

Participatory Design: The Next Step

by

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ABSTRACT

Over the past 30 years, citizen participation has altered the traditional environmental design process. Citizen participation in environmental design and planning has changed the traditional linear design process to a more iterative process. Environmental designers have developed a toolkit of participation techniques for working with the public in an iterative manner. The criteria of number, representativeness, time commitment, the opportunity for interaction, the opportunity for continuity and the stage of the design process can be used to compare the effectiveness of these participatory design techniques. The criteria are applied to several of the more commonly used techniques--public hearings, advisory boards, surveys, simulation games and workshops--to show how the toolkit has evolved over the past three decades.

Concurrent with the citizen participation movement, a revolution in planning and design practice has occurred as a consequence of the information technology revolution. Hypermedia is identified as one of the most promising recent innovations for enhancing citizen involvement. The work of several innovative hypermedia authors is described, with a focus on the work of three authors who have tried to create hypermedia projects for citizen involvement.

To explore the use of hypermedia for informing public debate on planning issues, a hypermedia prototype was created. The hypermedia project (the *MightyMart* project) attempted to develop a new approach to presenting a local planning problem. The issue of megastore expansion into rural New England was chosen as an example of a typical physical planning problem for the prototype. By using a storytelling approach, the numerous planning issues and potential strategies for small towns facing a megastore development were encapsulated in the story of a single Vermont town. The differing perspectives and priorities of the citizenry were embodied in four characters who represent a range of strategies and predicted outcomes.

The approach developed in the *MightyMart* project is derived in part from past participatory techniques, such as simulation games and participatory design workshops. Although this particular hypermedia product emphasized involving citizens in the early stages of the design process--by informing them about megastore issues and engaging them in a discussion--the hypermedia approach employed here has greater potential. Because hypermedia is open-ended and it makes collaboration easier, hypermedia programs such as the *MightyMart* prototype could be further developed for use in an ongoing participatory design process.

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Phil Herr also introduced me to The National Trust for Historic Preservation Northeast Office staff. Many thanks are due to Vicki Sanstead, former Director of the Northeast Office of the National Trust for Historic Preservation, for initiating the MightyMart project, for funding additional research and for her warm support throughout the thesis process. Special acknowledgments are also due to Trust staff members Claudia Wu and Laurie Rabe. They provided contacts, clippings, and useful advice for the field research, as well as providing feedback on the early versions of the hypermedia prototype.

I am indebted to my classmates from the original MightyMart project team--Lana Aksoro, Yoshi Ito, Anna Lee, Samuel Reid, Kevin Sullivan, and Joe Webster. Their creativity and hard work resulted in the first version of the MightyMart hypermedia project which served as a case study for this thesis.

Because videographer Douglas Gardner was willing to drive through the back roads of Vermont in mud season and shoot at odd hours in all kinds of weather, I was able to obtain enough video footage for several theses. Classmate Greg Rossel helped me convert this raw footage into intelligible scenes, as well as providing extensive technical advice.

Several people helped produce this document. Greg Rossel once again provided his computer expertise, this time in turning dry statistics into striking maps. Jennifer Marshall helped produce the graphics and formatted text. Joanna Stone copyedited and commented on an early draft of the first three chapters. I am grateful for their professional skills as well as their friendship. My brave and patient mother, Risa Stabin, professionally copyedited the entire final draft.

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List of Abbreviations

AIA	American Institute of Architects
APA	American Planning Association
ASLA	American Society of Landscape Architects
BRDC	Bridge Review Design Committee
BUSD	Berkeley Unified School District
CAD	computer-aided design
DW	Design Workshop
GIS	geographic information systems
HUD	United States Department of Housing and Urban Development
IT	information technology
MIT	Massachusetts Institute of Technology
NCPC	National Capital Planning Commission
NTHP	National Trust for Historic Preservation
R/UDATs	Regional Urban Design Assistance Team
ULI	Urban Land Institute
VER	Visual Environmental Review

1

Participatory Design: A Craft

Introduction

This thesis is based on the belief that environmental design and planning is more of an art than a science. Environmental designers, like other artists, must master their craft if they are to have any hope of producing lasting works. I will explore here not what to plan but how to plan. One of the primary skills a planner must learn falls under the rubric of citizen participation.

Concurrent with the citizen participation movement, a revolution in planning and design practice has occurred as a consequence of the revolution in information technology. In this thesis, I will show how these technological innovations can enhance the craft of citizen participation.

Over the past 30 years, beginning with the urban renewal programs of Lyndon Johnson's Great Society, citizen participation has become an integral part of environmental design. In the first chapter, I will define what citizen participation is and discuss how we can identify techniques that enhance citizen participation.

In Chapter 2, I will describe a number of examples of the participatory techniques. I will evaluate these techniques according to the criteria identified in Chapter 1: cost, number, diversity, time commitment, opportunity for interaction, continuity, and stage of the

design process. Chapter 3 will describe how information technology has transformed planning practice and its effect on citizen involvement. Examples of some of the more innovative projects will be described and analyzed. Chapter 4 will give the background for a prototype I developed to explore how an interactive multimedia computer program might assist participatory planning in a small-town environment. Chapter 5 explains the prototype and its possible applications. In Chapter 6, I will conclude by discussing how the prototype suggests the great potential of information technology in addressing some of the gaps in current participatory planning.

Defining Citizen Participation

Citizen Participation: Models

Citizen participation is the process of involving the public in environmental design and planning. In discussing citizen participation, I will use the terms planning and design interchangeably, as defined by Ervin Zube in his study of environmental evaluation,

These terms are frequently used to connote differences in geographic scale, level of specificity, and end product. Planning is defined as a large scale, general, objective, more abstract activity that results in guides, administrative policies, and statements of general intent. Design is defined as smaller scale, specific, more subjective and detailed activity that results in physical changes in the environment. In this context, a city or transportation system is planned, and a subdivision, house, highway, or bridge is designed. As used here, however, the terms are synonymous, and refer to activities that resolve physical environmental needs and problems and provide for conscious change in the environment. The agent of change may be management interventions, such as burning low sulfur-content fuel to improve air quality, or preventing the filling of coastal wetlands in order to protect an important link in the marine food chain; or the agent of change may be more direct physical interventions such as the construction of public housing to meet

the needs of low-income families, or a new power generating plant to meet the seemingly ever-increasing need for energy.¹

Planning and design are thus defined as problem-solving in the physical environment, and the professionals--city planners, architects, landscape architects, urban designers--are those with training and experience in solving these types of problems. Traditionally, that expertise has consisted of mastering the series of steps shown in the linear diagram in Figure 1.1. As described by Zube,² the design process is sequential, and the professional is expected to move through these steps in the prescribed order.

The client who hires the professionals would be most directly involved in the process at the beginning steps, "problem identification" and "policy formulation" and the last step, "implementation and construction." Typically the "users," i.e., those who inhabit, work in, or visit the environment, have little to do with the process in this traditional model. In private sector development, the client held the right to determine the problem definition and its solution, regardless of scale, within the existing regulatory environment. In public sector development, the model was the same. The public agency client, however, was presumed to represent the users' values and interests, and thus the users need not be directly involved in the design process.

This linear model has been largely replaced by a more open, loosely structured iterative model. The designer might cycle through these steps several times, or a looping back through the process might occur at any or all steps. Figure 1.2 shows one diagram of

¹Ervin H. Zube, Environmental Evaluation: Perception and Public Policy, (Cambridge: Cambridge University Press, 1980), 46.

²*Ibid.*, 47-49.

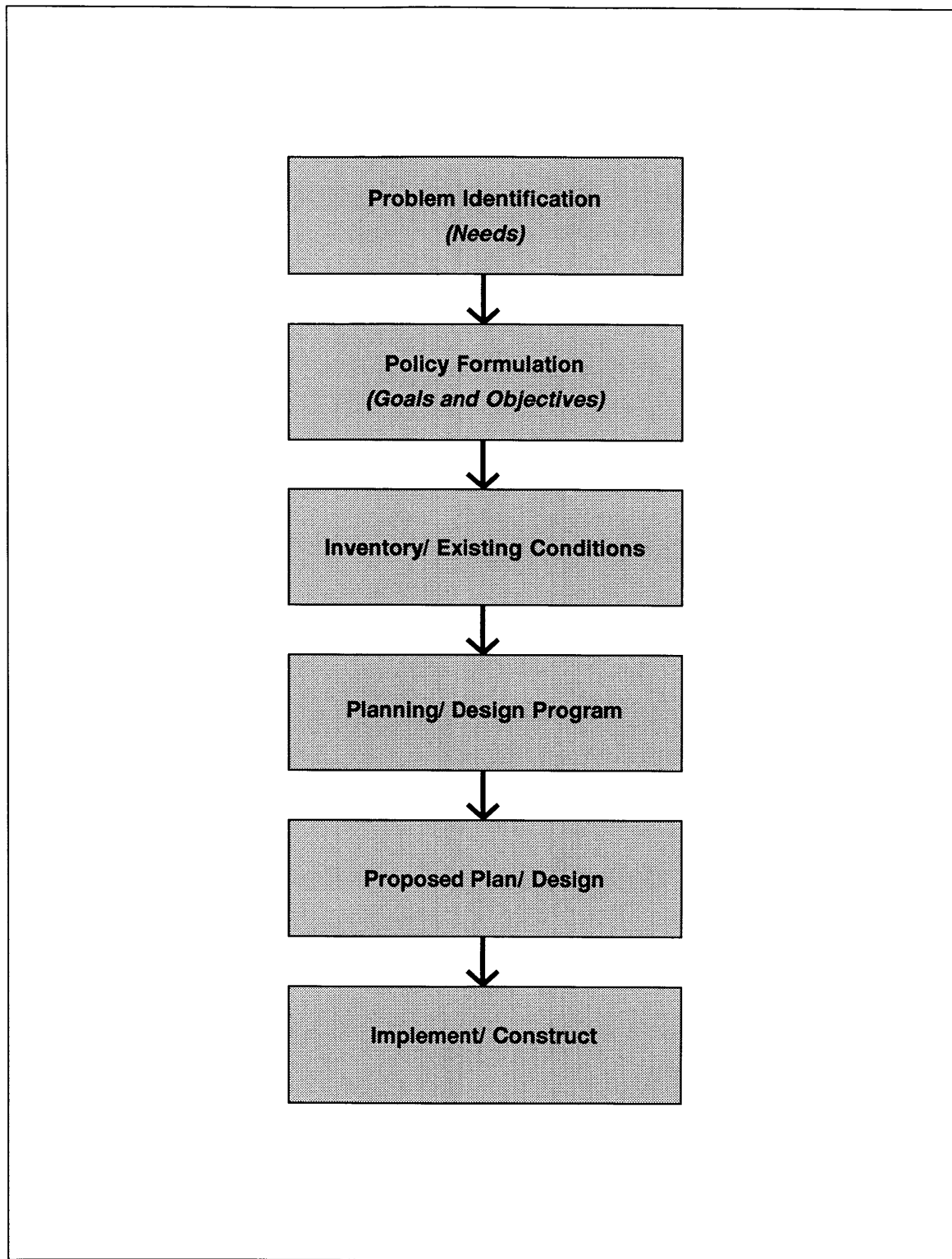


Figure 1.1: Traditional model of the environmental design process

(SOURCE: Ervin Zube, *Environmental Evaluation: Perception and Public Policy*, 1980.)

how this might work. Unlike the traditional model, Zube's iterative model implies that several alternative solutions may be available, rather than one correct solution. The model suggests that the users and client may be involved throughout the process, and the frequency and duration of their involvement may be the determining factor in how many iterations it takes before an alternative is selected. In smaller projects, and in many private sector projects, the designer may use this iterative process with minimal or no input from the end users, while still working closely with the client.

Laws Leading to Participation

Whether one chooses the traditional linear model or Zube's iterative model, the design process is no longer a mysterious transformation performed behind closed doors by the design elite. A more well-informed and organized public often demands to be part of the process, and may stonewall proposals that it has not been involved in creating. The beginning of an active participatory approach can be traced to a series of federal, state, and local laws that mandated citizen participation.

Figure 1.3 highlights some of the more influential federal and state laws, in addition to some programs and events that serve as benchmarks for the participatory planning movement. In two areas of public concern, urban renewal and environmental quality, the federal laws were especially important in aiding a newly active and vocal citizenry to enter the environmental design process. The Economic Opportunity Act of 1964 is one of the first federal laws that brought about citizen participation in this country. The Act specifically required "maximum feasible participation of the residents of

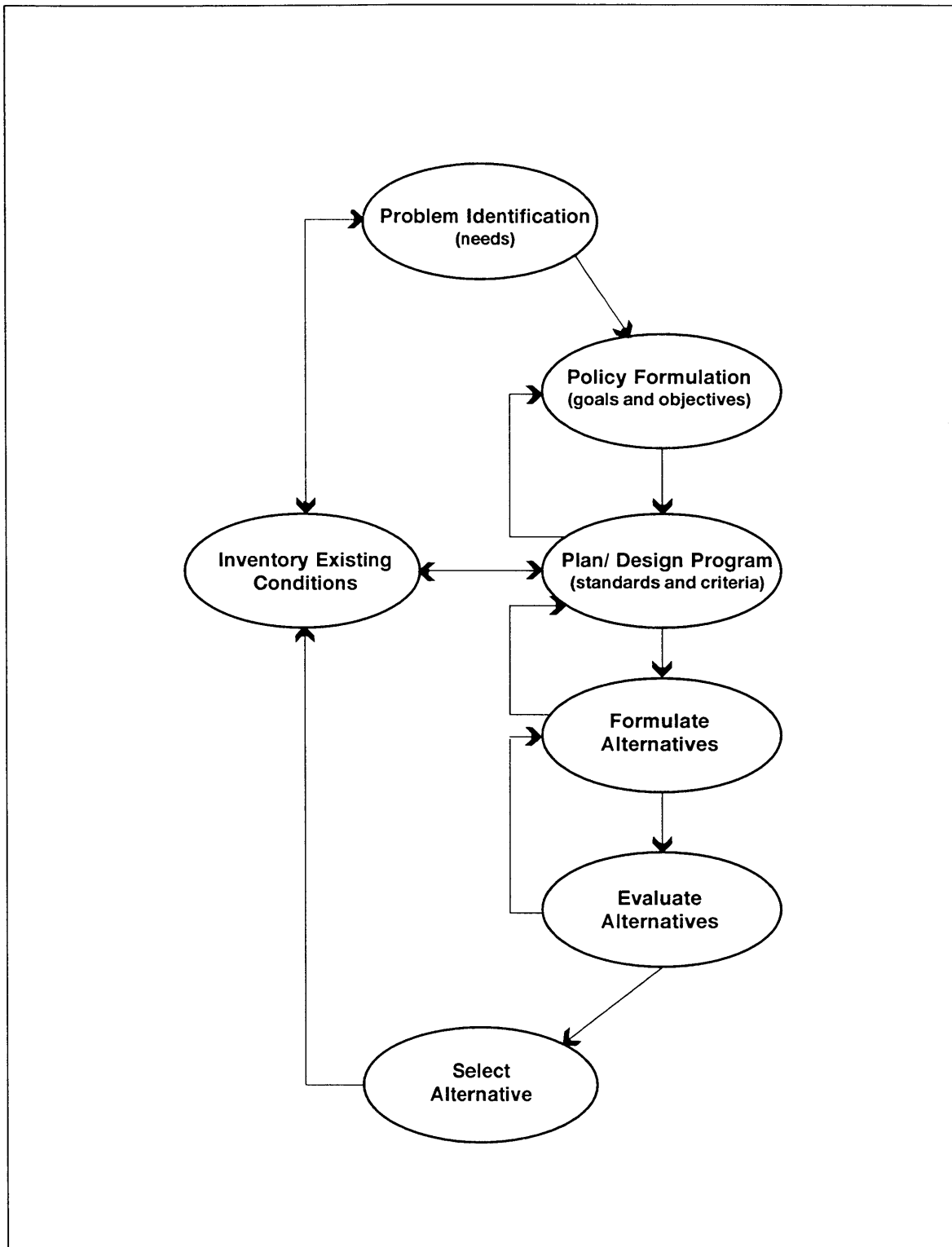


Figure 1.2: Iterative model of the environmental design process

(SOURCE: Adapted from Ervin Zube, *Environmental Evaluation: Perception and Public Policy*, 1980.)

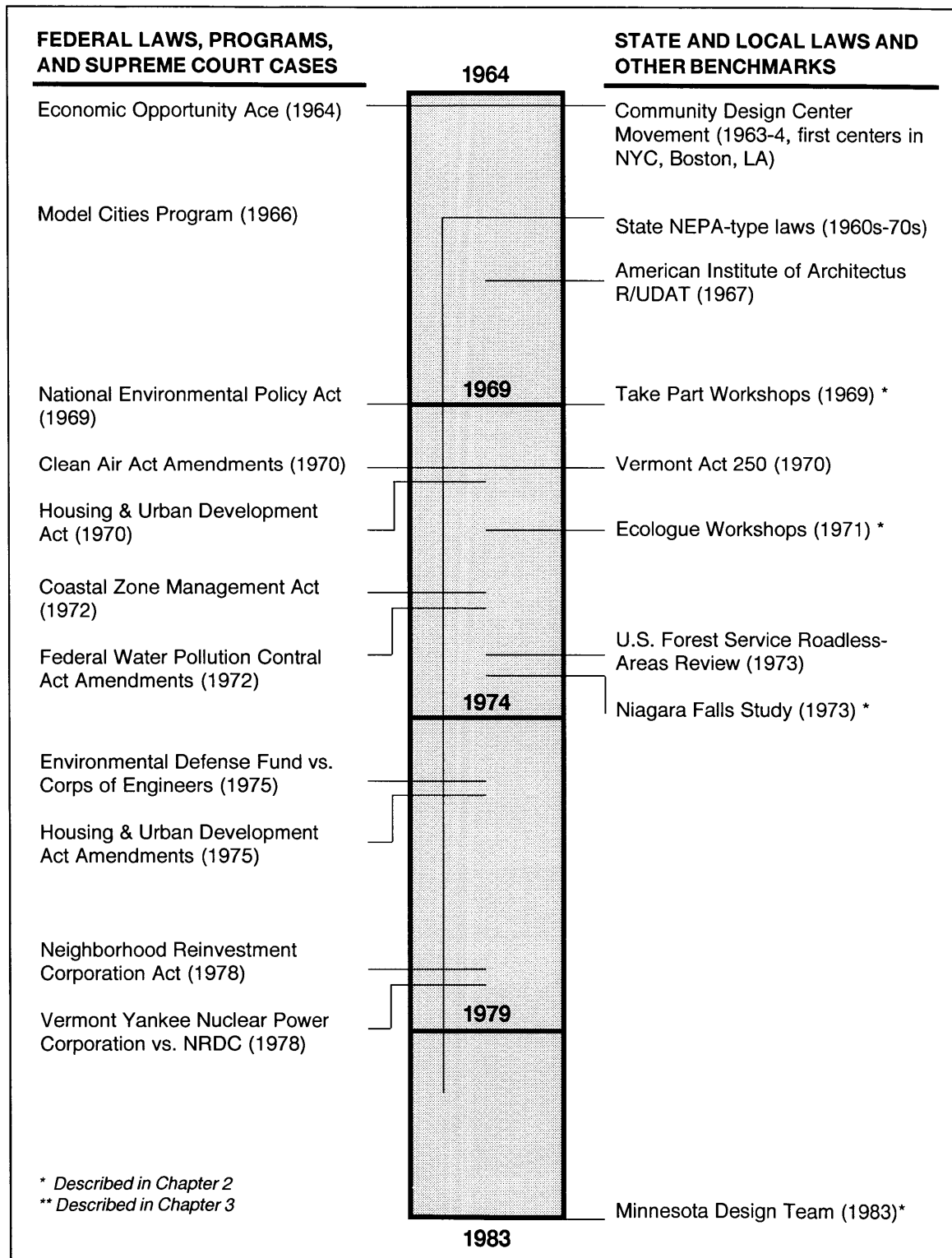


Figure 1.3: Citizen participation benchmarks

(SOURCE: Adapted from Ervin Zube, *Environmental Evaluation: Perception and Public Policy*, 1980.)

the areas and members of the groups served."³ Other laws mandating participation followed, with the primary emphasis on information disclosure in the environmental laws, and somewhat more of an emphasis on gathering citizen input in the urban renewal regulations.

