

# THE INFLUENCE ON RURAL COMMUNITIES OF INTERURBAN TRANSPORTATION SYSTEMS

## VOLUME II

### TRANSPORTATION AND COMMUNITY DEVELOPMENT: A MANUAL FOR SMALL COMMUNITIES

#### Executive Summary

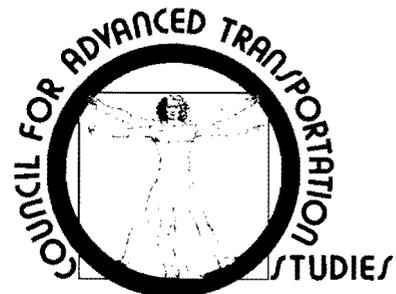
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- 58 *An Analysis of Passenger Processing Characteristics in Airport Terminal Buildings.* Tommy Ray Chmores and B. F. McCullough, forthcoming 1979.
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- 61 *Multidisciplinary Accident Investigation.* Deborah Valentine, Gary D. Hales, Martha S. Williams, and Robert K. Young, October 1978.
- 62 *Psychological Analysis of Degree of Safety in Traffic Environment Design.* Charles J. Holahan, February 1979.
- 63 *Automobile Collision Reconstruction: A Literature Survey.* Barry D. Olson and Craig C. Smith, forthcoming 1979.
- 64 *An Evaluation of the Utilization of Psychological Knowledge Concerning Potential Roadside Distractors.* Charles J. Holahan, forthcoming 1979.

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A MANUAL FOR SMALL COMMUNITIES

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## PREFACE

### BACKGROUND

This document is one in a series developed as an outgrowth of research sponsored by the U. S. Department of Transportation, Office of University Research, through the Council for Advanced Transportation Studies, The University of Texas at Austin. The topic of this research project, "The Influence on Rural Communities of Interurban Transportation Systems," was one of five conducted under the general title, "Transportation to Fulfill Human Needs in a Rural/Urban Environment." The overall objective of this project was to investigate the nature of interurban transportation influence on small "rural" communities (below 25,000 in population) and to assess the relationship between changes in the interurban system and the potential for growth and development of small communities.

The project consisted of four basic stages:

- (1) a review and analysis of transportation impact studies leading to the identification and investigation of areas deemed important to rural communities and intercity transportation systems,
- (2) an investigation of high probability areas of impact to ascertain data availability and appropriateness of various methodological concepts in studying transportation impacts on rural communities,
- (3) a detailed case study of selected rural communities in terms of their response, real and perceived, to changes in their intercity transportation systems and accessibility, and
- (4) the development and field testing of a set of transportation planning guides designed for use by the layperson in the rural community and the regional planner.

The research is documented in two volumes:

Volume I: The Influence on Rural Communities of Interurban Transportation Systems, and

Volume II: Transportation and Community Development: A Manual for Small Communities.

The first volume is the description of the study process and the findings of the various research phases during the project. This document would be of interest to professional planners in regional governments having small, rural communities within their jurisdiction. The report may aid in facilitating their interactions with representatives of smaller cities and enhance their appreciation of the uniqueness of those areas as reflected in their needs and issues.

The set of planning guides contained in Volume II would be of interest to the community representatives. The guides are designed for the layperson and are written in non-technical language. The purpose of the manual is twofold:

- (1) to promote a more informed participation in the national state, and regional decision-making process as it relates to transportation and
- (2) to provide the basis for initiating and continuing comprehensive local planning for small urban places (cities and towns with a population of 25,000 or less).

The MANUAL is divided into an executive summary and seven chapters, each individually bound and designed for use separately or in conjunction with others. The seven chapters are:

- Chapter I. The Transportation Planning Process,
- Chapter II. Transportation Impact,
- Chapter III. Goals and Objectives,
- Chapter IV. Community Inventory,
- Chapter V. Development of Alternatives and Preliminary Assessment,
- Chapter VI. Evaluation, and
- Chapter VII. Glossary and Bibliography.

