computed V statistic could be expected to be 9.210 or larger less than 1 percent of the time if, in fact, rows and columns were independent. Since this is so unlikely, one can conclude that the alternative (I_2) holds.

This means that there is a statistically significant relationship between age and opposition in the population from which the survey sample has been drawn. Opposition is more heavily concentrated in the younger age group.

285

APPENDIX B

THE T TEST

The t-test enables one to determine whether the difference between two averages is statistically significant. Suppose, for example, that one wants to determine whether or not the average level of knowledge, as determined by a test questionnaire has increased as a result of the informational programs. Formulating the problem in statistical terms, one wants to <u>test the hypothesis that the average knowledge of citizens after the informational programs is no different from the average before completing the program</u>. To perform this test, results of the two sets of sample data (before and after) are utilized to compute a test statistic. The value of this statistic is then compared to a theoretical value based on the assumption that there is, in fact, no difference between the two data sets. If the test statistic computed from the data is greater than the theoretical (tabular) value, the hypothesis is rejected and one can conclude that a significant change in the knowledge level has occured. [5]

To illustrate the concept of testing for <u>equality of means</u>, suppose that a random sample of six persons, interviewed before the information program, was observed to have relatively little knowledge about the impact of the proposed highway. Furthermore, suppose that another random sample of seven persons, after the information program, obtained rather high scores on the knowledge scale. (In reality, sample sizes would be much larger; however, small samples are used here to illustrate computational techniques.)

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[5] Underlying assumptions and computational procedures required to perform tests of the equality of means are described in most statistical methods texts; for example, see Bernard J. Ostle, <u>Statistics in Research</u> (Ames, Iowa: Iowa State College Press, 1956) or Irwin Miller and John E. Freund, <u>Probability and Statistics for Engineers</u> (Englewood Cliffs, N.J.: Prentice-Hall, Inc., 1965).

As a consequence, it would be of interest to determine whether the differences in scores on the knowledge scale are "random" in the sense that they can normally be expected from two samples from the same population, or whether they are significantly different in the sense that the two sample groups actually exhibit different knowledge levels. The t-test is a statistical procedure that can be used to resolve this issue.

The computational procedure can be illustrated with the following data:

TABLE 5

KNOWLEDGE SCALE

VALUES FOR EACH PERSON

Sample Group Prior to Information Program	Sample Group After Information Program
30	35
25	30
31	34
28	33
30	34
31	29
	31

To perform a t-test to see if the two groups differ in terms of knowledge scale, the following three quantities must be calculated:

(1) Average knowledge score for the first sample group

$(\bar{x}_1)$:

$$\frac{30 + 25 + 31 + 28 + 30 + 31}{6} = 29.17$$

(2) Average knowledge score for the second sample group:

$$\frac{35 + 30 + 34 + 33 + 34 + 29 + 31}{7} = 32.28$$

(3) Measure of the variability of the data, designated as the pooled estimate of the common variance: (s^2). This is calculated as follows:

(a) Take the knowledge score for each person in group 1 and subtract the average value $(\bar{x}_1)$, then square the result. Example: $(30-29.17)^2 = 0.69$

(b) Add results for all six persons.

(c) Repeat for group 2 using the average value $(\bar{x}_2)$.

(d) Add together all the results for the two groups.

(e) Divide by the following quantity: number of persons in group 1 plus number of persons in group 2 minus number of groups.

Thus:

$$\frac{\left[\begin{array}{l}(30-29.17)^2 + (25-29.17)^2 + \ldots + (31-29.17)^2 \\ + (35-32.28)^2 + (30-32.28)^2 + \ldots + (31-32.28)^2\end{array}\right]}{6 + 7 - 2}$$

$$= \frac{26.83 + 31.43}{11}$$

$$= 5.29$$

Next, the test statistic is calculated as follows:

$$t = \frac{\bar{x}_1 - \bar{x}_2}{\sqrt{\dfrac{s^2}{n_1} - \dfrac{s^2}{n_2}}}$$

where n_1 is the number of observations in the first group, and n_2 is the number of observations in the second group.

Thus, in this example,

$$t = \frac{32.28 - 29.17}{\sqrt{\dfrac{5.29 + 5.29}{6 \quad 7}}} = \frac{3.11}{\sqrt{1.637}} = 2.43$$

If one is willing to risk being wrong no more than 5 percent of the time (that is, test at a 5 percent significance level), the computed value of 2.43 is compared with the appropriate tabular value given in Table 6.

TABLE 6

t-TABLE AT 5 PERCENT RISK

Degrees of Freedom	Tabular t-Value
1	12.706
2	4.303
3	3.182
5	2.571
10	2.228
11	2.201
20	2.086
50	2.008
100	1.984
500	1.965

Expanded tables appear in most statistical texts, but Table 6 is sufficient to demonstrate the method.

In order to look up the proper value in Table 6, one needs to know the degrees of freedom as well as the risk level. For problems involving two groups, degrees of freedom are (n_1 + n_2 -2), or 11 in this case. Thus, the tabular value of interest is 2.201. This is smaller than the computed t-value, indicating that the difference between the two groups is statistically significant rather than random. The interpretation of this result is that the computed value of 2.43 is very unlikely to occur (that is, with less than a 5 percent chance) if, in fact, the two groups are no different in terms of knowledge scores. Thus, it could be concluded that the information program has had a favorable effect on the participants in terms of improving their knowledge about the impact of the proposed highway.

	Volume I	Volume II
California		38, 43, 62, 120, 237
California Division of Highways . .	10	
Cambridge, MA		36
Chamber of Commerce		216
Champaign, IL		68
Charrette	37, 48	14-19
Chicago, IL		71, 122, 128
Cincinnati, OH		128
Citizens' Advisory Committee	28, 31, 34, 38, 40, 41, 44, 45, 64, 80, 92-100, 122	20-25, 101, 111, 171
Citizen Employment (see also Citizen Honoraria)	21	5, 6, 26-29, 45
Citizen/Government Transportation Planning Center		58
Citizen Honoraria (see also Citizen Employment)	21	30-33, 42, 46
Citizen Referendum	51, 52	34-37
Citizen Representatives on Public Policy--Making Bodies (see also Citizen Honoraria)	33, 34, 38, 40, 41, 44	38-42, 44
Citizen Review Board (see also Citizen Representatives on Public Policy--Making Bodies) .	33, 51, 52, 55	43-47
Citizen Training (see also Community Technical Assistance) . . .	21, 89, 90	48-53
CITY I		101
Civil Defense		208
CLUG		101
Cognograph		158
Columbia University		66
Committee. (see Citizens' Advisory Committe.)		
Community Dialog Project		66, 67
Community Planning Center (see also Advocacy Planning and Community Technical Assistance) . . .	37, 38, 51	54-58, 60, 61
Community--Sponsored Meetings. (see Meetings--Community-Sponsored.)		
Community Technical Assistance (see also Advocacy Planning and Community Planning Center) . .	21, 29, 33, 35, 37, 51, 90	22, 44, 48, 54, 55, 57, 59-63
Comprehensive Health Centers		43
Computer-Based Techniques	38, 49	64-73, 174
Conflict Utilization Opinionaire . .		106
Connecticut		39, 151, 236