Table 1.1: Citizen Participation Techniques

Technique	Arnstein 1969	Susskind 1976	Sewell 1977	Hampton 1977	Zube 1980	Warner 1988
Exhibits						
Leaflets and other general publicity						
Press and other mass media						
Behavior and attitude surveys/ Polls						
Public hearings						
Representations of pressure groups						
Advocacy planning						
Protests and demonstrations						
Legal intervention/ Court actions						
Public meetings						
Workshops, seminars, charrettes						
Task forces						
Advisory boards/ Advisory committees						
Agency publications						
Speeches and presentations						
Gaming simulation						

The Craft of Participation: The Toolkit

Planners and designers have developed an extensive toolkit for participation since the 1960s. The techniques that have been developed now range from one-shot, one page

³Excerpted from Roger E. Kasperon, "Participation through Centrally Planned Social Change: Lessons from the American Experience on the Urban Scene," in *Public Participation in Planning*, ed. W.R. Derrick Sewell and J.T. Coppock, (New York: John Wiley and Sons, 1977).

questionnaires to year-long task forces. Table 1.1 shows the array of techniques that planners and designers have generally used.

I have grouped these techniques as a number of planning theorists⁴ do, in order to evaluate their advantages and disadvantages from the planner's perspective. Table 1.2 shows the more commonly used techniques evaluated according to several consistently used criteria; rankings were derived from comparative analyses by Zube, Susskind, Warner, Hampton, Sewell, and Arnstein. The techniques I have selected also appear most consistently in various analyses of participation; each technique listed represents a clear set of behaviors that can be replicated and thus compared easily.

Criteria: Comparing Tools

What criteria have planners employed in evaluating citizen participation techniques? Typically, the criteria include: cost, number of participants involved, the diversity and representativeness of the participants, the planners' time commitment, the participants' time commitment, degree of two-way communication/opportunity for interaction.

These six criteria are just one way to determine the sharpness and appropriateness of various tools in the tool box. But as we compare the techniques using these criteria, we can begin to trace an evolution of the craft of participatory planning and design. While stone flints have not been replaced by laser saws, we will find that over the past 30

⁴The criteria listed below combine the evaluations of various techniques by Zube, Sewell and Coppick, Hampton, Arnstein, Warner, and Susskind.

Table 1.2 Comparison of Commonly Used Citizen Participation Techniques

Technique	Cost	Number of participants	Representativeness (breadth)	Time Commitment: planners	Time Commitment: public	Opportunity for interaction (dialog)
Public hearings	medium	medium	low	medium	high	low
Exhibits	medium	medium	medium	high	low	low
Mass media	low	high	high	low	low	low
Advisory boards	medium	low	medium	high	high	high
Surveys	low	medium	high	medium	medium	low
Workshops	medium	low	medium	high	high	high
Legal intervention	high	low	low	high	high	high

years there has been a learning process and the tools have grown sharper, more accurate, and have even, in some cases, come down in cost as today's planners build on the work of the past.

Cost

All participatory methods incur costs--direct, and indirect and opportunity costs. Most comparisons of various planning methods and discussions of individual techniques focus on the direct costs, for example, space rental, advertising costs for public hearings, postage and printing for questionnaires. These can be quantified easily, and broken out to obtain the marginal costs for adding or subtracting additional participants. The indirect costs of public participation--the overhead costs for a government agency, design firm, or a developer for that matter--are more difficult to quantify and compare.

In the 1990s, both public and private sector organizations are expected to be more cognizant of citizen concerns, especially in such controversial situations as the siting of municipal social service facilities. Thus, many public agencies, developers, and design firms have added public relations skills to the more traditional technical skills they expect their planners to possess. The requirement for additional skills has contributed to an increase in salary costs for planners. Beyond these greater salary costs, greater reliance on legal support services may be required. Contemporary planning and building regulations have become quite complex, and the constantly shifting status of property rights in the United States makes legal expertise essential for government agencies and large developers. Support services and office overhead for the planning staff in a public agency or development firm also must be included in the indirect costs that are increased as a result of extensive public participation.

The opportunity costs of not bringing citizens into the design process are also difficult to quantify and compare. Yet the benefits of involving the public normally far outweigh the costs, and the costs of not doing so should be considered by those who challenge the usefulness of such efforts. Citizen participation from the outset may lead to a delay in the decision making process, but there are at least three good general reasons for participation. First, a wider range of alternatives may be considered, and thus a satisfactory solution may emerge and be evaluated by the public before a full commitment is made to implement the solution. The feedback that happens during a successful public involvement process should reduce the time and cost when solutions

must be reworked. Second, a less expensive outcome may emerge, as different perspectives are brought to bear. Capital costs or long-term operating costs may be reduced, for example, when a decision is made to site a facility at a less expensive location or to change its configuration. Third, the public as a whole may be more satisfied with the results of the design process, whether or not a wide range of alternative solutions is considered, because it feels that it has been heard. A more satisfied public is less likely to impede or block implementation of a project, and a highly satisfied public may actually help expedite the implementation process through its political and economic support.

In Table 1.2 the "cost" comparisons allude to direct costs for the most part, while the "time commitment: planners" criterion, as the title implies, will give us an idea of one of the critical indirect costs. The least expensive techniques, mass media and surveys, rely on the public to carry some of the costs. For example, a newspaper campaign to inform the public about the issues involved in siting new homeless shelters would be likely to get feature story coverage, and thus the planning agency would not have to pay for coverage at all. Even if the agency pays for a supplement, the citizens pick up the distribution costs. Surveys can be a relatively inexpensive way to reach a large number of people, especially if questionnaires can be distributed at public places or mailed at a bulk rate. Public hearings, exhibits, advisory boards, and workshops will usually require space, printed materials, refreshments, audiovisual aids, and so on. Exhibits and workshops can become high-cost involvement techniques if extensive outside professional services are used. Legal intervention is likely to be one of the most costly ways for citizens to get involved, given the expense of hiring attorneys specializing in land use and environmental issues.

Number of Participants

Academics and practitioners alike have played a kind of numbers game with participation, suggesting the more the merrier. Time has shown that numbers alone do not make for good participation; mass media may reach thousands, but the communication is one way and the impact on the planning process may be negligible. In a public hearing, few of the many who may attend have any substantive input because citizen participation is slotted into five-minute blocks. Not surprisingly, where the number of participants is low--advisory boards, workshops, and legal intervention--the opportunity for dialog is high. This inverse relationship is one of the continuing conundrums of participatory planning.

Representativeness (Diversity)

As the U.S. population becomes more diverse, planners and designers have taken heed of changing demographics and tried to adjust their citizen participation methods to cope with a multilingual, multicultural society. Yet even in a seemingly homogeneous community, there will always be a diverse set of interests and viewpoints that are based on such variables as age, sex, occupation, and class. Getting a representative group of the community to become involved has always been one of the more difficult aspects of public participation. As planning practitioners and designers are sensitized to the importance of broad community participation, and as the professions become more diverse, techniques have improved.

The mass media, especially television, do reach a broad swath of the community, which is highly likely to include most major segments of the population, but in a scattershot manner. Still, planners frequently try to employ television and newspapers, sometimes

to inform the public, sometimes to encourage a more diverse turnout at public hearings, workshops, and exhibitions. Surveys, on the other hand, can normally be relied on to reach a statistically representative sample, and thus planners count on surveys for a broad view of the public will. On the low end of the diversity scale, public hearings tend to bring out primarily representatives of organized groups and the better-educated, higher-income members of the community. Lawsuits, often brought by a single citizen organization, may be well-financed but have just a handful of active members involved in the suit. In the middle of the scale, we find exhibits, advisory boards, and workshops, where diverse participation may be achieved but often is not, because it is not an essential part of these techniques. Academics such as Zube may deem surveys the best way to gather public input and evaluation in the planning process. They believe that surveys are the only method that ensures representativeness. This point is valid, but we will see in Chapter 2 that other techniques, such as planning workshops, can be refined to regularly provide a representative sample.

Time Commitment: Planners, and Time Commitment: Public

Planners will of necessity put the greatest amount of time into methods where there is a great deal of interaction with the public, as the high level of interactive communication necessitates a greater degree of preparation in addition to the time spent in formal meetings. Often, citizen input for advisory boards, workshops, and legal staff is required for a much longer period than for public hearings and media campaigns. This also translates into much more of a time commitment for planners, since they are on call between events as well as during public participation events.

Similarly, citizen participants can normally expect to spend the most time when the most interactive forms of public involvement are used. An exception to this is the public hearing format, where, as noted by Sinclair,

...in a formal public hearing, the audience must be more prepared and aware of the issue than for other public participation methods, which are less formal and allow for two-way communication. The purpose of the hearing is to receive opinions, views and information, so the "burden of proof," so to speak, is on the audience. Furthermore, those who present submissions must be prepared for cross-examination.⁵

Opportunity for Interaction

As planners and the public have gained experience with citizen participation, both parties have realized the need for a conversation instead of a monologue. Common to all the evaluations of participatory techniques is a ranking of the degree of two-way communication. William Hampton, for example, sorts and ranks participatory techniques as to whether there is "dispersal of information"(planners disperse), "gathering of information" (planners gather), or the "promotion of interaction."⁶

Sherry Arnstein, the former Chief Adviser on Citizen Participation for the HUD Model Cities Administration, was one of the first to identify why the lack of opportunity for two-way communication doomed many participation efforts. Her oft-quoted 1969 article,⁷ "A Ladder of Citizen Participation," suggested that the participation components of the federally funded urban renewal programs were usually a sham, as citizen involvement

⁵Margaret Sinclair, "The Public Hearing as a Participatory Device: Evaluation of the IJC Experience," in Public Participation in Planning, ed. W.R. Derrick Sewell and J.T. Coppock (New York: John Wiley and Sons, 1977), 117.

⁶William Hampton, "Research into Public Participation in Structure Planning," in Public Participation in Planning, ed. W.R. Derrick Sewell and J.T. Coppock (New York: John Wiley and Sons, 1977), 31.

⁷Sherry Arnstein, "A Ladder of Citizen Participation", Journal of the American Institute of Planners, (July 1969): 216-224.

was both limited and manipulated by planners and public officials. The ladder of participation that the public must climb to get into the planning process was described as steep and treacherous. Without climbing the ladder, without a full-fledged conversation, citizens would not be empowered to affect the outcomes of the urban renewal programs in their communities.

According to Arnstein, the eight rungs of the ladder begin with "manipulation," then move to "therapy," "informing," "consultation," "placation," "partnership," "delegated power," and finally ascend to "citizen control." At the lower levels, beginning with manipulation, citizens are dictated to and sign on the dotted line for a decision made without their involvement. In therapy and informing, the one-way flow of information still runs from planner to citizen, but with a cursory nod to the audience. (The therapy rung was described as the most odious; it was based on a medical model of the physician treating the sick.) In consultation, citizen opinions are invited without necessarily paying any attention to them. Arnstein considers attitude surveys, neighborhood meetings, and public hearings consultation methods, where the information flow is one-way, from citizen to planner. By the time we reach the placation rung, there is some interaction, but it is a token gesture on behalf of the planners. This rung includes advisory boards with their token representation from the community.

In the Model Cities program, Arnstein found most participation efforts were at the level of placation or below. The higher rungs--partnership, delegated power, and citizen control--were rarely reached. HUD, in a self-critique, found its Model Cities participation programs to be unsuccessful for several reasons relating to communication: residents were not trained in the federal laws pertaining to the use of funds for community renewal

efforts, they were unaware of their rights and responsibilities under the program, and they did not get enough information from the Community Development Agencies (the local funnel for HUD funds) to develop or initiate plans. What emerges from both Arnstein's ladder concept and HUD's own critique is the importance of an open dialogue between planners and a well-informed public. The dialog must take place throughout the planning process, not just at the end, after alternatives have been selected.

Although Arnstein's critique of participation methods and strategies is based on the experience of urban renewal efforts in low-income communities in large cities, much of what she describes can be found in other situations. Whenever there is a lack of representativeness and little or no two-way communication, the participation process can be easily manipulated by planners or public officials.

The Opportunity for Continuity

If dialogue is limited to just one stage of the complete design process, the public may lose out. Zube suggests that the public's "opportunity for continuity" throughout the design process should be used to evaluate participatory techniques. If continuity is built into the technique, there is a greater opportunity for public involvement throughout the different stages of the process, and thus a greater probability that the public will be satisfied with the results. In such a scenario, the product of the design process becomes their own. As a corollary to Zube's "continuity" criterion, I propose that techniques might be evaluated as to which stage/at what point in the design process they are to be applied. Ideally, I believe that the earlier in the process participation takes place, the more likely the outcome will be satisfying to the public. Table 1.3

evaluates different techniques in terms of the opportunity for continuity of public involvement and the stage of the design process when the technique is normally used.

Table 1.3: Comparison of Participatory Techniques According to the Criteria of Continuity and Timing

Technique	Opportunity for Continuity	Identify Problem	Set Goals And Objectives	Inventory Existing Conditions	Plan/ Design Program	Formulate Alternatives	Evaluate Alternatives	Select Alternatives
Public hearings								
Exhibits								
Mass media								
Advisory boards								
Surveys								
Workshops								
Legal intervention								

By comparing this table with Table 1.2, we find a correspondence between the techniques that offer the most possibility for continuity (advisory boards and workshops) and the opportunity for interaction. Legal interventions are most likely to be pursued once final plans or designs have been proposed, and thus we might consider legal intervention a last-ditch method rather than the method of choice from both citizens' and planners' points of view. However, the conversation that results from a legal intervention is apt to be hostile and not lead to a satisfactory solution for either side.

While surveys, public hearings, and mass media can be utilized at several points in the design process, the lack of continuity makes these methods ultimately less effective for meaningful citizen involvement.

Faster, Better, Cheaper

One is reminded of the old carpenter's maxim, "You can have any two out of three--faster, better, cheaper--you decide." While no one technique rates highly on all criteria, those techniques that best provide the opportunity for interaction, continuity, and some degree of representativeness should make for truly participatory planning. The techniques that may be faster and cheaper, such as public hearings, surveys, mass media campaigns, and exhibits, are still widely used, even as their shortcomings are recognized. In the search for faster, better, and cheaper, planners now often combine techniques, for example, using a mass media campaign to bolster attendance at a series of public hearings, or following up a public hearing with a survey.

The scope of the planning or design task is one major determinant of which tool is appropriate. For large developments, government agencies and private sector developers must strongly consider the risk of extensive delays when contemplating greater citizen participation from the outset. In smaller projects, with less financial risk, planners may be more willing to have greater public involvement throughout the process. In the search for better participatory techniques, vs. the faster and the cheaper, one might look first for quality in cases where planners have successfully applied the techniques listed in Tables 1.2 and 1.3.

A number of success stories come out of the smaller cities, towns and neighborhood projects, as opposed to the dismal failures reported by Arnstein and others for big-city urban renewal participation. This pattern may be a simple function of size, since large cities normally have more complex planning and development environments than do smaller cities and towns. In smaller cities and towns, planners are also aided by residents' familiarity with the landscape, community history and planning regulations. Smaller cities and towns may also have more homogeneous demographics, and this may facilitate interactive planning. Little has been written comparing participatory efforts in locales of different size, so these hypotheses remain to be tested.

In the chapter that follows, I will describe a number of examples of participatory techniques, applying the criteria of cost, number, diversity, time commitment, opportunity for interaction, continuity, and stage of the design process. Where possible, examples will be from small-town, small-city, or neighborhood-level projects to simplify the analysis of the participatory techniques.

2 Participation Techniques

Introduction

It is difficult comparing techniques in the abstract, and so in this chapter I will describe some of the most widely used techniques. By applying the criteria identified in Chapter 1 to actual cases, the advantages and disadvantages of the various techniques will be highlighted. I will show how these techniques have been improved as planners have become more experienced in participatory planning, and where improvements are still needed.

In looking through the environmental designer's toolkit, we find the new and old side by side, electric saws next to paring knives and stone axes. Newer techniques, such as focus group workshops, have not supplanted the favored techniques of the Great Society era--surveys and public hearings. Descriptions of some of the older techniques will help show where there has been progress as the craft of participation developed.

Public Hearings

In November 1993, I experienced first-hand the pleasures and pitfalls of the public hearing. I presented my group's proposal at the second of three hearings that were part of an ambitious public participation program conceived by the Berkeley Unified School District (BUSD) to help the Board of Education formulate a master plan for their 14 school properties. While attendance at the first hearing in October was sparse, the

November hearing was packed. In October, however, it was early in the master planning process and the public had only generalities to respond to; by the November hearing, both BUSD and our MIT team had developed extensive master plan proposals.

At the end of the session, it was difficult if not impossible to discern whether the audience of parents and teachers were applauding the MIT presentations or the content of the MIT proposals. I wondered if perhaps we had learned more from giving the presentation than had our audience of more than 300 parents and teachers from listening. The MIT presentations, lasting over an hour, elicited few questions.

A brief description of the circumstances is in order. The interdisciplinary MIT student group, headed by MIT Professor Roy Strickland, had been invited to study the Berkeley public schools and to then propose a facilities master plan for the school board's consideration. As outsiders, the MIT students were expected to bring an unbiased viewpoint to the difficult task of allocating limited capital funds to a school system serving some 7,000 students. BUSD had also employed architectural consultants and a public relations firm to coordinate the participation component of the facilities planning process.

As Figure 2.1 indicates, the November 6 hearing was in the middle of a four-month participation process that would culminate in the Board of Education's decision. The public hearings were just one way for the public to have input into the process and to learn more about the Board's inclinations.