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## BUS SERVICE TO BE CUT

Green Line Bus Co. has petitioned to the State to reduce service by 50% starting June 1. The president of Green Line was contacted Monday to explain. The reason given was rising operating cost due to rising fuel costs. Mr. Green, president of Green Line, said that an increase in fares would likely reduce ridership, not increase revenue.

Ms. Sharp, chairperson of the local chapter of Retired Rural Residents (RRR) said, "We retired people depend on that bus service. The county hospital is 30 miles away. Those of us who live outside of town depend on those buses to get into town. Reduced bus service is like diluting our blood. We depend on those buses." Ms. Sharp continued, "How can they reduce the service 50% when the present service is barely adequate?"

RRR is preparing a petition to be submitted to the State in hopes that the State will not grant Green Line's request. An open meeting of RRR is scheduled for Friday evening at 7:30 in the Fire Station meeting room. Our State Representative, Hal Glover, will be in attendance. He supports the views of RRR and encourages all citizens to attend.

Mr. Green was contacted but said that he would not attend. As far as he is concerned the company's decision is final.

## LOCAL RAIL LINE IN JEOPARDY?

A group of local officials and business leaders will travel to Swan City tomorrow to testify before a Congressional Subcommittee investigating rail services in small towns and rural areas. These hearings will result in federal legislation subsidizing the continued operation of selected rail lines. It is expected that rail lines not covered under this program will be shut down.

John Swaggert, President of Best Forms, Inc., called service on the local rail spur to Junction City, "vital for the continued operation of our plant in Broncton."

Mr. Swaggert's remarks were delivered before a kick-off breakfast yesterday given for the local delegation by the Campbell County Chamber of Commerce.

Mayor Sweeney of Broncton said the threatened shutdown of Best Forms, a local manufacturer of brassieres and corsets, would be "a disaster for Broncton and Campbell County." Best Forms employs one-half the county's work force, the mayor pointed out.

Joining Mr. Swaggert and Mayor Sweeney in Swan City will be County Judge Oscar Bradley and Luther Oxman, freight manager for the Bullethead Railroad which operates the local rail line.

## GAS RATIONS INADEQUATE FOR RURAL RESIDENTS

Congressman Sam Purvis called the Administration's gas rationing plan "a real blow to rural residents," in remarks during the House debate yesterday.

"We have only one major fully-equipped hospital in my district and some residents have to travel up to 100 miles to get there and back." The Congressman pointed out that one round-trip between home and hospital would use up as much as a month's gas rations for some residents in his district. Other services in his

sparsely settled district would require similar long trips the Congressman said.

"The President has obviously forgotten the rural resident," said Congressman Purvis.

Most observers expect a close vote on the measure when it comes up for final consideration. A final vote is expected on Tuesday. Several amendments favoring higher rations for rural residents have been defeated.

## VOLUME II

### EXECUTIVE SUMMARY

Transportation can have an influence on every facet of human *INTRODUCTION*  
existence. The construction of a new road, abandonment of a rail  
line, expansion of bus service, construction of a new airport, or  
the rationing of gasoline are all transportation-related changes  
that can have an impact on people and their environment. The  
articles on the opposite page are fictitious descriptions of trans-  
portation changes which some small communities may actually face  
in the immediate future.

When such changes occur, will you be prepared to evaluate the  
effect of the change on community life? Will you know how to  
influence the decision-making process to your advantage?

Volume II, Transportation and Community Development: A Manual for  
Small Communities describes a new approach for planning in small  
communities prepared in layperson language and detail. The approach  
is both informative and instructional in nature. First, information  
is presented concerning the transportation planning process and the  
impacts of transportation changes. Second, a simplified procedure  
is offered to assist small communities in planning for their future.  
These two elements will provide community planners, leaders, and  
other residents with the background knowledge necessary to plan for  
transportation-induced changes.

Such knowledge is essential because of the complexity of the plan-  
ning process. Transportation planning must take into consideration  
the entire transportation system and all conditions related to it.

The system consists not only of the physical network of highways, but also of air routes and waterways, terminal and transfer facilities, control devices, and the vehicles and operating characteristics of the various modes of transportation.