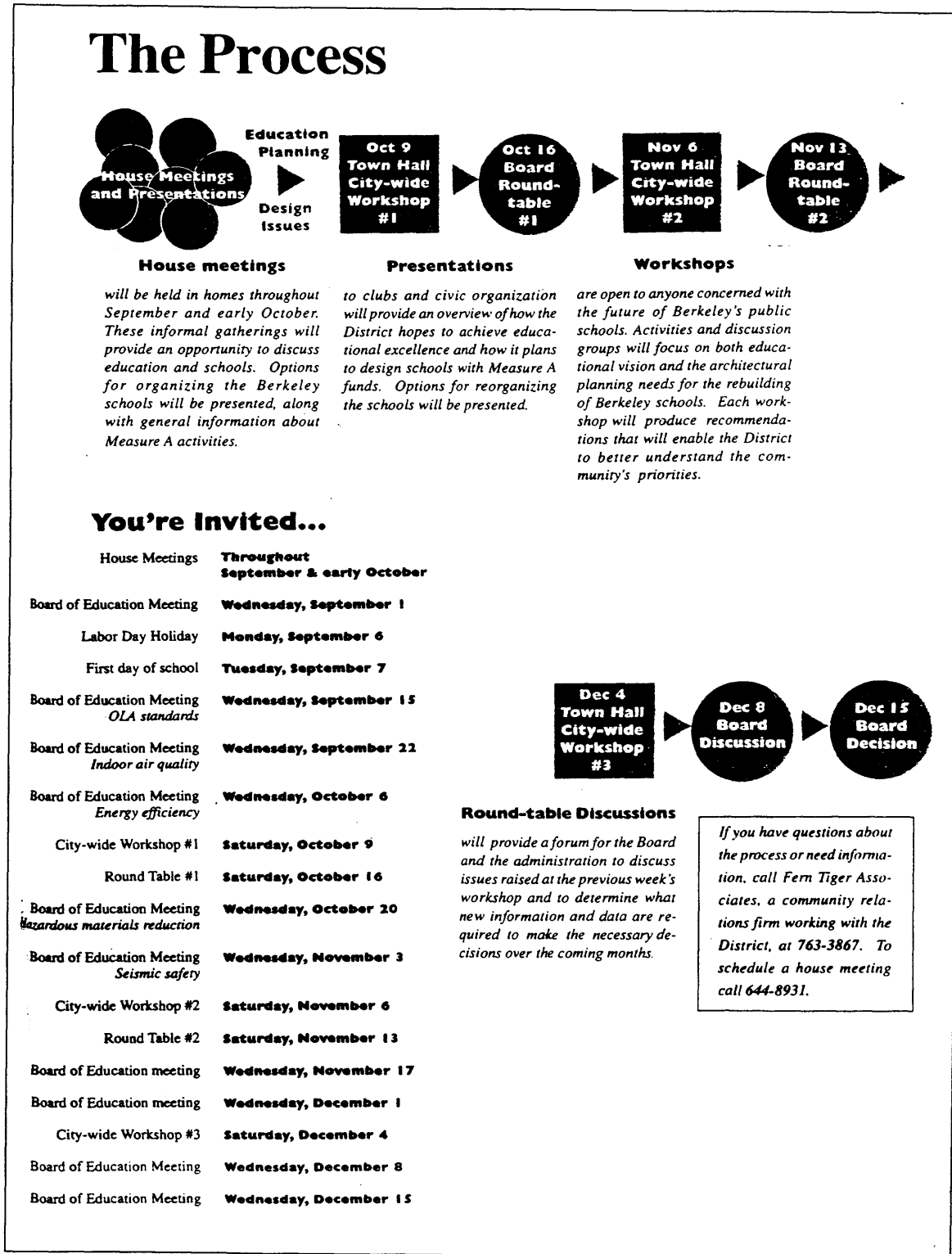


Figure 2.1: Berkeley Unified School District public participation process

(SOURCE: Berkeley Unified School District, *Measure A News*, Fall 1993.)

After participating in the first two public hearings, several of the student team members had the impression that, like many public hearings, they were scheduled largely for show. The real work of gathering public input that fall took place during the 50-plus "house meetings," where parents met in small groups, in their own neighborhoods, to discuss their concerns and to learn about the BUSD master planning process. The proposals presented by the MIT team to the public were also given to the Board of Education in report form prior to the public hearings.

Why hold a public hearing when the citizen input is so often indecipherable, hostile, uninformed, and unrepresentative? One reason is that the public expects it--public hearings have become a ritual. As Sinclair comments, hearings are one of the first participatory methods, so they have a long tradition and are seen as legitimate. Public hearings are used to satisfy citizen participation requirements for all manner of environmental and planning projects, from small school district improvements to the disposition of millions of acres of national forest⁸. They are relatively inexpensive to put on, compared with other methods, especially if the large meeting space required is donated. In Berkeley, BUSD rotated the public hearings among different schools, so that their costs were limited to overtime pay for maintenance workers, utilities, refreshments, and publicity.

The large group format enables planners to reach many people in hearings in which the primary information flow is from planner to public. When information is to be gathered

⁸ John Hendee, "Public Involvement in the U.S. Forest Service Roadless-area Review: Lessons from a Case Study," in Public Participation in Planning, ed. W.R. Derrick Sewell and J.T. Coppock, (New York: John Wiley and Sons, 1977), 89.

by planners, however, the public is at a decided disadvantage. While many can attend a public hearing, only a very few will be permitted to speak. Those who are most likely to speak are not necessarily representative of the community,⁹ so normally planners would rank public hearings as a poor way to learn about the diversity of views potentially held by the public. In Berkeley, the MIT team found this to be the case; only a handful of minority parents asked questions, although their children made up a large share of the schoolage population. Not surprisingly, only one BUSD student--a 15-year-old high school student--approached the microphone during the first two hearings. Thus, the primary users, the schoolchildren, had no direct input during the public hearings.

One of the primary disadvantages of the public hearing format is that it tends to elicit negative responses. Those who disagree with the proposed policies or plans are more likely to appear than are those who concur.¹⁰ Rooms are usually set up as shown in Figure 2.2, and this reinforces the confrontational setting. The public, planners, and public officials are encouraged to assume adversarial postures. The more aggressive audience members find the setting conducive to their natures, while the meeker among them stay silent.

Public hearings demand that citizens prepare well ahead of time if they are to truly benefit. BUSD had mailed a newsletter produced by its public relations firm, Fern Tiger Associates, to all the households in the city (Figure 2.1 is an excerpt from the first newsletter). It gave a concise description of the issues facing the Board of Education in

⁹ Margaret Sinclair, "The Public Hearing as a Participatory Device", in Public Participation in Planning, ed. W.R. Derrick Sewell and J.T. Coppock, (New York: John Wiley and Sons, 1977), 106.

¹⁰ *Ibid.*

formulating a master plan for capital improvements, new facilities, and busing. Yet not even the most persevering citizen would have been able to obtain the MIT master plan proposals before the November and December hearings, and the newsletters that followed those hearings gave only a summary of the team's work.

Thus, concerned parents and others who would have wanted to follow up on the MIT team's master plan alternatives would have had a difficult time obtaining the full MIT proposals. This preparation problem points up what really is the greatest shortcoming of the public hearing: it usually comes too late in the planning process, at the stage at which alternatives have been formulated and there is pressure to select an alternative quickly. It is no wonder that citizens are often so hostile, as they clearly perceive that their opinions are not sufficiently valued to bring them into an iterative planning process early on.

Arnstein describes public urban renewal hearings at which hundreds of angry citizens would find out that they were to be relocated or shortchanged of desperately needed community services. At the time at which she was writing, hearings were often required by the federal grant-in-aid programs. Local officials had to satisfy specific citizen participation requirements before submitting their proposals to Washington. Arnstein's example from a hearing in New Haven, Connecticut, shows how the public hearing can be an empty participation ritual:

Members of the Hill Parents Association demanded to know why residents had not participated in drawing up the proposal. CAA director Spitz explained that it was merely a proposal for seeking Federal planning funds--that once funds were obtained, residents would be deeply involved in the planning. An outside observer who sat in the audience described the meeting this way. "Spitz and Mel Adams ran the

meeting on their own. No representatives of a Hill group moderated or even sat on the stage. Spitz told the 300 residents that this huge meeting was an example of "participation in planning." To prove this, since there was a lot of dissatisfaction in the audience, he called for a "vote" on each component of the proposal. The vote took this form: "Can I see the hands of all those in favor of a health clinic? All those opposed?" It was a little like asking who favors motherhood.¹¹

This New Haven example also highlights why public hearings at any stage of the design process, but especially at the end, are such a risky technique to use: the hearing format can create a false sense of community. Lisa Peattie wrote in 1970¹² that the "community" may be a kind of theatrical fiction, and just as much of a mirage as the concept of a general interest in traditional comprehensive planning. The hearing format promotes a ritual participation, with community leaders speaking for the greater community, who form a supporting cast. Diverse values and alternative approaches are likely to be suppressed. Although Peattie was drawing on her experience as an advocacy planner in low-income neighborhoods in the United States., and as a participant-observer in Ciudad Guyana, Venezuela, her acute observations apply to all manner of communities and public hearings.

How can public hearings be improved, given that they are so widely used and accepted as a traditional participatory technique? As mentioned above in the description of the Berkeley project, extensive publicity will improve turnout, and potentially can aid in attracting a more representative audience. When Sinclair and others suggest how to improve public hearings, most of their ideas boil down to transforming the hearing into more of a dialogue between planners and citizens. To do this, the hearing must become more like a workshop. As I will show later in this chapter, there is a long tradition of

¹¹Sherry Arnstein, "A Ladder of Citizen Participation", *Journal of the American Institute of Planners*, (July 1969), 226.

¹²Lisa Peattie, "Drama and Advocacy Planning," *Journal of the American Institute of Planners* 36, no. 6 (November 1970):405-410.

participatory design and planning workshop techniques that might be adapted for use at a public hearing.

At best, though, it seems that the traditional public hearing technique is a practical way to disseminate information quickly, rather than an effective way to gather citizen input. So if the planner is in reality putting on a show, the simplest way to improve participation is to improve the quality of the show. Presentation graphics, slides, and videotapes are now commonly used to augment planners' verbal presentations. This is an area in which information technology offers great potential--computer-generated simulations of design alternatives, interactive visual reference systems, and other visual aids can make public hearings vastly more informative as well as more entertaining. In Chapter 3, I will describe several works in progress that show how the hearing of the future might look.

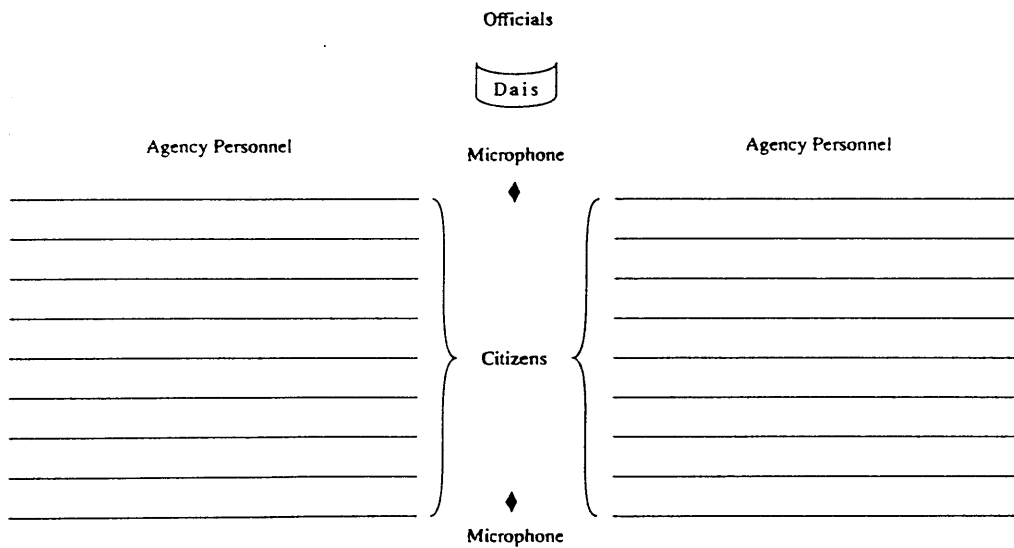


Figure 2.2: Typical public hearing room setup
 (Source: Elaine Cogan, *Successful Public Meetings*, 1992.)

Advisory Boards

Advisory boards, also known as advisory committees, are a well-established participatory technique. I will only touch briefly here on their advantages and disadvantages. An advisory board is a small committee--with typically fewer than 50 members-- representing the larger community or area affected by the plan or proposal. The board is established by a public agency to comment on the agency's proposals, although some decision-making capacity may be delegated to the advisory committee. Most agencies will try to get as representative a group as possible, both to counter claims of favoritism and to win a broad base of political support for their proposals.

The board members normally serve on a volunteer basis over a period of months, sometimes years. The agency's planning staff consults regularly with the board, briefing the group as to the agency's progress. The opportunity for continuity is high; many municipalities establish advisory boards early on when contemplating any major zoning or land use overhauls. However, an advisory board is just that, and thus in the end, if it comes to a consensus that differs from that of the agency that created the board, its opinion can be disregarded.

Another possibility is that a highly diverse board representing many different members of the community may not come to any consensus. A recent study by Satoru Ueda¹³ of the decision-making process in Boston's Central Artery/Tunnel Project illustrates the dangers of using advisory boards. The 41-member Bridge Design Review Committee (BDRC) was created by the State after a number of groups and other cities had

¹³ Satoru Ueda, "Conflict Management in the Design of the Charles River Crossing," (Masters thesis, MIT, 1994).

protested the State's Charles River Crossing scheme. Ueda summarizes the predicament as of May 1994:

The committee examined all possible options for the river crossing and created various schemes which resolved problems with the original scheme; it narrowed down the options to three committee improvement packages. It could not reach an agreement, however, and after five months of discussion, it made its recommendation by a split vote. The state followed up the recommended scheme and created an alternative on which all members compromised one year later. Questions regarding the compromise alternative were raised by two federal agencies as well as by some committee members. During this period, a new Secretary of Transportation was appointed, and the new Secretary selected an all-viaduct alternative (rather) than the alternative recommended by the committee. Some of the environmental advocacy groups then brought the issue to court again. This case is not yet resolved.

Ueda concludes that despite the presence of all the stakeholders at the table, the guidance of an experienced facilitator, extensive professional technical assistance, and two years to work through the design alternatives, the advisory committee was unsuccessful in agreeing on a scheme because some members had non-negotiable or zero-sum demands.

Ueda's case study also points out how the opportunity for interaction between planners and public, and between various segments of the public, is not enough in itself to arrive at a satisfactory solution. The BDRC came into existence at a fairly late stage in the design process, in response to public protests, so its ability to maneuver was limited. The irreconcilable differences that led the environmental groups to court may only be resolved by this means. One wonders if some sort of public referendum might not have been just as valid a means of working out a design solution, given the enormous costs of delaying the decision and the unlikely probability of finding a single acceptable solution.

SURVEYS

Planning surveys came into widespread use at the same time as public hearings and advisory committees in the 1960s. Arnstein found surveys a common method for "consultation" of citizens in urban renewal programs. She and many others abhor what Zube and some planners still favor: the statistical analysis of the public will.

If assessing the breadth and depth of public opinion is the planner's goal, surveys are a time-tested method. The general public is used to being polled, and recognizes it as a legitimate public participation technique. In situations in which individual participation is difficult, due to time or geographic constraints, the use of surveys has often been favored.

Surveys can be a very inexpensive method, especially if the response rate is high and distribution costs are kept low. A recent article in *Planning Magazine*¹⁴ described how some small towns and cities have obtained high response rates for their surveys. In Franklin, Tennessee, for example, the town planners blanketed the city with a community needs survey as a first step in updating the city's long-range plan. On a Saturday morning in April 1987, Franklin city planners, firemen, policemen, and citizen volunteers hand delivered the surveys to the city's 6,839 households. Planners reported a 40% response rate, which is about twice the expected rate for a survey of this type. The city's planning chief credited their high response rate to the fact that it was hand delivered. Another important factor may have been that citizens may feel freer to express their true opinions in private, and will take the time to do so if it is convenient.

¹⁴ Marion Elmquist, "Hitting the Jackpot with Citizen Surveys," *Planning*, (June 1988): 20-22.

The Franklin planners also publicized their survey on radio, television, and in newspaper advertisements prior to distributing the six-page questionnaire forms. By turning the survey into an event, they heightened its importance in the citizens' estimation, and the hand delivery confirmed the importance of each individual's participation.

Ten years ago in the town of Nags Head, North Carolina, the mayor insisted that every registered voter and property owner be surveyed for the new comprehensive plan. The mayor sent a cover letter with each seven-page form and the planners mailed a reminder postcard shortly after mailing the survey. Sixty percent of the surveys were returned, which is an exceptional response rate for a mail survey. Once again, the personalized touch and the small-town environment may have contributed to the high response rate, since the respondents felt their input was valued and would affect decision making farther down the line.

One criticism of surveys is that poorly worded questions allow "everybody to be for everything," according to survey designer Malcolm Chamberlain.¹⁵ Chamberlain developed a survey with the town of Shelburne, Vermont, that obliged respondents to rank comprehensive planning issues for the town's master plan update. The town planner and town planning commission created the list of issues they thought citizens should consider and provided a glossary for each term. To obtain the most valid responses, Chamberlain created 12 versions of the survey using a list of 37 issues generated by the planners.

¹⁵ David E. Robinson, "A Survey with a Difference", *Planning* (January 1991): 22-23.

The survey was inserted into the Shelburne newspaper. Of the 3,000 questionnaires distributed, 450 were returned (15%). Using a randomly selected 300 of the 450 responses, Chamberlain and Wyvern Research Associates calculated scores for each planning issue. These scored issues were then further discussed by the planning commission at public hearings and at a series of participatory goal-setting workshops. The planning commission eventually adopted goals derived from a combination of the surveys, participatory workshops, and standing committees.

The Shelburne example suggests how the use of computers has begun to revolutionize even small-town surveys. The generation of 12 versions of one questionnaire for a run of 3,000 and the complex scoring system would have been difficult without computers. The scoring was done by Wyvern Associates, who were the only firm with the capacity to do this particular type of survey.

Although the Shelburne Planning Commission was reportedly pleased with the survey process, they shied away from using a more precise ranking system suggested by Chamberlain. In a small-town setting like Shelburne (population 7,000), planners may feel that the kind of comparative and absolute ranking of issues can be done in committees and at town meetings. In a larger city, or at a regional level, using a survey process to rank goals and objectives may be a more practical and equitable alternative.

Surveys that force respondents to rank their preferences would also be a useful method at other stages in the design process, such as at the programming stage where activities or land uses must be prioritized. In the late stages of the design process,

surveys are sometimes used to help planners gauge the public's response to design alternatives before one is recommended to the decision-makers.

Zube describes such a massive survey effort by the agency in charge of Niagara Falls, the American International Falls Board.¹⁶ The base of the American Falls had been filling in with falling rock, and this had changed the aesthetic experience. As part of an extended public information and participation campaign, the Board decided to survey the public's response to three design alternatives. They published a 12-page brochure featuring photographs illustrating the three alternatives: removing talus (fallen rock), increasing the water flow, or restoring the water level of the "Maid of the Mist Pool." (The photographs were of a hydrological scale model created by the Falls Board to study various options.) Cost estimates for each alternative were provided as well.

A detachable postcard-sized questionnaire was attached to each brochure. The Board surveyed in two languages, English and French, and blanketed the surrounding area in the US and Canada. The questionnaire was also included in three educational publications--*Current Science*, *Scholastic News*, and *Current Events*. The *New York Times* published a nine-page article in September 1973 that featured a reproduction of the questionnaire. More than 75,000 responses were received, including many from the *New York Times* article and the three educational periodicals. Zube did not break out the mixed survey responses, but many were in favor of making no changes to the natural hydrological processes.

¹⁶ Ervin H. Zube, *Environmental Evaluation: Perception and Public Policy*, (Cambridge: Cambridge University Press, 1980), 90-94.

The divided survey response probably led the decision-makers to discount public opinion and to place greater weight on expert opinion. The Board had also convened a group of 15 environmental designers during June 1972, and they had unanimously recommended not removing the talus, and spending funds instead on other projects to enhance and protect the aesthetic qualities of Niagara Falls. The American Falls International Board studied these design options over an eight-year period, beginning in 1966, and by 1974, after the survey had been completed, they decided to let nature take its course.

The Niagara Falls study points up one of the main problems in using surveys for evaluating design alternatives. Traditionally, surveys have been a verbal technique, even when used for design and environmental planning purposes. A block of text would not have been adequate to explain the proposed changes to the Falls, and so the planners simulated the changes by photographing the 1/50th scale model they had built for their own analyses.

Planners and designers have increasingly relied on environmental simulations to present design alternatives to the public, and these simulations must be improved if they are to be used to make critical decisions. Information technology should greatly enhance the ability of designers to create environmental simulations.

Visual Survey Techniques

In 1960, Kevin Lynch's seminal work The Image of the City¹⁷ unlocked a new world for environmental designers. With a deceptively simple drawing technique, Lynch had found a way to elicit individual perceptions of the city. In his first image studies, Lynch and his research team asked a small sample to create a sketch map of their city, to identify landmarks, to locate photographs of individual locations, and to take a walk with a member of the research team. The sketch maps of Boston, Los Angeles, and Jersey City hinted at a common image of the city for each city, as well as a common set of images for those of similar backgrounds. Figure 2.3 shows the composite image for residents of one Los Angeles neighborhood.

As Lynch details in "Reconsidering the Image of the City,"¹⁸ 25 years later many of his hypotheses about the consistency of the overall city image and demographic variations have been tested and proved valid. He described a "method war" erupting over map drawing,¹⁹ and rued that his image techniques seemed more appealing to environmental psychologists than environmental designers. He wondered if "there is some characteristic of the analysis that adapts it for research, but not for policy."²⁰

Indirectly, Lynch's drawing technique and image studies have had a powerful influence on participatory planning. His early work instilled a healthy respect among many planners and designers for the depth and richness of environmental imagery among

¹⁷ Kevin Lynch, The Image of the City (Cambridge: MIT Press, 1960).

¹⁸ Kevin Lynch, "Reconsidering the Image of the City," reprinted in City Sense and City Design (Cambridge: MIT Press, 1990).

¹⁹ *Ibid.*, 249.

²⁰ *Ibid.*, 255.

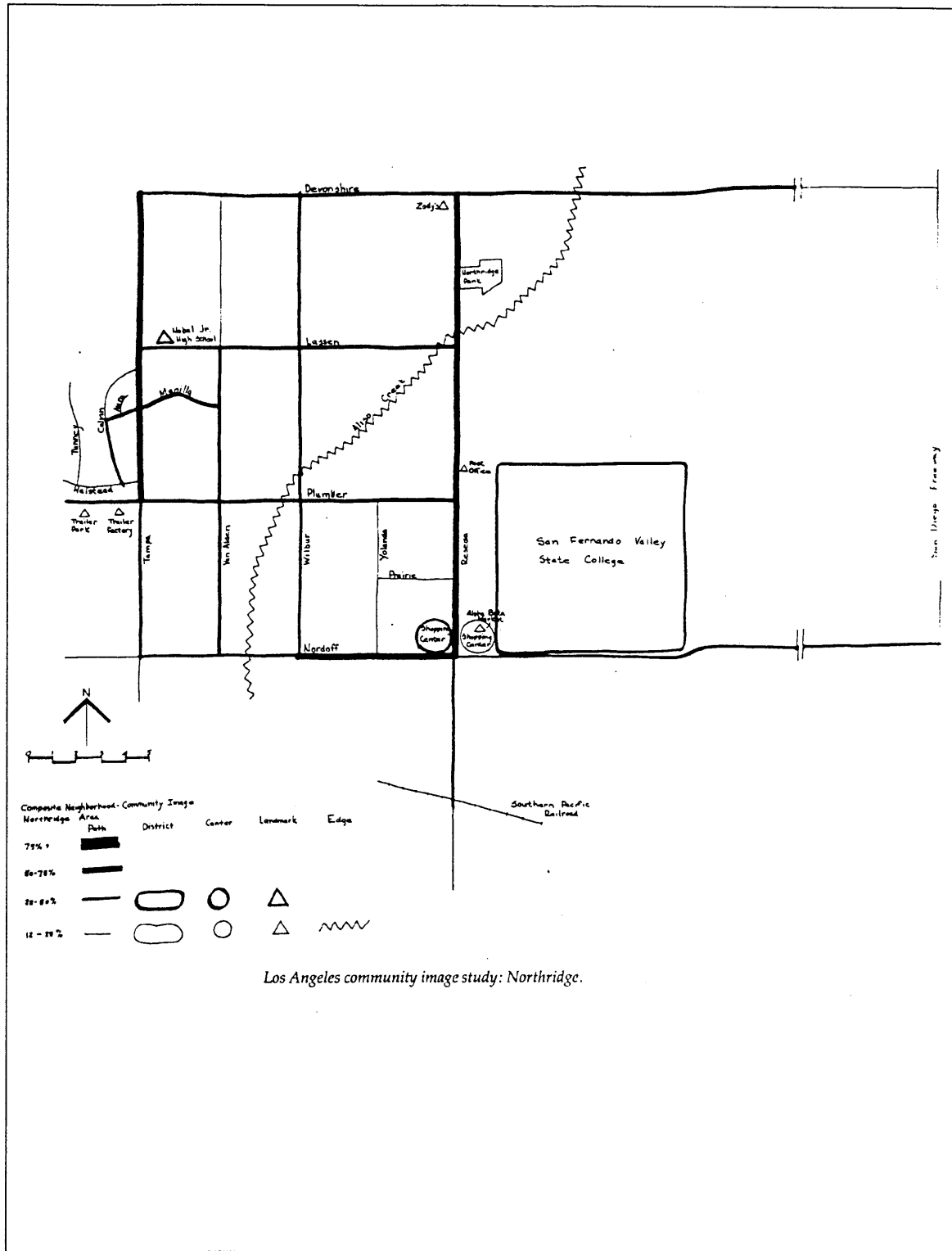


Figure 2.3: A composite Lynchian neighborhood map

(SOURCE: Kevin Lynch, "A Process of Community Visual Survey," in *City Sense and City Design*, 1991.)

ordinary citizens. It eventually inspired some environmental designers to refine his visual survey techniques. In Chapter 3, I will describe the work of Barbara Barros, an urban designer who was inspired to create a sketch map computer program based on Lynch's sketch map technique.

In the early stages of the design process, a visual survey can evoke the values, emotions, and perceptions that even a professional designer may not be able to identify in words. These open-ended surveys can produce material for an inventory of citizen perceptions of the environment. Simple refinements to the sketch map technique, such as providing a base map instead of a blank sheet of paper for respondents, can make it possible for a planner to correlate responses fairly accurately. Carl Steinitz, a landscape architect and former student of Lynch's, described how this might work.²¹ Two of his students asked residents of Norwell, Massachusetts, to indicate where "rural character" could be found in their town. Residents were provided with a base map of the town. They never asked what rural character was, but their geographic records could at least be easily compared to find out if there was any consensus.

Steinitz and others have also pursued the use of slides and photographs to inventory the public's aesthetic preferences prior to any narrowing of design alternatives. In a large study of Acadia National Park in Maine²², Steinitz asked over 1,000 people to evaluate eight sets of paired slides. He asked individuals which landscape scene in each pair should be transformed into the other--for example, to choose between an

²¹ Comments and references from a seminar lead by Carl Steinitz at the Harvard Graduate School of Design during the Fall of 1993.

²² Carl Steinitz, "Toward a Sustainable Landscape with High Visual Preference and High Ecological Integrity: The Loop Road in Acadia National Park, U.S.A.," Landscape and Urban Planning (1990): 213-250.

open lake view and one screened by trees. He then asked them to choose the first and second most important changes to make among the eight paired landscapes. The slide study produced a consistent set of preferences, which the National Park Service could then use to define specific design objectives.

Visual surveys often take longer to complete, and that makes them less likely to be used. When planners must choose between an in-depth Lynchian analysis and a questionnaire, the questionnaire is more likely to be chosen. The questionnaire is cheaper, it is a familiar format, and its results are easily aggregated and presented. As environmental designers refine Lynchian mapping, slide shows, and other visual methods, this should change. Information technology should also bring down the costs and time commitment for planners, since the visual surveys could be self-administered by citizens, and computer software can facilitate the work of aggregating individual responses.

Workshops

Defining workshops

In this section, I will describe a group of techniques that fall under the rubric of workshops. Workshop techniques are defined here as a meeting or series of meetings in which planners and citizens work together to solve problems.

Formal presentations by the planners may be part of the workshop, but the key component is group problem-solving. This forces most workshops to be limited to a small number of participants, with the exception of charrettes.

Common to all the workshop techniques is a substantial time commitment by both planners and public. This is not necessarily a disadvantage, since the time commitment reflects the highly interactive nature of workshops. And if the public enjoys the small victories generated by working together on communal issues in a workshop setting, it is more likely that citizens will continue working together once the workshops are completed.

Workshops can be held at almost any stage of the design process, but the most promising participatory techniques use workshops early in the process and engage citizens to move from setting goals and objectives through evaluating alternatives. I will describe several different types of workshops, beginning with techniques such as focus groups that take place at the beginning of the design process, and ending with the more elaborate ECOLOGUE and visioning techniques that involve the public in more stages of the design process.

Focus Groups

Focus groups? In planning? What's next, cents-off coupons? Planners tend to shy away from such direct marketing ploys, yet Chicago planners have found focused small group discussion, a favorite technique of soap and hairspray peddlers, a useful tool in preparing a new "framework" plan for the city's central area.²³

²³ Ed Zotti, "New Angles on Citizen Participation," *Planning*, (January 1991), 19.

Ed Zotti reported on focus groups as a newly popular participatory tool adopted from market research in a 1991 Planning article. Focus groups are a technique that planners can use in place of surveying to help decision-makers set goals and objectives, program, or evaluate alternatives. Instead of sampling a large cross-section of the public with a questionnaire and breaking out homogeneous demographic groups statistically, the planner convenes homogenous focus groups and then aggregates their opinions in a summary report.

Even when an ambitious participation program includes both techniques, focus groups can provide a more in-depth discussion and can permit a more free-form response format. There may be an extra cost to get this in-depth response--focus group participants are often paid for their time. Payment for participation can be an advantage, because it may lead to a larger pool of participants that planners can draw on to create truly representative focus groups.

In the Chicago example described by Zotti, the city's planners wanted guidance on where to direct their downtown planning efforts. For approximately \$10,000, they hired Burrell Advertising to assemble the focus groups, moderate their discussions, review the results with the city planning staff, and prepare a summary report. Burrell's first task was to create four focus groups: people who lived and worked in the suburbs, suburbanites who commuted downtown to work, downtown workers who resided in another part of Chicago, and downtown residents who also worked downtown. The groups, averaging a dozen participants, did not perfectly represent Chicago's total population, but the three city resident groups did reflect the actual racial balance. Their income levels were at least \$18,000 per household, which may have reflected the

current downtown working population but undoubtedly left out many segments of the metropolitan Chicago population.

Burrell then convened the groups one weekday evening for about an hour and a half. The city planners had generated a list of topics that the agency refined into a list of leading questions for the moderator. The moderator, a professional facilitator hired by Burrell, used these questions to shape the discussion. A brief recess allowed planners, hidden behind a one-way mirror, to feed additional questions to the moderator. The focus group discussions were also videotaped.

As the Chicago example illustrates, the focus group format is not exactly a dialog, but it has some special advantages. The planners stand offstage and let the citizens take front and center. Their unguarded responses can be illuminating for planners, and may prevent planners from heading in the wrong direction. A few comments from the Chicago groups give the flavor of the focus group experience:

The suburban commuters, however, loathed downtown--in part because they were prisoners of the long commute and had no time to enjoy the amenities the city residents treasured. "What do you like about downtown Chicago?" asked the discussion leader. "Nothing," one woman replied.

Another surprise came in the reaction of the people who lived and worked in the suburbs...the suburbanites were nearly as lavish in their praise of downtown as the downtown residents they visited often, and many said that if it weren't for the fact that they'd have to become reverse commuters, they would consider moving downtown.

People volunteer things you might not have thought to ask. One item that bugged some of those participating in Chicago, for instance, was the 24-hour parking ban on downtown streets. Why not allow parking in the evening, they wondered....The city is now considering construction of a

trolley system to aid circulation in the expanding central business district. So far, plans have focused on the relatively distant end points of the proposed system...But the focus group members said their main concern was to get from one side of the Loop to the other during rush hour.²⁴

By 1994, the focus group technique was featured in a session at the annual meeting of the American Planning Association.²⁵ Paul Zucker, a planner and management consultant who led the session, said the classic focus group technique has been modified for planning use. In advertising and market research focus groups, eight to 10 randomly selected people would sit in a room with a one-way mirror, with the client sitting behind the mirror and the video cameras rolling. His technique differs in a few small but significant ways. His story of his San Jose focus group work details these modifications.

In San Jose, California, the city planning agency hired Zucker to run two rounds of focus groups to find ways to improve San Jose's development review process. The focus group participants were anything but randomly selected--they included the "biggest complainers and whiners"²⁶--and some of the other participants were well-known to the city planners. Zucker created homogeneous groups of the "repeat customers" and "important customers" for development, and added a group made up of city staff involved in the development review process. Participants included large corporations such as Sony, homebuilders, contractors and other small businesses involved in development, and staff from departments such as public works, buildings, fire, planning. Zucker did not convene any groups of "citizens," that is, residents who did not fit into the

²⁴ Ibid., 20-21.

²⁵ American Planning Association 1994 Conference, "Using Focus Groups," April 1994, San Francisco.

²⁶ Ibid., Paul Zucker.

previously mentioned categories. He commented that in the depressed economic climate of two years ago, he could get away with not including the "citizens." Unlike the Chicago participants, the San Jose focus group participants were not paid, and this may have made it difficult to assemble a group without a direct interest in the problem under discussion.

His process varies with the traditional market research process described in Chicago: there was no videotaping, no planners behind a one-way mirror, and the discussions were compiled into group reports that masked any comments that might identify an individual participant. Apparently, because some participants feared retribution if they criticized city agencies, individual confidentiality was crucial. Zucker took notes and compiled a report for each group. Individual group members had the opportunity to correct the report before it was released to the city and to the press.

In the first round, the three-hour sessions began with a one-hour general discussion of the business climate in San Jose. Zucker directed participants to explore more specific questions as the session went on, e.g., "How are the subdivision processes working?" In the last part of the session, participants were asked for recommendations. He did not take votes, but did try to find out if opinions were generally held by the group.

In a focus group, the homogeneity of the group encourages consensus. Also, Zucker noted, small-group dynamics will filter out what statisticians refer to as outliers--in this case, the more extreme, singular, or irrelevant opinions. Thus, a lot of work can be accomplished: participants can identify problems, prioritize goals and objectives, and

formulate programming requirements. The focus groups produced 61 recommendations in the first round.

As described by Zucker and Jim Durberry, the Deputy Director of San Jose's city planning department, the process was a quite successful way of gathering input. The city agencies, while "in denial" at first, realized the focus groups had pointed the way out of the morass they had found themselves in. The local press had deemed the city an "obstacle to development," but after the focus groups, they praised the city for its new approach. Planners prepared a timeline for executing the changes to the permitting process, and reported on their achievements quarterly to the City Council.

Two years later, Zucker did the second round of focus groups, with many of the same participants. The sessions were half as long, and covered a lot less territory. Participants were asked to evaluate the success thus far of the city's efforts to respond to their first-round recommendations. The biggest customers, the large-industry group, were the most satisfied, others less so. Overall, the focus group feedback was positive. Another 61 recommendations resulted from the second round.

The San Jose example shows how focus groups may be used as a means of extended conversation between public agencies and the public they serve. Although the San Jose focus groups were designed to evaluate an administrative process, multiple rounds of focus groups could just as well serve to guide specific environmental design projects. In Chapter 5, I will show how aspects of the focus group technique can be adapted in an interactive computer program for this purpose.

Charrettes

The term "charrette" is thought to have originated at the Ecole des Beaux Arts in Paris. Design students would often work until the very last minute before a design presentation, jumping into the carts that carried away their drawings to the studio reviews as the carts wheeled along. In the design fields, this frantic burst of activity to meet a deadline became known as a charrette or charretting. The concept has been adapted by numerous design and planning organizations to describe various short-term, high-intensity design and planning workshops. For the purposes of this thesis, I will identify the charrette as an intensive workshop with the following characteristics: it lasts just a few days; the workshop is open to the general public; and it brings together "visiting firemen"²⁷ (the charrette team), public and private sector decision-makers, and the general public to work together to do some creative problem-solving around a physical planning problem.

A number of nonprofit organizations run an ongoing charrette service: the American Institute of Architects (AIA), the American Society of Landscape Architects (ASLA), the Institute for Urban Design, the Waterfront Center, the Urban Land Institute (ULI). Other organizations, such as the International Downtown Association, the National Main Street Center, and Projects for Public Spaces offer workshop services that are similar to charrettes. There are also state-wide organizations, such as the Minnesota Design Team, an independent nonprofit organization that serves small towns in Minnesota, and the Community-Based Projects program, a state-wide charrette service offered to small towns in Indiana by Ball State University. Some cities organize their own charrettes.

²⁷ This apt description of the charrette team is borrowed from Ruth Knack, "Visiting Firemen," *Planning* (May 1987), 8.

The charrettes offered by the organizations noted above typically work as follows: a city or town applies to the organization for assistance, and after a preliminary site visit by the designated team leader, an interdisciplinary team of designers and other professionals is assembled. In addition to architects, landscape architects, and planners, team members might include developers, psychologists, economic development specialists, artists, and traffic engineers. The more specialized professions would be chosen to provide expertise geared toward the particular charrette problem. The Urban Land Institute, for instance, gathered a team of developers, planners, and pilots in 1986 to come up with recommendations for Page Field, an outmoded airport near Fort Meyers, Florida.²⁸ The nonprofit organizations listed above send teams averaging five to eighteen members.

The Boston Society of Architects describes charrettes as having a beginning, middle, and end.²⁹ Charrette schedules vary, but they generally begin with inventorying existing conditions and end with the presentation of one or more conceptual design schemes or plans. In the Minnesota Design Team's two-day charrette, the team spends the first day touring the area and familiarizing itself with local conditions. Team members board with local families, so their orientation continues well into the evening. On the second day, the interdisciplinary team generates design schemes and organizes the evening

²⁸ Ibid.

²⁹ Mary Otis Stevens, Boston Society of Architects, "Guidelines for Design Charrettes", memorandum, November 29, 1993.

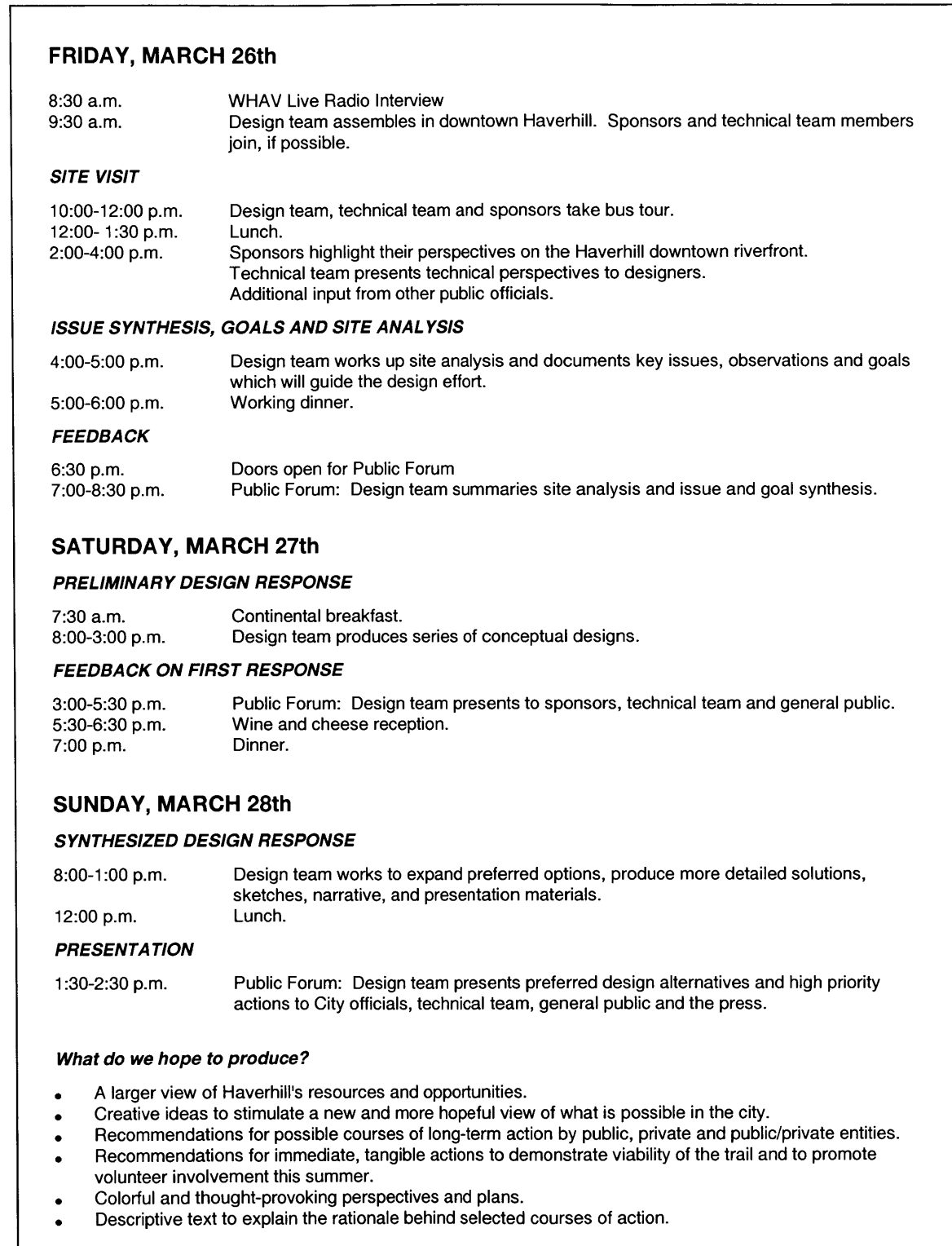


Figure 2.4: Schedule for the Haverhill Riverfront Charrette

(SOURCE: Adapted from "Orientation Memo to Charrette Team," City of Haverhill and charrette sponsors, 1993.)

presentation to the community. The national organizations tend to run longer charrettes, averaging three to six days. A sample charrette schedule and charrette goals for a two and a half day charrette in Haverhill, Massachusetts, is shown in Figure 2.4.