No definition of the system is complete without a consideration of more than the physical components. In addition to the physical characteristics, then, the system may be described in terms of its operating characteristics - the patterns of movement, system capacities, origins and destinations of trips, use of resources, etc. The transportation system domain is enormous in scope, and include economic conditions, the environment, the use of natural resources, the characteristics of population groups, current policies and legislation, and, above all, the values of the society which the system serves.

A change in any element of the transportation system, or in conditions related to transportation, can have significant impacts on our behavior and life-style. The more information one has on the kinds of impact of certain types of change, the better prepared one can be to evaluate proposed changes or to plan for those changes already taking place.

The forces which influence our transportation system come from both the public and private sectors. Public officials and government professionals plan transportation facilities and services to meet the wide array of transportation needs in our society. These include, but are not limited to, roads and highways, airports,

passenger and rail freight service, ports and waterways, mass and/or public transit, and special purpose transportation.

Transportation planning occurs in both the private and public sectors. Private firms plan their own operations and the development of private facilities. Public transportation planning, on the other hand, concerns not only publicly owned or operated facilities, but the coordination and development of an overall system. This manual is explicitly focused on the nature and the implications of public planning, though by implication private sector planning is incorporated into the overall consideration given transportation planning in general.

We will now present an overview of the manual and of the approach advocated for small community planning.

Chapter I provides information about transportation planning.

The transportation system which will likely serve your community in twenty years is being planned today. If you want the future system to have a positive effect on your community, then you must know how to influence the transportation planning process. This entails 1) knowing who is responsible for the planning which will affect your area; 2) understanding -- at least broadly -- the planning process itself; and 3) making your needs and desires known to the planning agencies at the state and regional levels through participation in the organization and conduct of their planning activities.

*THE  
TRANSPORTATION  
PLANNING  
PROCESS*

The agencies and organizations most likely to affect the plans for your area may include, but is certainly not limited to, the following:

*KNOWING  
WHO IS  
RESPONSIBLE*

- \* U. S. Department of Transportation
- \* State Department of Transportation
- \* State Highway Department
- \* Other Modal Agencies (Aeronautics, Railroad, etc.)
- \* Regional Councils of Government
- \* County Planning Agencies
- \* Metropolitan Planning Organizations
- \* Other State Agencies (Department of Health, of Welfare, etc.)

The roles which your community can play in planning will vary depending upon the community's location, its relationship to the planning organization or agency in Figure 1, and the status of that agency's plan for the region. The first section of Chapter 1, Volume II, contains a technique for assessing these factors and also suggests specific roles for members of the community to play at various stages of the planning process.

To participate effectively and meaningfully in transportation planning, you will need to have a basic understanding of the transportation planning process. While certain procedures are unique to each mode, and while there are different levels of planning (national, state, regional, and local), transportation planning in general follows the uniform pattern below.