On the surface, charrettes appear to be a very fast way of getting public involvement in a project. Agency or other local staff time appears to be minimal, since outside professionals will make up the charrette team and lead the workshops. For a successful charrette, however, much depends on the quality of the data gathering and logistical planning prior to the charrette, and this task often falls on the local planning staff.

Representatives of sponsoring organizations, such as the Chamber of Commerce, and citizen volunteers can often put together the preliminary information needed by the charrette team. Figure 2.5 diagrams the staffing of a generic locally produced charrette. After the charrette, when the visiting firemen have left town, the local planning staff is often left to carry on the work, and their workload may be greatly increased if a large number of feasible ideas have been generated during the charrette.

Public attendance at charrettes varies dramatically, but the budgeting and logistics for any charrette assume large crowds for the presentations by the charrette team. The public is invited to observe or participate in most of the charrette activities, and so numbers will fluctuate over the course of the charrette. Small-town charrettes, such as those of the Minnesota Design Team or Ball State University, report crowds ranging from 30 to 100, while big-city charrettes will draw several hundred or even thousands

over the course of a week³⁰. Charrette planners have learned that good publicity, ongoing exhibits at the charrette site, and refreshments will boost attendance.

Costs vary widely for the charrettes led by the professional organizations. National groups such as ULI charged \$75,000 to 80,000 in 1987,³¹ based on the number of team members. The AIA Regional Urban Design Assistance Teams (R/UDAT) were estimated at \$20,000 to \$25,000 in 1987, which covers a helicopter or light plane flyover, as well as the team's expenses.³² For the higher price, the national organizations draw on a national talent pool for team members, who often have years of charrette experience. In the case of the ULI, their full-time staff does much of the preparatory work, which is convenient for the community but also diminishes the role of the volunteer citizen in inventorying the community and framing the problems.

In contrast, costs for locally generated charrettes put together by city agencies may run as low as \$2,000. In the Haverhill charrette, direct costs to the city were approximately \$2,000; most expenses were covered by in-kind donations from the National Park Service, the Merrimack River Watershed Council (a regional organization), the Haverhill Advantage (a public-private partnership), and local businesses.

Charrettes may be used to sift through goals and objectives, but generally charrettes are most effective when they focus on the middle and later stages of the design process.

³⁰ Charrettes in urban renewal neighborhoods during the 1960s and early 1970s drew huge crowds, due in part to the social tensions, but also to the novelty of the charrette format. Peter Batchelor, "Socially Responsive Design Processes," [1_345678910Eleven Views: Collaborative Design in Community Development](#), (Raleigh, North Carolina: North Carolina State University, 1971), 46.

³¹ Ruth Knack, "Visiting Firemen," *Planning*, (May 1987), 12.

³² Ibid.

As urbanist William Whyte comments, the charrette offers "a full inventory of ideas--outrageous and otherwise."³³ While the programming suggestions and development schemes that emerge in charrette brainstorming sessions may not make it to the final design recommendations, they do open up new ways of thinking and may plant the seeds for long-range schemes. Whether a charrette lasts one day or 10, the compression of the programming and alternative generating steps makes the brainstorming sessions the most critical public participation component. The charrette provides a kind of safe space where a cross-section of the community can generate ideas without criticism, since the brainstorming sessions require that all suggestions are recorded but not criticized. Once the suggestions are recorded and become part of the inventory of ideas, these ideas may be evaluated more objectively since they are distanced from their originators. The outside consultants who form the charrette team may give credibility to ideas from the less powerful voices in a community, or bring in suggestions that no one has even considered. The outside charrette team acts both as a mirror, providing a reflection of the community, and as a window, providing glimpses of other ways of doing things. Either way, as Kennedy Smith, Director of the National Main Street Center, noted, "People tend to listen" (to the outsiders).³⁴

Some design professionals feel that the charrette format may give a sense of false accomplishment, since both designers and the communities they serve may believe they will be able to resolve long-standing problems in the pressure-cooker environment of a charrette. Charrette veterans know that a charrette is often just the first step in bringing a project to fruition, but the euphoria of the charrette experience can mask this

³³ Ruth Knack, "Visiting Firemen," *Planning* (May 1987), 10.

³⁴ *Ibid.*, 12.

reality. The cold realities of implementation, the morning-after syndrome, lead some to believe that charrettes are much ado about nothing, or worse yet, a distraction from real problem solving.

In light of the criticism of charrettes as an isolated event with no follow-up, the AIA and some other national organizations have added a follow-up component to their workshops in recent years. Part of the AIA team, for instance, now returns four to six weeks after the charrette, and visits again six months to one year after that. These visits can provide some assistance to communities in developing and implementing charrette ideas. The AIA has also begun a program to train communities to set up their own R/UDAT type workshops using local designers and other professionals instead of the national AIA teams.³⁵

On the basis of my own experience at the Haverhill charrette, and various evaluations of the charrette technique, it seems to me that charrettes are a successful participatory design tool even if they do not always produce a realizable design or plan. In 1981, Martha Lampkin analyzed the 66 R/UDAT charrettes held since the program's inception in 1967 and concluded that the R/UDAT charrettes were more effective at strengthening local organizational ability to tackle design and planning issues than they were at producing a specific design product³⁶. Her conclusions are echoed by others such as Betsy Fitzsimons of the Minnesota Design Team, who spoke of "the humility of the

³⁵ "Planting the Seeds of Change," *Architects Journal* (March 1990): 48-49.

³⁶ Martha Lampkin, "Intervention in the City Building Network: An Evaluation of the AIA's R/UDAT Program," (Masters thesis, MIT, 1981).

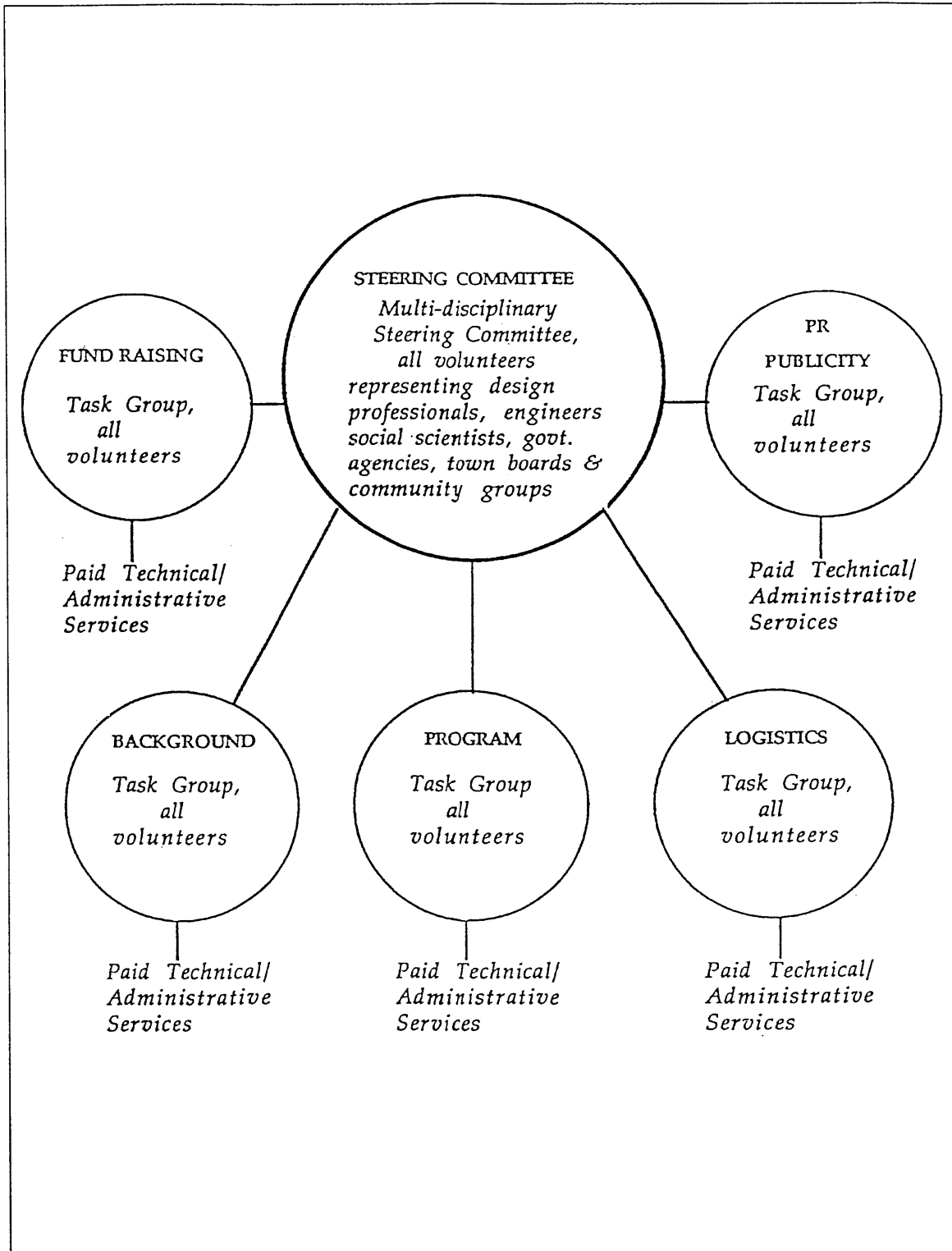


Figure 2.5: Staffing and logistics for a locally-produced charrette

(SOURCE: Mary Otis Stevens, Boston Society of Architects, "Guidelines for Design Charrettes", 29 November 1993.)

process, which seeks no higher goal than to help formulate the ideas of the community."³⁷

The positive charrette experience of working together can be seen as a dress rehearsal for the long-term work involved in selecting and implementing a design alternative. One can almost describe charrettes as a kind of design game, because of the compressed time period, the playful nature of the experience for participants, the learning experience, and the apparent lack of direct consequences. Because the design products of a charrette are conceptual, schematic rather than complete working drawings, the charrette is a way to test design alternatives without making a full commitment. In a good charrette, the public learns about the design process and the particular information and alternatives pertinent to their community as well as the rationale for various schemes, while public officials learn a great deal about the citizens' concerns and preferences. At a minimum, the theatrical and game aspects of a charrette help publicize the issues under consideration and stimulate interest in further civic involvement.

Simulation Games

The 1960s and 1970s were the age of invention for participatory methods. Planners, designers, and social scientists created many games to simulate common environmental design and planning problems. These simulation games compress the time, space, and financial constraints of real environmental design problems. This

³⁷ J. William Thompson, "Hot Dish Design," Landscape Architecture, 84, no. 6 (1994), 56.

simplification of reality distinguishes in two important ways simulation games from the other participatory techniques discussed thus far.

First, and most important, is that unlike most other participatory methods, simulation games do not claim to be a real-world problem-solving method. Their very strength lies in their indirect approach, for in a good simulation game, the process is paramount, not winning or losing. Games educate citizens; if citizens can master cooperative processes and other problem-solving skills in a game, they can potentially transfer these new-found skills to the actual environmental design problems at hand. Planners and decision makers who observe or participate in game workshops will learn much about how citizens view environmental design problems and their levels of problem-solving skills.

Second, games can be counted on to provide an enjoyable common experience for participants, and the pleasurable aspect of game-playing may make working together on real planning tasks less daunting in the future. Planners and decision-makers may also be more willing to work more directly with citizens, especially if they have had unpleasant experiences with participation in the past. A well-designed game is supposed to be enjoyable, whereas the techniques described thus far--public hearings, advisory board meetings, and questionnaires--are not designed to be "fun." One may enjoy the drama of a public hearing, or the internecine warfare in a heated advisory committee meeting, or the clever wording of a questionnaire, but their successful application is not based on the participants' enjoyment.

I will describe just a few examples of simulation games relevant to environmental design. Four game types relevant to planning have been identified by Allan Feldt and Mitchell Rycus³⁸: They define the game types as follows:

Frame games:

Frame games are inherently content-free, providing a structured series of interactions among players within which they may communicate information, experiences, and points of view. While some initial subject matter may be suggested as part of the introduction to the game, it is not critical to the conduct of the game. The interaction among players and the process it represents rather than the actual information is the real purpose of the game.³⁹

Empathy games:

The major purpose of empathy games is to create an understanding of the position of some other person or point of view. Usually the players must take on the role of some other person or position and therefore begin to view first the game and then reality through the eyes of other persons.⁴⁰

Resource allocation games:

Players begin by competing for shares of one or more resources, which are in relatively scarce supply, such as land, money, water, food, or power. Although the games inevitably have a competitive flair, most of them result in players' realizing that some form of cooperation and planning will usually produce more usable resources for all.⁴¹

Process games:

In these games players learn a certain number of critical steps that must be taken to play the game successfully. These steps and the way they interrelate with similar steps being taken by other players represent some important form of political, managerial, legal, or other form of process that the game is designed to represent and teach.⁴²

³⁸ Allan Feldt and Mitchell Rycus, "Analytical Methods," in *The Planner's Use of Information*, (Washington, D.C.:Planners Press, 1988).

³⁹ *Ibid.*, 89.

⁴⁰ *Ibid.*, 90.

⁴¹ *Ibid.*, 91.

⁴² *Ibid.*, 92.

This is a game originally designed to facilitate the selection of children's camp activities by identifying important environmental objectives and then deciding upon the most suitable location for all the activities selected. It was originally designed for the Pines of Carolina Girl Scout Council in planning the activities of their camp, which is used as an example here. The same methods, however, can be adapted to your community's needs by substituting a map of a local summer camp, a city park or a school recreation area.

RULES

The game is planned to be played by a group of 3-5 people. To begin, each player individually selects, from the list provided, no more than 5 OBJECTIVES which seem to be the most important. After each player has made his or her choices, the individual lists are pooled.

OBJECTIVES are arranged, face up, so that they can be seen by all players. Through negotiation the group must choose from these no more than 5 with the additional constraint that these 5 must be able to be incorporated into an environmental program. Players are urged to forcefully support their individual choices, even if other members of the group did not make the same choices. Continue negotiating until consensus is reached on the 5 OBJECTIVES your group feel most important.

Next, as a group examine each OBJECTIVE individually and select 4 ACTIVITIES which can be used to accomplish each OBJECTIVE. (You should work through each OBJECTIVE completely before starting a new one.) Keep in mind that some ACTIVITIES may relate to more than one OBJECTIVE.

Then, combining these two elements -- OBJECTIVES and ACTIVITIES -- choose a physical SETTING which can be used to fulfill the requirements of each OBJECTIVE. Remember, SETTINGS should provide an environment which allows for the successful performance of the ACTIVITIES.

Figure 2.6: The Challenge of the Environment game

(Source: Henry Sanoff, *Design Games*, 1978.)

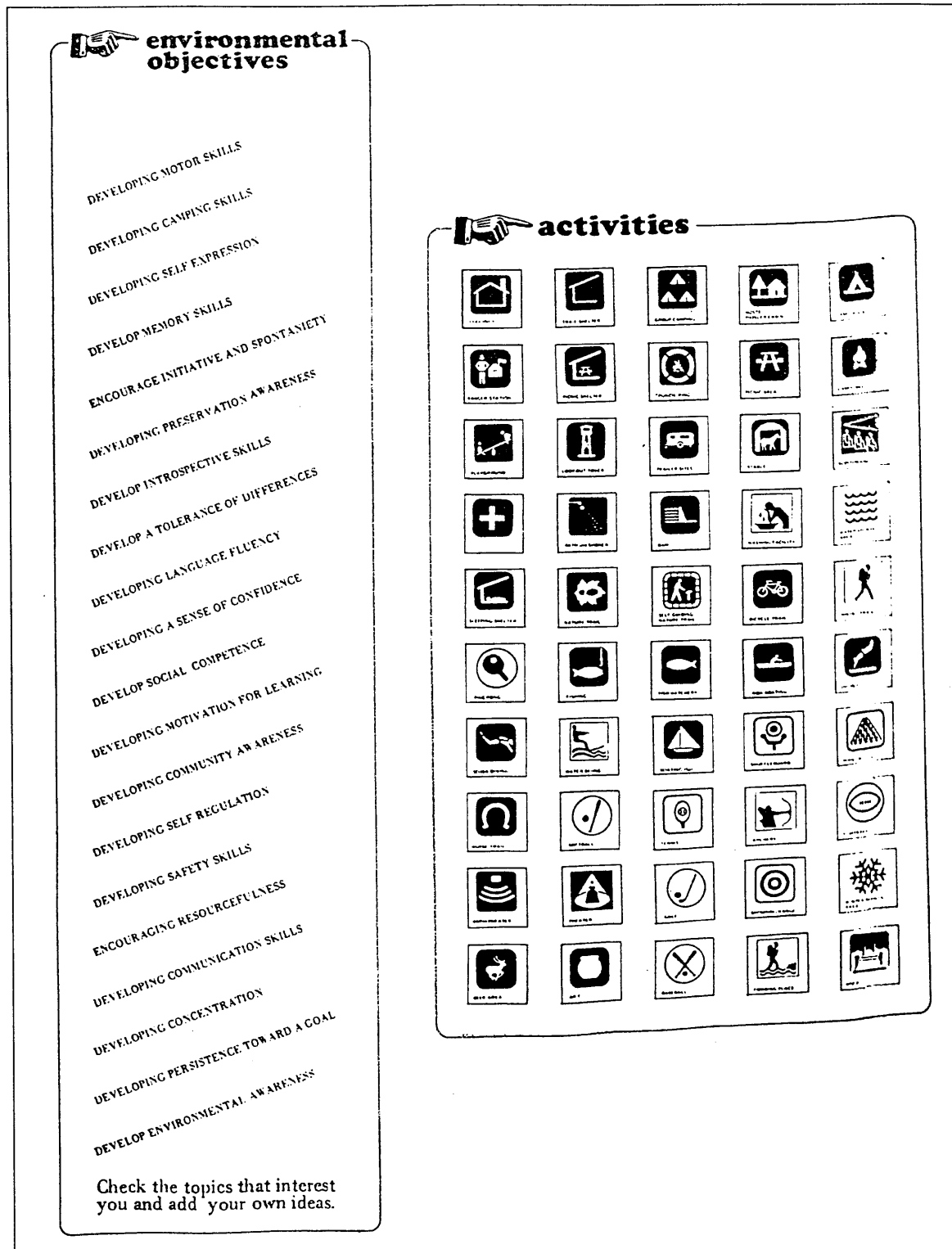


Figure 2.7: The Challenge of the Environment game

(SOURCE: Henry Sanoff, *Design Games*, 1978.)

The highly structured resource allocation games best exemplify game technique use as a participatory environmental design tool. Players practice skills that are obviously transferable to real planning situations. Henry Sanoff, an architect and prolific game designer, offers a clear example. Figures 2.6a through 2.6c show "The Challenge of the Environment," a game that Sanoff designed for a real client, the Pines of Carolina Girl Scout Council. The particular site does not matter, however; Sanoff suggests that the game might be applied to designing a city park or school recreation area, adapting the site map and activities where necessary. He has used similar game formats to involve educators in planning a number of child-care facilities.⁴³

Games may simulate different stages of the design process, and resource allocation games such as The Challenge of the Environment can take participants through several stages. In Sanoff's game, players set goals and objectives by selecting the five most important objectives. They program the design by choosing four activities to attain each objective. Choosing the "settings" appropriate for the activities allows players to formulate and evaluate alternatives. Players select an alternative by finalizing their settings decisions and marking them on the conceptual site plan.

By focusing on just one stage of the design process, players can deepen their understanding while providing valuable information to the environmental designer. In The Community Development Group's SEARCH games, the designers hope to obtain housing consumers' preferences. The SEARCH games can be played by individuals or groups. Figures 2.9 and 2.10 show one game, "Household Activities," that can be used

⁴³ Henry Sanoff, "Participatory Strategies for the Design of Child Care Facilities," Children's Environments Quarterly, 6, no. 4 (Winter 1989): 32-39.

for generating multifamily housing alternatives. The points assigned to different layouts force the players to make tradeoffs, and these tradeoffs clearly symbolize the financial choices that both housing developers and housing consumers must make in the real marketplace.

A relatively simple game like Household Activities suggests how information technology might enhance simulation games. A generic game could be created and then customized by the planner on-site to reflect the local climate, housing prices, and construction types. More elaborate games with a larger palette of choices, e.g., The Challenge of the Environment, could be updated and customized for different activities and settings, i.e., new activities such as rollerblading might replace obsolete activities.

The Take Part Workshops

Another highly engaging set of workshop techniques was created during the late 1960s. Lawrence Halprin, an established environmental designer, began developing a new approach to participation in a series of workshops. After several years of experimentation, in 1974 Halprin and colleague Jim Burns wrote Taking Part: A Workshop Approach to Collective Creativity to explain the techniques. The genesis of their approach lay in the performing arts and psychology. Halprin and Burns asserted,

So much has happened to reduce confidence in bureaucratic techniques that people have become more and more determined to exert control over the course of their own lives. This desire to participate extends to all art, to education, to theatre and dance, to politics, to the women's movement.⁴⁴

⁴⁴ Lawrence Halprin and Jim Burns, Taking Part: A Workshop Approach to Collective Creativity, (Cambridge: MIT Press, 1974), 2.

Halprin's wife, choreographer Anna Halprin, had been experimenting with collective creative problem-solving techniques, and he was greatly influenced by her work. He found within the language of the performing arts metaphors that worked for defining environmental design processes. Halprin created "scores" for participatory design; the scores are akin to orchestral scores, which specify the notes, tempo, and order of the music to be performed. Like orchestral scores, Halprin's scores determine the activities to take place, the temporal order of events, and for a Take Part workshop, the spatial order as well. Within the framework of the score, there is enormous room for individual performance and improvisation.

Scores will fall on a continuum between open and closed, with closed scores representing the more traditional designer's approach, and the most open scores representing a more freewheeling participatory approach. In a closed score, the final environmental design would be predetermined, whereas in an open score, the collective creativity will determine the final product as a result of the process. The Take Part process open scores are playful, and as Halprin's collaborator psychologist Paul Baum comments,

Many of the best and most productive workshop techniques are done as games, fantasies, as experiences which remind people of childhood, and in fact recreate a sense of newness and discovery that is like childhood. Perhaps "playshops" would be a better name than workshops because they are closer to that. Play is an experience in which one suspends judgment, where fantasy can replace reality, where the experience has its own value, where things don't have to be the way they're "supposed to".⁴⁵

⁴⁵ Ibid., 135.

household activities

This game attempts to describe different preferences for interior room arrangements within the limits of an economic "budget." Each choice of arrangements has an associated point value (related to its cost) and the player is given a maximum limit on the number of points with which he can budget his choices. The possible choices are divided into the categories of living-dining-kitchen arrangements, and sleeping arrangements for adults and children. The living-dining-kitchen choices differ according to size and the amount of separation between each activity area. The sleeping choices differ according to size, separation of adult and child sleeping areas, and the possibility of a children's playspace. By limiting the points available to play the game, it is possible to encourage the player to make decisions based on the need for privacy between kitchen, living and dining, and the need for privacy between adult and child sleeping areas with the possibility of a child playspace. An additional choice of housing extras (with no point values) is also offered.

Cards 29a, 37d, and 37b display bedroom arrangements where the parents room can be elsewhere in the dwelling and not connected to the childrens bedrooms.

1. The possible choices are displayed in two sets. Set 1 includes the living-dining-kitchen arrangements. Set 2 includes the sleeping arrangements.
2. The player selects one living-dining-kitchen choice from the first set and one adult and child sleeping choice from the second set. The point value of each arrangement is displayed in the lower right hand corner of each picture and is followed by a letter to differentiate arrangements having the same point value. The total of the choices from the first and second sets cannot exceed 68 points.
3. If the total exceeds 68 points, the player must make alternative choices from either set until the total point value of the choices is less than or equal to 68 points.

Figure 2.9: Household Activities game

(SOURCE: Henry Sanoff, *Design Games*, 1978.)

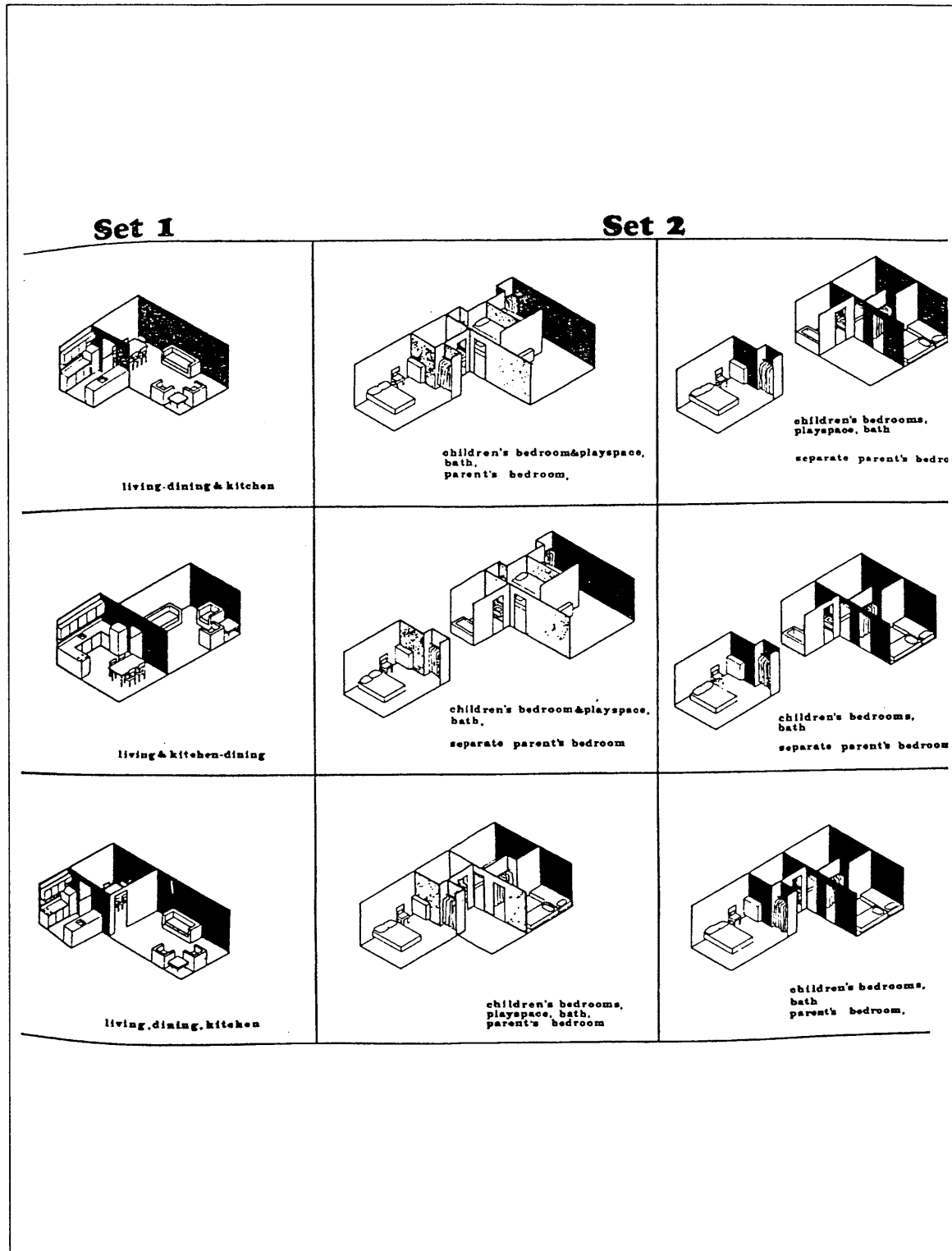


Figure 2.10: Household Activities game
(SOURCE: Henry Sanoff, *Design Games*, 1978.)

Unlike the simulation game, the Take Part environmental design workshops send players out into the real environment. Workshop participants will begin the workshop by exploring their city. In "Experiments in Environment," a precursor to the Take Part workshops, 40 people were sent on individual scored tours of San Francisco. Unbeknownst to them, their paths crossed occasionally. As they were all strangers to one another, the tours gave them a common experience to share when they met as a group at the end of the day (Figures 2.11, 2.12, 2.13).

In Take Part workshops, participants might be asked to complete individual tours of downtown prior to attending the first workshop session, or they might go as a group on a series of tours, depending on the length and scope of the workshop. The tour is the first stage of the design process for participants; they inventory existing conditions using their own senses. Participants write and sketch their firsthand observations in notebooks.

The 1973 Cleveland downtown workshop schedule (Figure 2.14) shows how participants move through the different design process stages, from inventorying existing conditions through evaluating alternatives. It can be an interactive or linear process. In Cleveland, it was an iterative process. On the first day, Thursday, participants began the workshop exercises by dining alone in downtown Cleveland, "in a place you have never eaten before, and spend less than \$3.00 on the meal."⁴⁶ After dinner, they proceeded to the workshop headquarters, where the workshop leaders-- Halprin and his associates--reviewed the workshop's purpose. After this brief

⁴⁶ Ibid., 228.

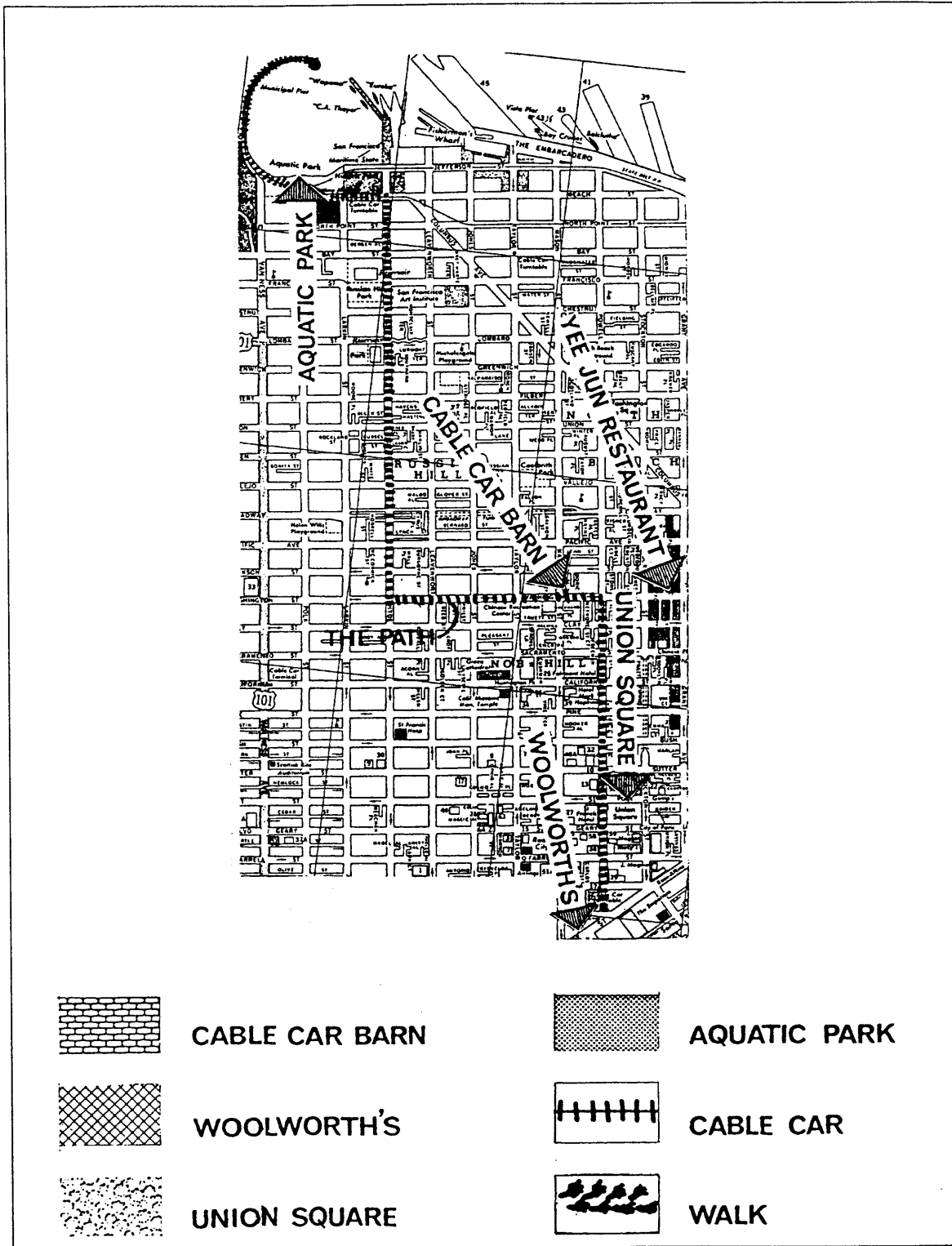


Figure 2.11: San Francisco City Map: Instructions
(SOURCE: Lawrence Halprin, *The RSVP Cycles: Creative Processes in the Human Environment*, 1969.)

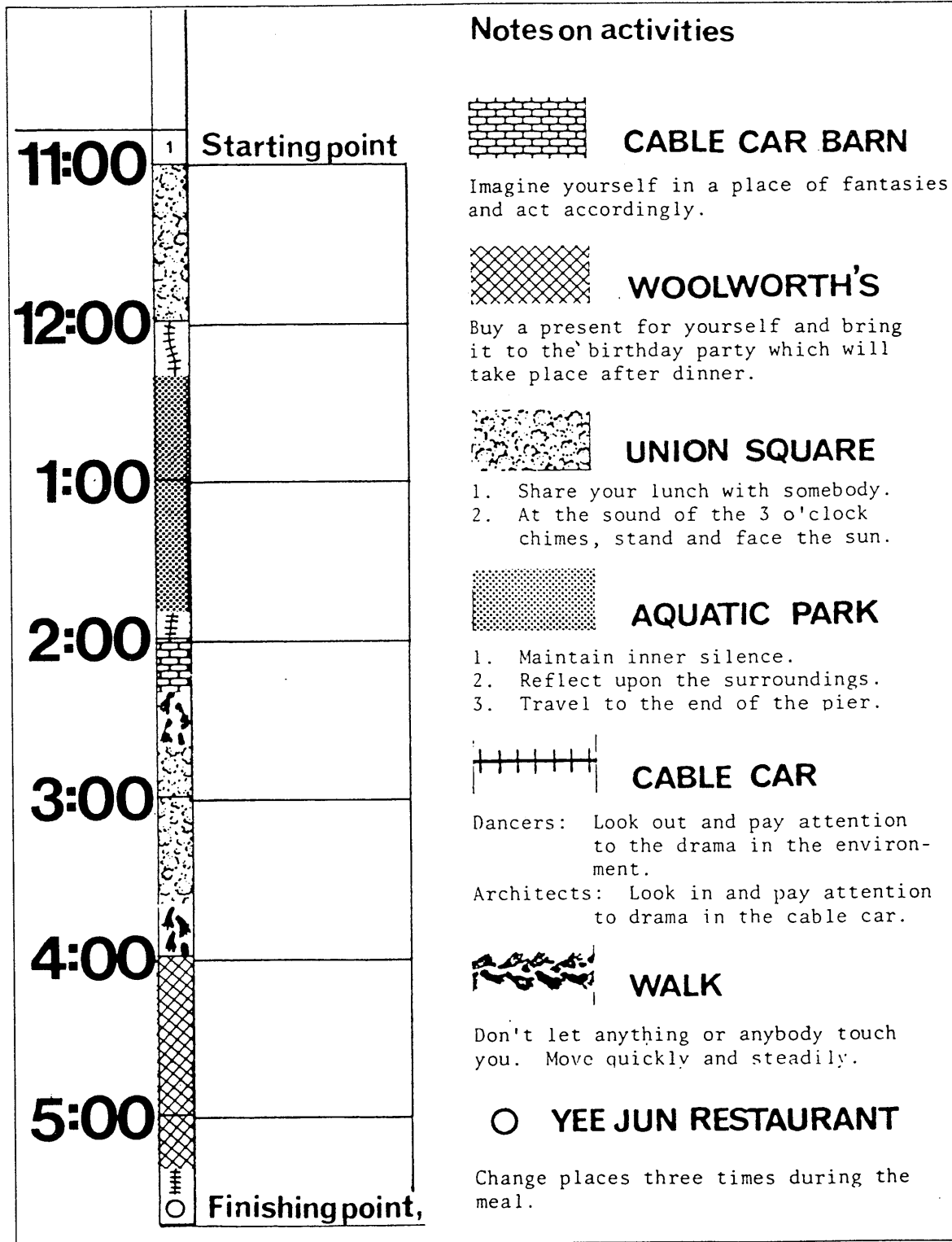


Figure 2.12: San Francisco City Map Tour: Activity instructions
(SOURCE: Lawrence Halprin, *The RSVP Cycles: Creative Processes in the Human Environment*, 1969.)