*UNDERSTANDING  
THE PLANNING  
PROCESS*

1. Express desired future
2. Identify system problems

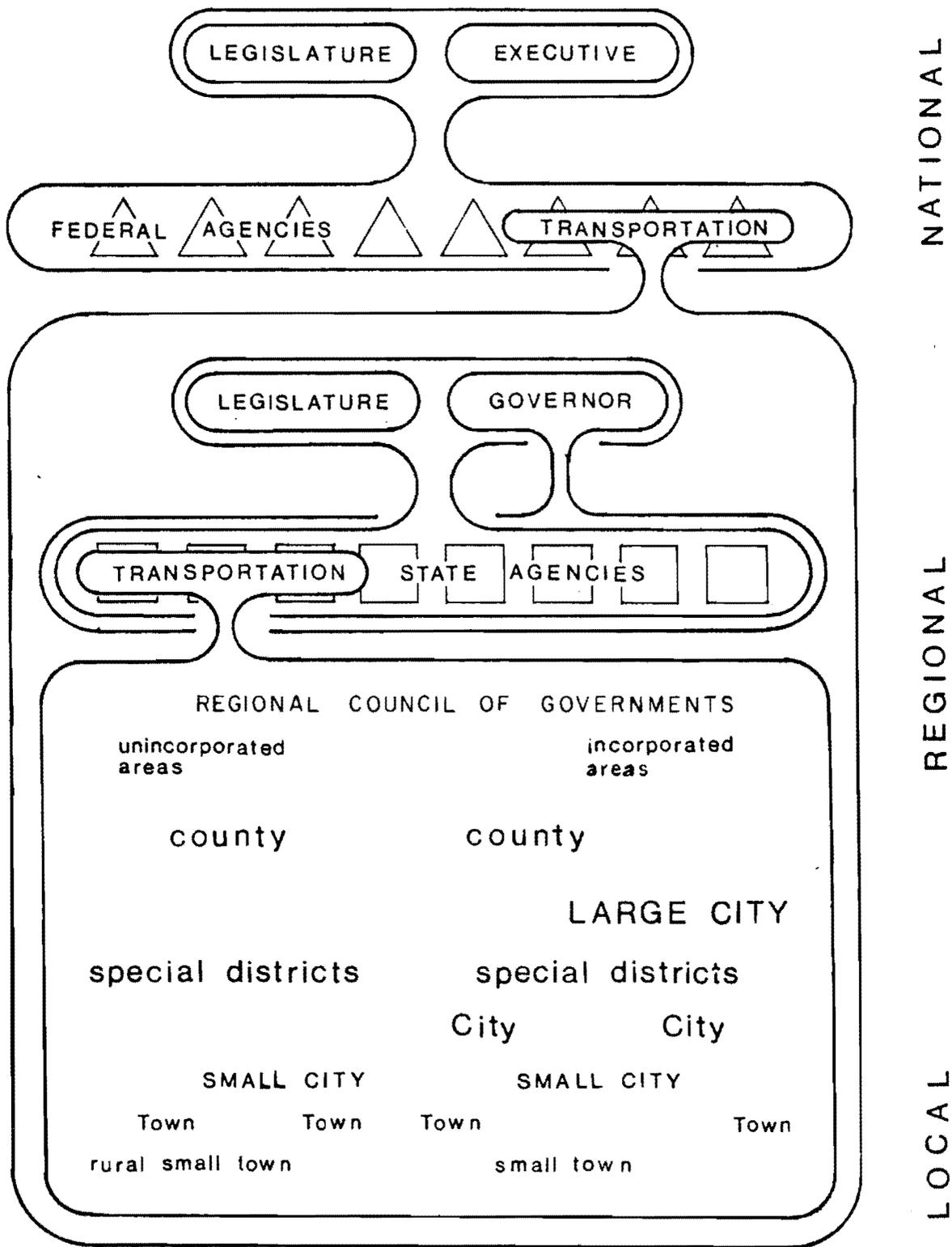


Figure 1  
Government Involvement  
in Transportation Planning

3. Inventory the present system
4. Project future needs
5. Develop alternatives to meet the need
6. Evaluate and select the best alternatives
7. Implement the alternatives

The process is a continuing one, and the "steps" are mutually dependent, as is illustrated in Figure 2.

Citizen involvement is often legally required in developing goals and objectives, evaluating alternatives, and implementing projects (Steps 1, 6, and 7). Your community can also play a role in the identification of problems and in the inventory of the local system. The second section of Chapter 1, Volume II, presents an overview of the above steps and suggests ways of involving your community in many of the procedures employed in each step.