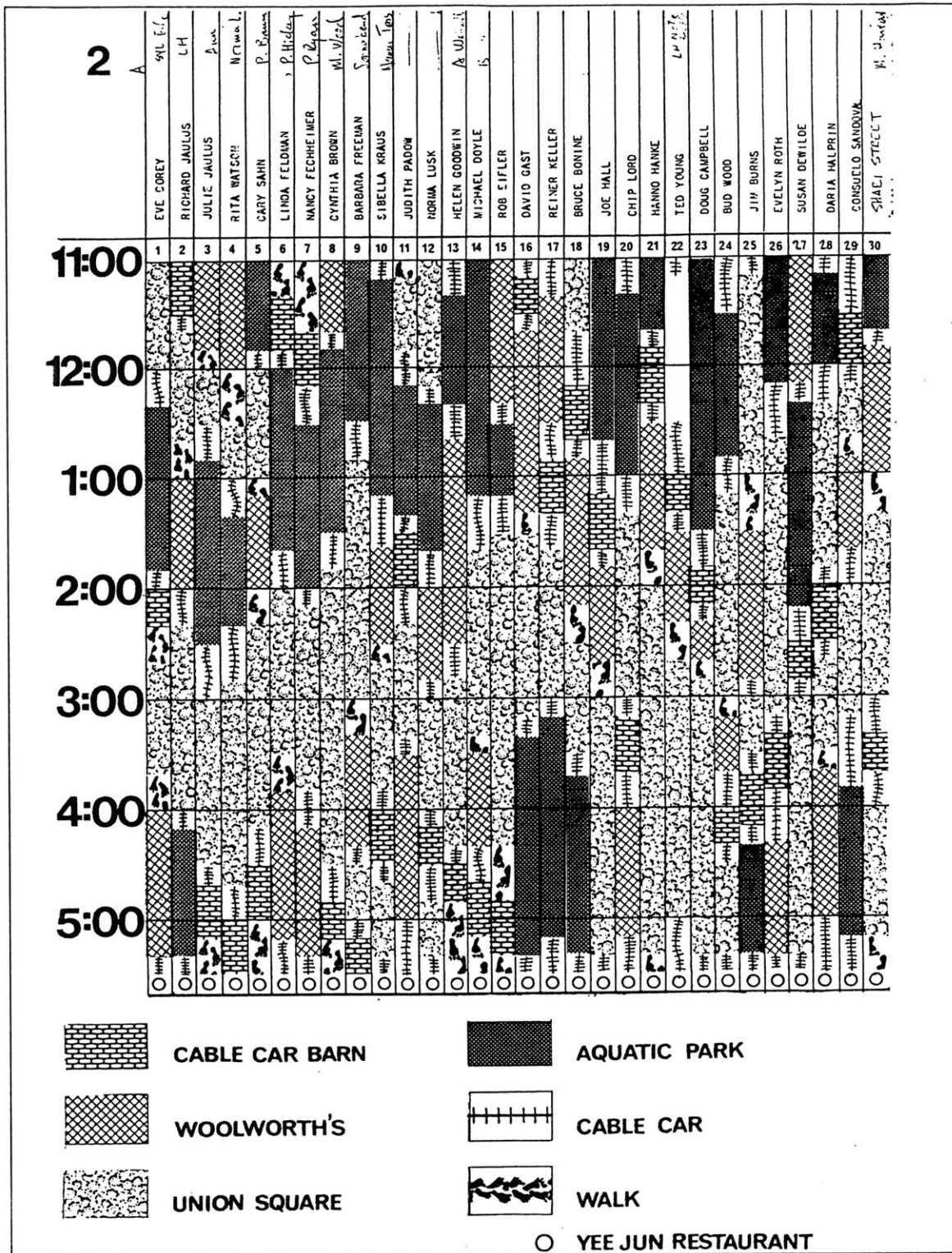


Figure 2.13: San Francisco City map Tour: Master Score
 (SOURCE: Lawrence Halprin, *The RSVP Cycles: Creative Processes in the Human Environment*, 1969.)

introduction, participants were asked to record a few sentences about their solo downtown experience and to share it with the entire workshop. This first exercise became part of the inventorying stage.

The remainder of the first evening was spent playing a game that simulated a city planning process and the Take Part workshop process. Halprin had created a fictitious city of 745,000, Clintonia, with a history and geography suspiciously similar to Cleveland. Participants assumed roles such as Mayor, restaurant operator, manager of an X-rated movie house, suburban housewife. They took a slide tour of Clintonia and were provided with maps, history, and a fact sheet. The participants then split into four groups and prepared a plan for downtown Clintonia. Twenty minutes were allotted for group discussion, and another 20 for preparing graphics for the two-minute presentations. Halprin reports this was an enjoyable way for participants to familiarize themselves with planning and design processes, as well as practicing working together in small groups.

On Friday morning, participants took a citywide bus tour. On their return, the 37 participants were split into five groups to discuss objectives for a revitalized downtown Cleveland. Their discussions were guided with the following score:

Working with your group, please take an hour to discuss the relationships of downtown to all the other areas we have been today, and vice versa. How do they impact on each other, what are the ways of getting from one to the other, are the walls separating them real or imaginary, do the people get together or not, what are the provisions for many kinds of life styles, and so forth. During the hour, please devise a presentation to the rest of the workshop of two aspects of the areas you have been through today:

1. How do you perceive Cleveland as it exists? and
2. How do you think the whole of the city as it relates to the part that is downtown should be in the future?

At the end of the hour, each group will have ten minutes to make its presentation to the rest of us. Please make your presentation graphic. Please present it as a group if that is appropriate. We would like to hear from as many participants as possible.⁴⁷

After the presentations, the Cleveland workshop leaders did an opinion poll, asking participants to rate statements about Cleveland true or false. The poll results were announced Saturday morning, and thus formed part of the inventory process. Vague statements such as "Cleveland is a city with less problems than most," which most considered false, were coupled with opinions on specific design objectives and alternatives, e.g., "A series of downtown malls would be attractive and make the city fun to be in." An opinion poll used in this way becomes another technique to stimulate the imagination, rather than the definitive statement of community opinion.

On Saturday morning, participants did individual walking tours of downtown, recording as they went along. On their return to the workshop center, they worked for one hour in small groups to develop objectives for downtown. Each group created a five-minute graphic presentation for their category: public use, private development, transportation, open space, recreational and cultural facilities. After presenting their findings, the same five groups each spent an hour creating a downtown plan that encompassed all five objective categories. Then they presented their plans to the entire workshop. The five groups produced six plans (there was a minority report from one group) with a wide

⁴⁷ Ibid., 238.

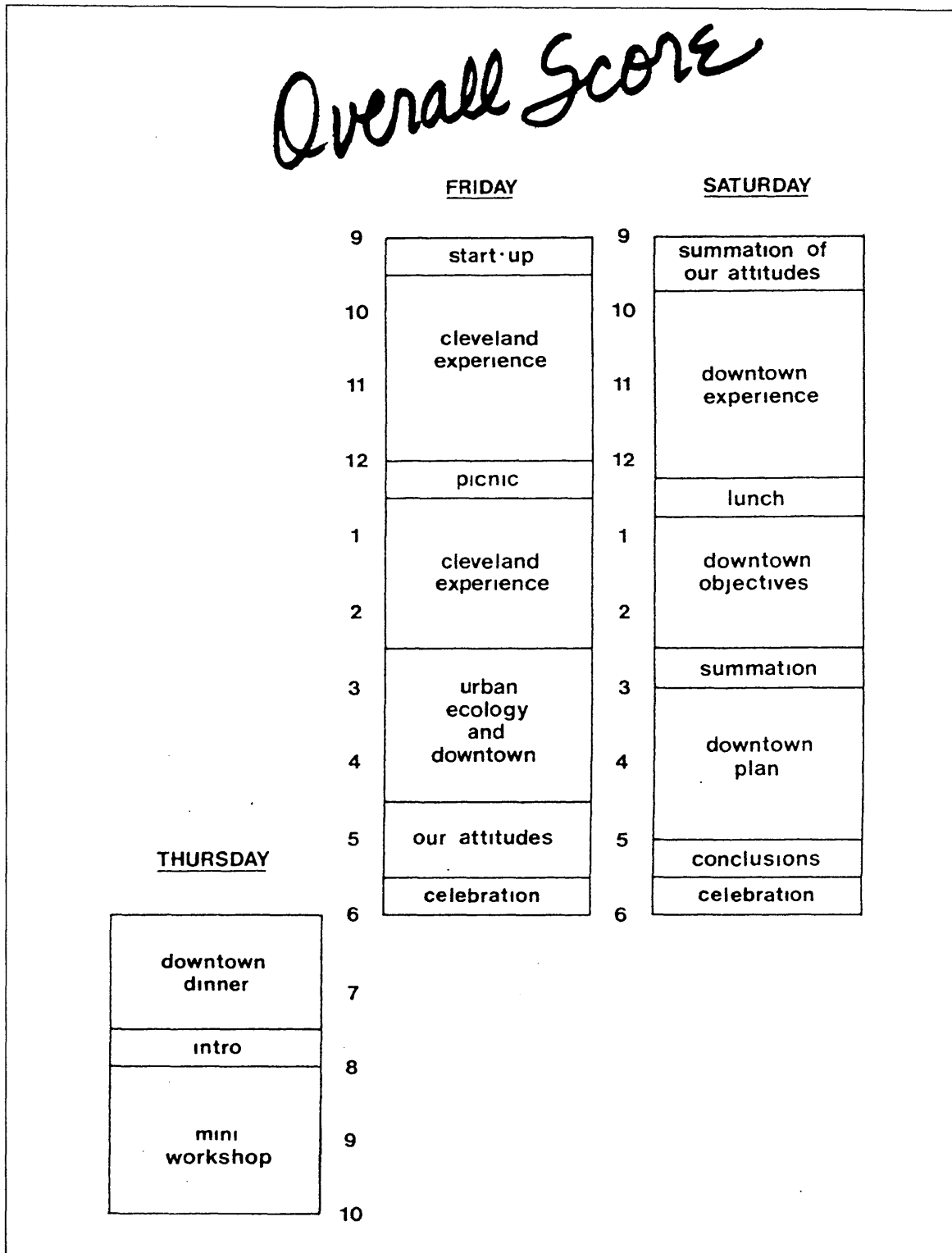


Figure 2.14: Cleveland Take Part Community Workshop: Overall Score
 (SOURCE: Lawrence Halprin and Jim Burns, *Taking Part: A Workshop Approach to Collective Creativity*, 1974.)

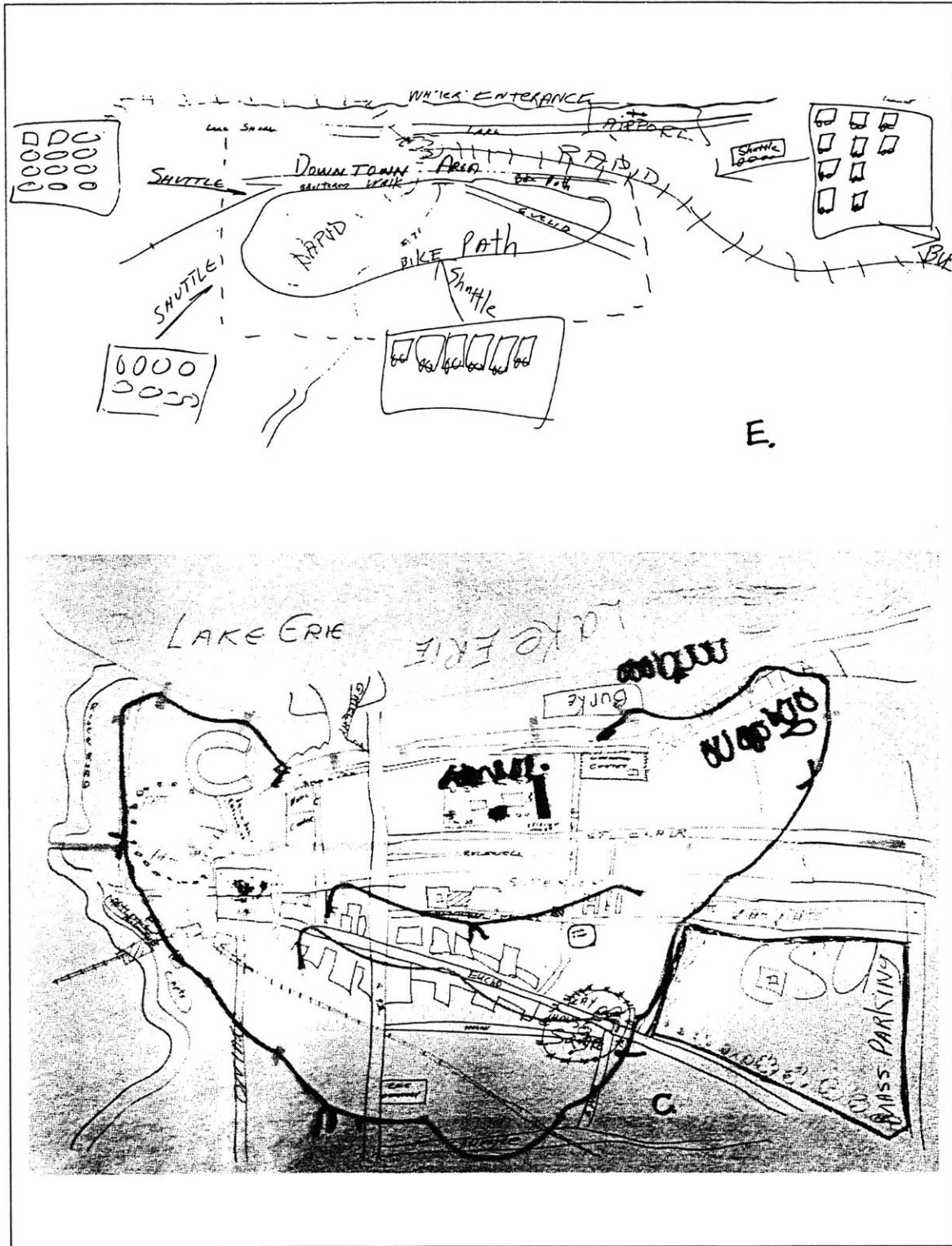


Figure 2.15: Cleveland Take Part Community Workshop: Group plans
(SOURCE: Lawrence Halprin and Jim Burns, *Taking Part: A Workshop Approach to Collective Creativity*, 1974.)

array of recommendations for the physical form and development strategies for downtown. Figure 2.15 shows two of the group plans.

The Cleveland workshop demonstrates how an almost complete iterative design process can be compressed into a weekend. Other Take Part workshops have applied most of the same techniques and exercises in a shorter time period, and the results have still been impressive. Figures 2.16 and 2.17 show a one-day workshop in which 35 community residents moved through inventorying, programming, and formulating alternatives.

Because of its open-ended nature, the Take Part Process workshops demand a significant time commitment from both planners and participants. Skilled workshop leaders, deemed "The Process Team," are required to first score the workshops and direct group activities, although the "master of ceremonies" role could be performed by someone unfamiliar with the process. To the extent that the master of ceremonies role can be passed on, and the scores are well written, the planner's time commitment may be reduced. workshop, but this number could be multiplied several times if participants could take on the roles of workshop master of ceremonies and facilitators in subsequent workshops. If the participants are willing to learn scoring, Halprin claims that new Take Part workshops could also be created and run by graduates of the original workshops.

The Take Part workshop process influence can be seen 20 years later. Jim Burns has continued to consult as a workshop leader, using the Take Part method. He recently led several hundred citizens in generating and evaluating alternatives for six cities on

PEOPLE AS PLANNERS



THIS IS fun and it's a game, but it's a serious game," planner Lawrence Halprin told the 35 community leaders as they set out on one of his "Take Part Community Workshops," called later by one of them "the most creative and stimulating day I have ever had."

It all started when the 27 acres of marshland behind Marin Catholic in Greenbrae went up for sale. Up stepped a developer who told the owner (the Archdiocese of San Francisco) that he would buy the property if the land would be rezoned to permit multiple dwelling units. His plans call for burying the marsh under ten feet of fill and upon this base, constructing 312 townhouses.

The response was the conventional deterrent, fifty people calling themselves Greenbrae-Kentfield Citizens for a Neighborhood Park. Although they disagreed on just what should go on the land (for awhile the name was Greenbrae-Kentfield Citizens for a Neighborhood Park and Marsh — that sort of disagreement) they were united now in noticing the great views of Mt. Baldy and Mt. Tam from the deteriorating marsh, and the calls of meadowlarks despite the noise nearby.

The G-KCNP (or G-KCNPM) has gone to the planning commission several times to try to stop the rezoning for condominiums, citing the already heavy density in the area, the dwindling of open space in lower Ross Valley and other factors. In four hearings the arguments have met with sympathetic looks from planning commissioners, but not much hope that rezoning will be denied.

But action rather than simply hand-wringing began when Halprin, who with his dancer-wife Ann lives in nearby Kent Woodlands, joined a half dozen community

people one morning a few weeks ago to look at the marsh.

The result was the workshop, a fascinating and involving experiment in Halprin's innovative process of "scoring" the environment, much as a composer scores a diatonic scale.

Thus the notebooks he handed out to participants were keyed on each page to a map marking locations in and around the 27 acres. Thus for a location near a pumping plant, the people were asked to spend 15 minutes, not conversing but sensing. "Isolate your senses one by one," read the score instructions. "Close your eyes and let your other senses take over. Record your feelings and impressions."

What Halprin made of this back in his San Francisco offices was, first, a graphic summary of the workshop (Cover drawing). A conceptual plan for the 27 acres will be unveiled at the Planning Commission meeting Monday.

Whether or not this process will have an effect on the commissioners is a question. Ahead for the group should rezoning be denied would be negotiations between the Archdiocese and a community service area still to be formed, then an attempt to pass a bond issue for purchase and development of the plan (at an estimated \$500,000 price tag).

What is irrevocably preserved, however, whatever the result, is a sense of participation by community people in the actual *planning* — not just in discussions about it. Halprin's scoring, seen and discussed on the following pages, is an ingredient that could help make planning something done *with* the environment instead of a process that's done *to* it.

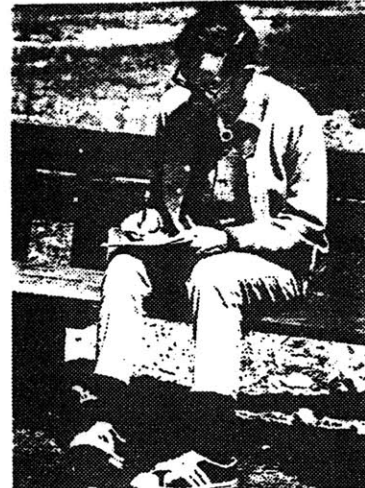
Figure 2.16: The Greenbrae Marsh Take Part Workshop

(SOURCE: Lawrence Halprin and Jim Burns, *Taking Part: A Workshop Approach to Collective Creativity*, 1974.)



Back at the college, everyone had time to turn his feelings into graphic renderings, then two minutes to explain them to the group. "To me, Marin is water," said college board member Frances Compton. "Water, trees and hills. This is the last vestige of what much of this area was like. You

used to be able to walk through it and feel like you were a hundred miles from a house. I'd like to see the whole area left open with some round, circular area built so that friends could gather and people could meet as a group."



Ring, who was struck by the serenity, wrote compendiously during the three hour tour. Out of it came items like a lot, fenced out with an open feeling, hopefully a canoe dock not far from the bridge -- that itself was still just a wish.



With the perspective of one another's graphics and ideas, the 35 were sent outdoors by Halprin where he had spread huge sheets of paper. "Go ahead and plan!" he told them. Somehow it happened. There were minor arguments, jokes, some differences, but the group moved ahead

together, decisions were made. At just the right moment, Halprin broke in. "Okay, I think we've succeeded and I personally feel the plan is done. I don't know whether you realize it, but you've designed this park."



Terrence Creighton jotted down detailed thoughts, as did others who gave Halprin such concrete thoughts as the necessity for a bridge to tie the creek into the park, a place where elderly people could play chess and checkers.

Figure 2.17: The Greenbrae Marsh Take Part Workshop

(SOURCE: Lawrence Halprin and Jim Burns, *Taking Part: A Workshop Approach to Collective Creativity*, 1974.)