The state and regional transportation plans may or may not address the needs of your particular community. Small communities can influence the external planner through making their needs and desires known. To do so effectively requires more than an occasional complaint to the state highway department; it requires that the community develop its own planning activity and understand the directions it wishes to go and the possibilities it can achieve. You will need to know

*MAKING YOUR  
NEEDS AND  
DESIRES  
KNOWN*

- 1) what impact changes in transportation will have on your community;
- 2) what your community's specific goals and objectives are;

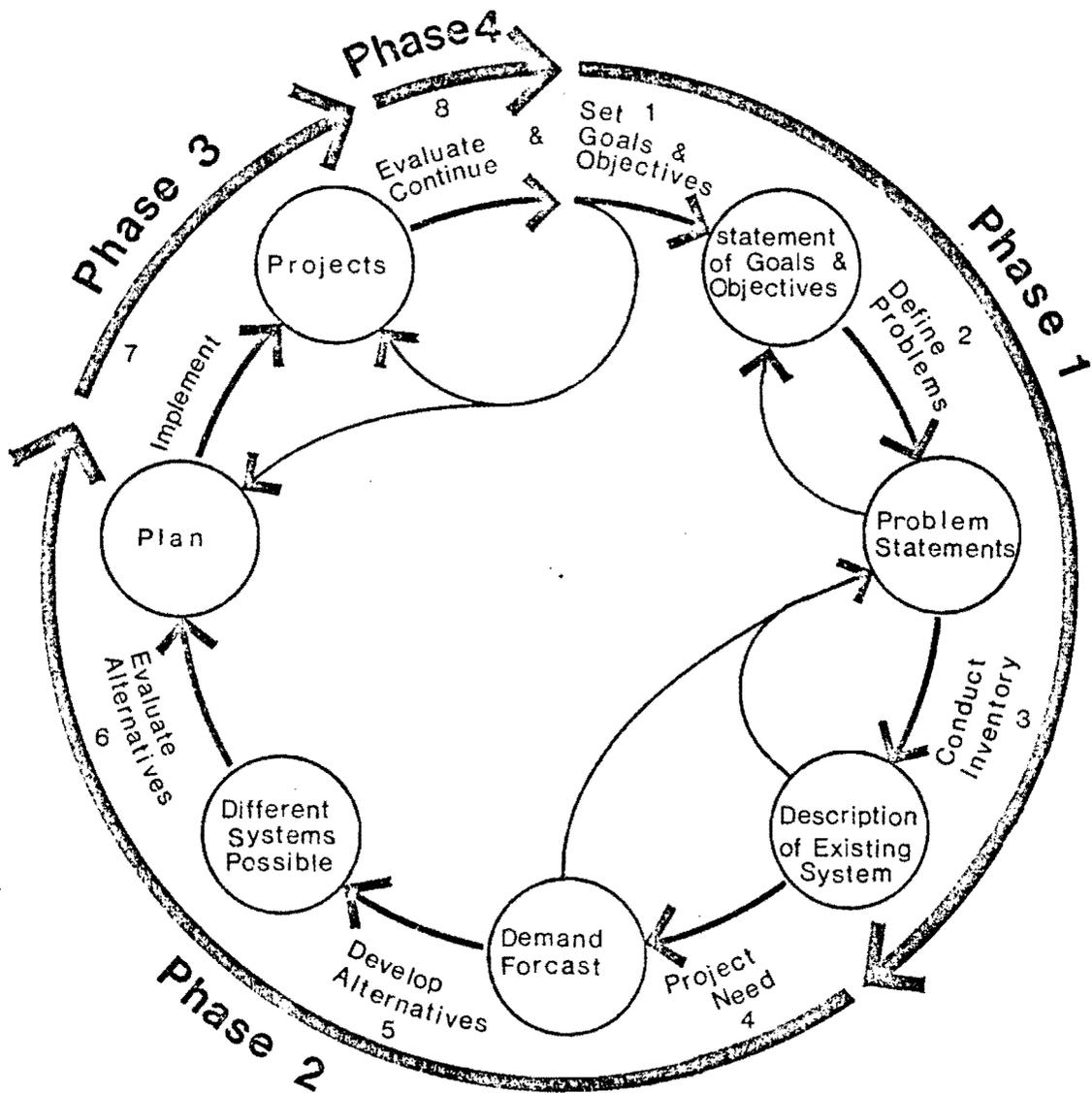


Figure 2  
The Transportation Planning Process

- 3) how to evaluate transportation impact relative to your own goals and objectives; and
- 4) how to act upon your evaluation.

The remaining chapters of the manual are intended to provide the knowledge outlined above.

*TRANSPORTATION  
IMPACT*

The second chapter provides a system for classifying and describing the impacts of transportation changes. The purpose of this analysis is to provide the community with a framework to use in the identification of transportation impacts. This framework should serve as a general guide for understanding the ways that changes in the intercity transportation system can affect certain community characteristics. Such an understanding can serve the community in two practical ways: 1) it can aid the community in assessing the plans and proposals prepared by external planning agencies; and 2) it can alert the community to the considerations necessary to a planned response to transportation-induced change.

The chapter describes a scheme for classifying transportation impact. The scheme differentiates between direct vs. indirect, long-term vs. short-term, community-wide vs. spatially-specific, and quantitative vs. qualitative impacts. The scheme is illustrated with a discussion of the impacts of recent changes in transportation.

The further discussion of transportation impacts, although included to exemplify the types of impacts possible, is essentially a summary of the research available on transportation-induced changes. Both the obvious and the not so obvious impacts are discussed.

The obvious impacts are those that result directly from the volume of traffic movement, the costs of the facility, or short-run changes in adjacent land use. These impacts are generally easy to define and to attribute to transportation change. There are, however, a whole range of indirect impacts which are not as easy to relate in an immediate way to changes in transportation. Some of these impacts include a change in the employment base of the city, a shift in growth direction or land use, long-term alterations of the environment, and an increase in the interaction between communities within the region. Both the direct and indirect impacts can create problems for, or provide solutions to problems facing, a small city.

The third chapter provides guidelines for the development of community goals and objectives. The development of community goals and objectives is necessary to provide input to the regional planning process and as the first phase of developing a local plan. A series of steps, describing the different processes necessary for developing goals and objectives, provides guidance to the local official who is trying to initiate community planning. The text covers the nature of goals and objectives, the considerations necessary for developing a comprehensive goals statement, and methods for developing specific objectives and performance measures. The expected forum for this process is a number of community-wide meetings and small group working sessions under the leadership of a planning committee.

*GOALS AND  
OBJECTIVES*

The steps for developing goals begin with the determination of need as expressed by the values or beliefs that people hold about present conditions. Following the determination of need is the establishment of preliminary goals. The preliminary goals are then examined to determine compatibility and relative importance. The final result is a formal, prioritized goal statement.

Once formal goals have been established, the community will need a specific set of objectives. Objectives, unlike goals, are measurable aims, intended to be accomplished within a specified period of time. They are, in essence, the specific means for reaching the aims embodied in the goals. The process of formulating objectives is therefore somewhat different from that for developing goals. It requires the choice of appropriate and available means of measuring progress, i.e., "performance measures." The procedure, then, involves a step-by-step translation of broadly stated ideals into concrete, pragmatic statements, which will allow the community to specify its actions and evaluate its achievements. In part, the development of objectives will depend upon the other phases of the planning process -- community inventory, problem identification, and the development and assessment of alternatives. Thus the procedure outlined in Chapter III should be used in conjunction with the subsequent chapters of the manual.

The establishment of community goals and objectives is probably the most important step in the small community planning process. It shapes all subsequent planning activities.

The extent and scope of the community inventory is based on the goals that the community has. The evaluation of alternatives (whether from inside the community or from an outside agency) is based on the community objectives. In addition, the interaction among community members that is required to develop goals and objectives is itself a valuable by-product of the process.

Chapter four describes the process for developing community information. The process defines and details several important characteristics of a small community. The information on these characteristics can be used to help determine appropriate objectives for community goals and as a basis for future community programs. The categories under which general information is gathered are:

- 1) Population characteristics
- 2) Land use and capacity
- 3) Transportation
- 4) Community controls
- 5) Financial resources
- 6) Economic studies

For each category, a discussion of the purpose for gathering the information, a definition of the type of information required, and a set of general guidelines on how to obtain the information are provided.

The chapter discusses only general information requirements in each category. The decision to develop more in-depth studies

of particular characteristics of the community will be based on the community goals. Many times the general information will be sufficient to translate specific goals into objectives, but there will be numerous occasions when more exhaustive studies will be necessary.

*DEVELOPMENT  
OF ALTERNA-  
TIVES AND  
PRELIMINARY  
ASSESSMENT*

The fifth chapter describes a process for developing and assessing alternatives. The process provides the community with guidelines for the development of alternatives which can be later expressed as objectives and evaluated against the community goals.

Because of the complexity of the process, the steps taken by one case study community are used as examples. The case study community may or may not have characteristics similar to those of your community. However, the categories of community problems and the procedural steps illustrated are generalizable to most communities.

The procedure consists of the four basic steps outlined below.

- I. Refine the understanding of the problem
- II. Develop alternative solutions
- III. Make preliminary assessment of alternatives
- IV. Select viable alternatives

The procedure described in this chapter should be useful in developing objectives as described in Chapter III, Section 3.11. The development of alternatives corresponds to the development of "specific goals" necessary in the final production of

objectives. However, alternatives do not become programs until they have been subjected to a more rigorous evaluation, as outlined in Chapter VI.

The sixth chapter of the manual provides a step-by-step procedure *EVALUATION* for evaluating alternatives within a "Goal-Achievement" matrix.

The goal-achievement matrix ranks alternative solutions to problems against goals that the community wishes to achieve. The alternatives that come closest to achieving the community goals are the ones selected. The advantage of this type of evaluation procedure is that it allows the community to rank alternatives on the basis of intangible or qualitative factors as well as quantitative and costable ones.

The procedure involves six basic steps:

1. List goals and alternatives on the matrix
2. Identify factors associated with each alternative
3. Develop a measure that expresses the probability that an alternative will satisfy a particular objective
4. Weight the relative importance of each objective
5. Adjust the values of each alternative according to the relative weight of each objective
6. Select the alternative with the highest adjusted value.

The seventh and final chapter of the manual is a glossary and *GLOSSARY & BIBLIOGRAPHY* bibliography of selected information pertinent to small community transportation planning and management.

The glossary provides definitions for terms included under the following categories:

- 1) General Transportation Planning Terms,
- 2) Specialized Transportation Terms,
- 3) Operations, Management, and Economic Terms,
- 4) Administration and Fiscal Terms, and
- 5) an "Alphabet Soup" - a listing of commonly used acronyms.

The bibliography contains a selected and not an exhaustive list of works in the following categories:

- 1) General Background.
- 2) General Transportation Planning,
- 3) Specialized Transportation Planning,
- 4) Evaluation, and
- 5) Planning for Small Cities.

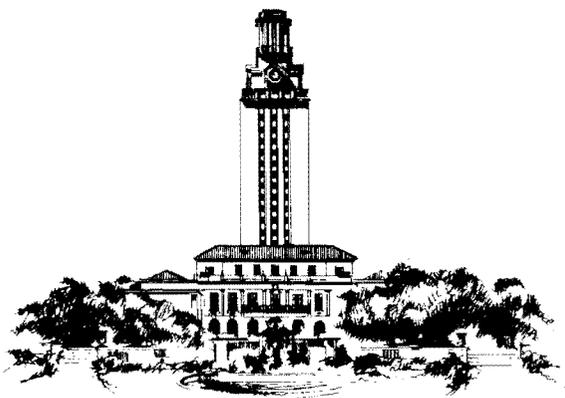
#### *CONCLUSION*

This planning process completes the "end of the beginning." The process begins with the development of community goals and objectives, moves through information gathering, alternative development, and preliminary assessment, and concludes with the evaluation of alternatives relative to the goals and objectives initially established. The implementation of the selected alternatives follows through community centered administrative, budgetary, and legal measures and through cooperation with regional, state, and federal planning and administrative agencies. With the implementation stage comes the feedback and monitoring process. The information gained from implementation is essential to effective and efficient utilization of current and future resources. The

process is forever continuous, comprehensive, cooperative and coordinated - a new "4(C)" process for transportation planning and programming.

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