Florida's east coast⁴⁸. The New England chapter of the AIA recently advertised a "future search" workshop, based in part on the Take Part process, for its October 1994 Annual meeting⁴⁹.

ECOLOGUE Method

The ECOLOGUE method was developed by Philip Herr, Stephen Carr, and their MIT colleagues in the early 1970s. The ECOLOGUE method grew out of a two-year research project funded by the U.S. Office of Health, Education, and Welfare, MIT, and the City of Cambridge. The research suppositions bear repeating:

First, effective participation in environmental planning depends on understanding and ability to communicate that understanding.

Second, residents are uniquely able to understand their own neighborhood in a way outside technicians never can, but they need an opportunity to analyze and objectify their own experience before being able to effectively communicate it.

Third, residents also need an opportunity to develop communications methods in idioms useful to political dialogue.

Fourth, passive reliance on voluntarism brings only selective participation, but a carefully designed active identification and recruitment program can greatly broaden the usual range of community participants.

Fifth, non-verbal techniques such as photo-reconnaissance and map-making can bridge differentials in participant skills and promote effective communication.

Sixth, carefully constructed processes can sufficiently engage interest that it is not necessary to use issues as a mobilizing device: issues can be allowed to grow out of rather than dictate the process.⁵⁰

⁴⁸ Sally Woodbridge, "Design by Community," *Landscape Architecture*, (1990), 81.

⁴⁹ Boston Society of Architects, "Planting the Seeds of Our New Profession/ The AIA New England 1994 Annual Meeting and Design Awards Program," brochure, 1994.

In the fall of 1971, a federal grant enabled the project team to test these assumptions in Cambridgeport, a working-class neighborhood in Cambridge, Massachusetts.

Participants were recruited by friends and neighbors in order to assemble homogeneous small groups. Some 80 participants were divided into 17 "affinity" groups that were representative of the diverse Cambridgeport neighborhood. By using "convenors" to recruit participants, the ECOLOGUE team was able to draw on neighborhood residents who might not ordinarily volunteer for community activities. Participants were paid small stipends for their time. Since the ECOLOGUE project, Herr has successfully used convenors in all types of communities to create affinity groups, without offering payment to convenors or to those they recruited.

The Cambridgeport residents met 14 times over a five-month period. The workshop sessions were as follows:⁵¹

1. **Orientation:** Project staff and all affinity groups meet together. Project team explained program's scope, ignited broad discussion to identify community problems. Participants were given cameras to photograph places they like, dislike, local problems, landmarks.

2. **Individual Discussions:** Project staff interviewed affinity group members individually to learn individual history, neighborhood experience, views of local problems and change, and experience outside the neighborhood. Individual participants drew a map of most frequently used or most important neighborhood places.

3. **Discussion Review:** Staff promoted affinity group discussion of similarities and divergences between individual views within affinity groups. Individuals drew a map or picture of an ideal neighborhood.

⁵⁰ Philip Herr et al., Ecologue/Cambridgeport Project Final Report, (U.S. Department of Health, Education and Welfare, 1972), 1.

⁵¹ The workshop session descriptions are abstracted from Ecologue/Cambridgeport Project Final Report, 5-9.

4. **Individual Neighborhood Photo Map:** Individuals created their own neighborhood photo map using the photos they took between Sessions 1 and 4. The photos were color-coded to indicate how often the places were used or visited by the participant, and whether he liked or disliked the place. Each place was numbered, and a key provided additional data, e.g. name, accessibility, and so on.

5. **Group Review of Individual Ideas:** Affinity groups discussed individual maps and began summarizing an affinity group position.

6. **Group Ideas for a Group Neighborhood:** Staff prepared a list of all individual ideas and opinions based on all previous work. Participants reviewed list and then ranked each item for its relative importance or priority. The staff aggregated individual rankings and created a master list showing affinity group's overall position on assumptions about the neighborhood, positive aspects of neighborhood, neighborhood problems, and local environmental goals.

7. **Preparation for Ideal Map:** Prior to the meeting, staff has summed the individual photo maps and created a tentative "group turf map" for each affinity group. The affinity group reviewed and amended the turf map, and revised its list from Session 6.

8. **Group Ideal Neighborhood Photo Map:** Affinity groups created their ideal neighborhood map by collaging photos, drawings, magazine pictures, cartoons. They annotated and color-coded important places according to the group's ranking.

9. **Open House:** Staff prepared a display of all 17 affinity groups' documents: the turf map, ranked problems and goals, and the group ideal neighborhood map. All affinity groups met at same space (the first time since session 1) to review each others' work. Each affinity group selected two others, one similar and one dissimilar, to meet with at the next two sessions.

10 and 11: **Intergroup Meetings:** Affinity groups met with their chosen similar and dissimilar groups to discuss their views.

12: **Gaming Session:** Affinity groups met in clusters of four or five groups to set priorities for environmental problems and goals. They each selected their ten top goals, then traded and negotiated "resources" with other groups.

13: **Mass Meeting:** All affinity groups met to discuss priorities found across groups, and to discuss possible community actions.

14: **Discussion of Program Continuation:** participants evaluated ECOLOGUE program, and discussed which if any environmental projects they wanted to work on.

Since the Cambridgeport project, Herr has managed to distill the extensive ECOLOGUE method into a set of techniques that works with volunteers under much greater time constraints. In a recent paper, "The Art of Swamp Yankee Planning," Herr outlines the ECOLOGUE workshop method.⁵² He advises that the method is most suited to communities contemplating a broad planning program, rather than to communities facing a single polarizing issue, such as casino gambling. The method described in the following paragraphs assumes that the planner is from outside the community, and that he is working for a small city or town.

The first step is to organize the affinity groups. Herr recommends groups averaging five to six members, and limiting the total number of groups to 10. Within these constraints, convenors should be recruited and asked to assemble their affinity groups. Affinity groups should represent the diversity of the community to the greatest extent possible, and the individuals recruited should generally not be the normal "official" community leaders. The planner, in consultation with the client organization, will determine the critical affinity groupings, such as race, age, sex, tenure, and income.

The second step is to hold a mass meeting to explain the goals of the process, the workshop schedule, compensation (reimbursements, in-kind donations, or the lack thereof), and the consequences of the meeting for the community. After the briefing, individual affinity groups should begin working together at this general meeting.

⁵² Philip Herr, "The Art of Swamp Yankee Planning," unpublished paper, 1993.

The third step is the separate affinity group meetings. Although the groups can complete their work in an evening, two or three sessions are recommended. Some enthusiastic groups may elect to add work sessions.

Each affinity group is provided with a set of base maps and a set of thick felt-tipped pens. Utilizing these large wall maps of their community, they will perform the following exercises:

Introductions: Each group member in turn should "sign-in" on the map where they live, introducing themselves with a few comments....

Events: Record on that same map the recent events which are related to the planning effort, such as an important rezoning, a singular recent building, or an area undergoing rapid change....

Good/Bad: On a second map, group members should take turns indicating what things each thinks are good (in green) or bad (in red) about the town. These can be places or relationships of the kind a map can show, or...such things as taxes. Just use the map and its borders as a poster in such event...

Utopia: On a third map, each group should indicate how the town would be if that group could make all the decisions without worrying about other groups' interests, or legal, political, or economic constraints....

Actions: On a fourth map, indicate the actions the group realistically thinks the town should take over the next half-dozen years with regard to guiding development, this time taking into account the realities of law, finance, and other people's interests. What actions should be taken to change zoning, to acquire property, ...to raise revenue, to develop facilities, or even to study, plan, or educate people?⁵³

The fourth step is for all the affinity groups to display their work at a mass meeting (Figure 2.18). The fifth and final step is a mass meeting at which the affinity groups work together to develop concurrence. A master list, and perhaps a map, of the entire workshop's priorities is drawn up during this final session. This product should be the basis for further citizen involvement.

⁵³ Philip Herr, "The Art of Swamp Yankee Planning", Unpublished paper, September 1993, 19-21.

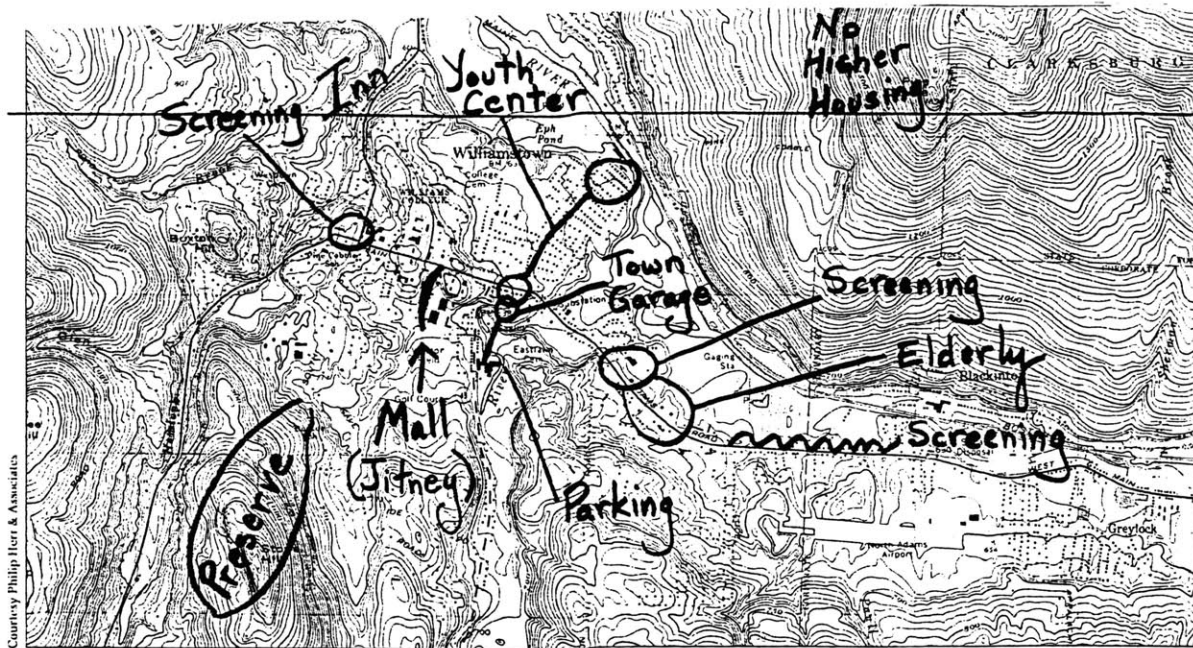


Figure 2.18: Williamstown Utopia Map

(SOURCE: Philip Herr, "Williamstown Updated," in *Planning*, May 1993.)

Comparing the Ecologue and Take Part Workshops

A comparison of the Ecologue and Take Part methods illuminate the major advantages of these complex workshop techniques for participatory planning. The Ecologue method, like the Take Part method, starts with the premise that citizens should surface their own issues, rather than choose from a preliminary issues list drawn up by planners. In both methods, citizens identify the problem or problems and work through them in groups. This should lead to greater satisfaction with the results of the participatory process.

Unlike the more free-form Take Part workshop format, the Ecologue workshop format is structured to build consensus from the beginning. Less time and emphasis is allocated to individual environmental inventories or experiences in the Ecologue workshops, which

may affect the range of design alternatives generated during the brainstorming exercises. However, the more structured Ecologue group processes seem more likely to result in a clear set of planning priorities by the end of the workshops.

Both workshop methods are designed to be enjoyable: Ecologue workshop groups depend on existing friendships to lure participation without sacrificing representativeness, whereas Take Part workshops depend on participants' willingness to share the whole adventure with a heterogeneous group of strangers. Both encourage dialogue between different segments of the community, and downplay the interaction with planners. Planners "lead from the side"⁵⁴ and thus take a back seat, in the same way they do in focus groups. The planners will guide the process, but not the results. The planners will also serve as technical resources, to the extent that they present informational briefings or make themselves available during the small-group exercises.

Both workshop methods are expensive, for the same reasons that workshops are generally an expensive participatory technique. They require highly skilled workshop leaders to plan, run, and record the workshops. In group problem solving, an impartial and complete record helps the group keep track of its discussion. The recording function can be done by a workshop participant who is willing to forgo some direct participation, or by a member of the process team. Recording may be in the form of handwritten notes, tape recordings, video. The documentation of all the workshop discussions and activities becomes a resource, both during the workshop and afterwards. In both methods, trained volunteers and written instructions help minimize staffing costs.

⁵⁴ Philip Herr, "The Art of Swamp Yankee Planning", Unpublished paper, September 1993, 1.

If meeting spaces are donated, the supplies and incidental meeting costs should be minor. Perhaps to keep costs low for small towns, Herr makes no mention of the photo exercises that were an essential part of the original Ecologue method. This seems a loss, as the photographs could bring a richness and precision to the individual and group maps. If time allows, it would seem advantageous to enhance the individual and group exercises with whatever media the budget permits.

Given the usual cost and time constraints, there may be ways that Ecologue or Take Part workshops can benefit from certain recent technological innovations, such as meeting support software, interactive video software, and hypermedia. In the next chapter, I will outline some of the possibilities.

Summary

In this survey of participatory methods, I have shown the range of techniques available in the contemporary planner's toolkit. Public hearings, advisory boards, surveys, and five workshop types (focus groups, charrettes, simulation games, Take Part and Ecologue) were illustrated and analyzed in terms of the criteria listed in Chapter 1. All of these techniques have pros and cons, but each could be enhanced by information technology. In the next chapter, I will discuss some of the more intriguing uses of the technology and where I think information technology might best be applied to address the gaps in participatory techniques.

3 Information Technology

Introduction

I will now shift the focus from the past to the future. New ways of handling information are transforming planning and design, and a rudimentary computer literacy is required for environmental design professionals. I will define these new technologies and illustrate how they are transforming traditional planning and design practice.

Innovative practitioners and researchers have begun to employ information technologies to enhance citizen participation. Although there are many new information technologies available now to environmental designers, I will focus on a few examples that take advantage of hypermedia to enhance citizen involvement in the planning process.

Defining Information Technology

The term "information technology" (IT) commonly refers to computer hardware, software, and the network of telephone cables and lines that have been dubbed the "Information Highway," although one could add any medium--including pencil and paper--that assists data storage, retrieval and communication. As used here, the definition encompasses computer-based technologies, from simple word-processing software to the Information Highway.

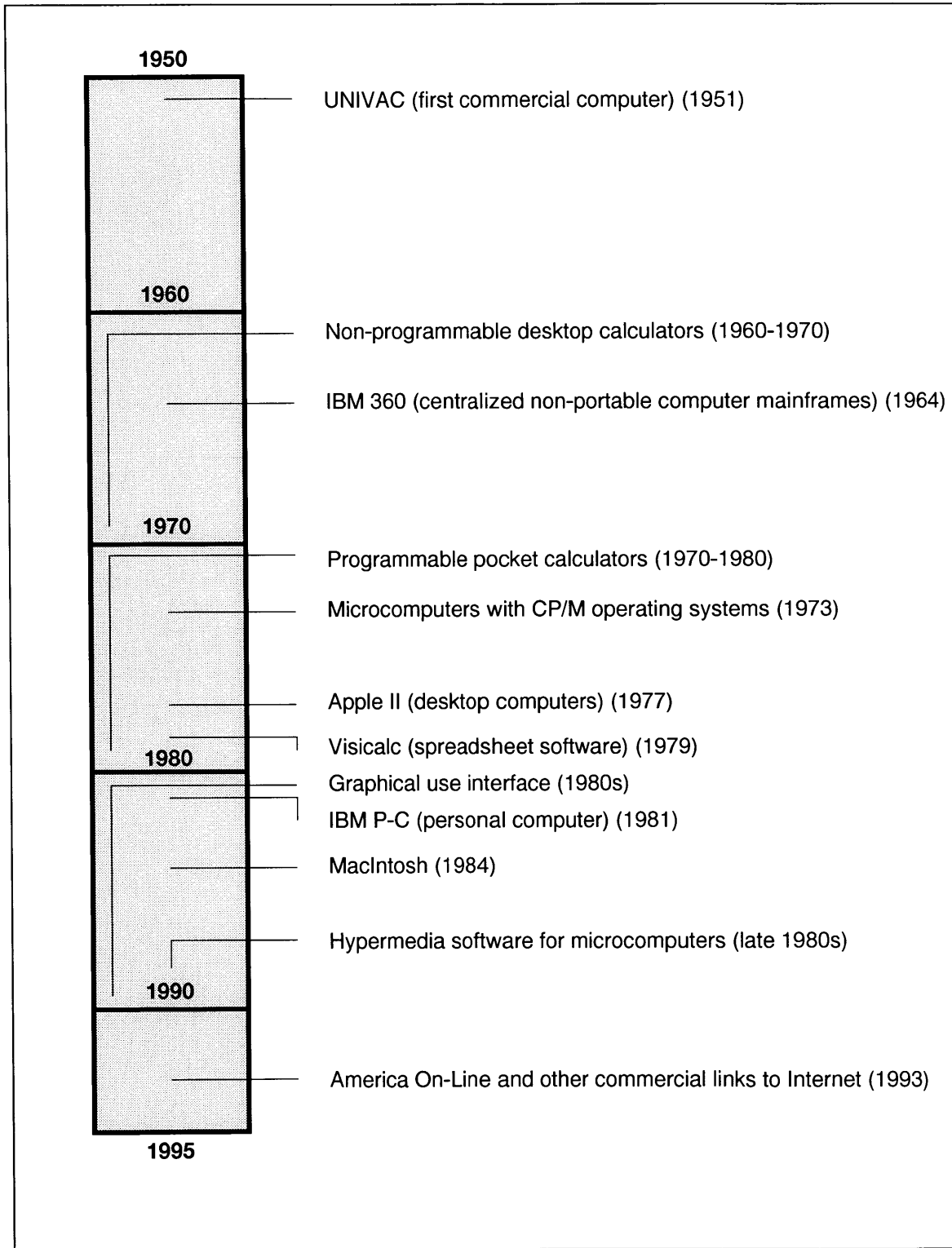


Figure 3.1: Information technology benchmarks

(SOURCE: Adapted from Pedro Ferraz de Abreu, "The Bertaud Model: A Two-Way Mirror on the Evolution of Information Technology's Impact on Low Income Housing," 1993.)

Evolving Hardware

Digital computer histories⁵⁵ generally begin with ENIAC, the vacuum-tube computer developed at the University of Pennsylvania for data processing in the 1940s. Early computers filled whole rooms, and it was not until 1977 that the first widely available stand-alone computer (microcomputer), the Apple II, became widely available. The timeline (Figure 3.1) shows some IT benchmarks. Joseph Ferreira, an IT researcher and planning professor at MIT, speculates that because big business and defense subsidized early IT research, there was little interest in promoting wider access.⁵⁶ Thus, the small business and personal computer market did not develop until innovative software, such as the Visicalc spreadsheet, compelled manufacturers to take notice of this untapped market in 1979. Hardware and software innovations followed rapidly during the 1980s and 1990s.

Today, a small business or individual consumer can obtain almost the same computing power as the largest corporations. The rate of change is so great that one can often buy twice as much for half the price in a year's time; e.g., one could buy an 80-megabyte hard drive in 1993 for the same price paid in 1992 for a 40-megabyte hard drive. Not only has digital storage increased geometrically but the processing speeds have as well. As microchips, a critical component of computers, get smaller, memory and processing speed should continue to increase. Smaller microchips have translated into smaller computers, and thus lightweight portable computers -- "laptops" -- now fit inside a briefcase.

⁵⁵ This history is based on a presentation by Professor Joseph Ferreira, Jr. and Michael Shiffer, MIT, September 16, 1993.

⁵⁶ *Ibid.*

The "mouse", which had originally been developed by Douglas Engelhart in the 1960s, was introduced to the commercial market in the mid-1980s. It allowed users to access programs by pressing a device that mimics the action of pointing a finger at the computer monitor. The advent of the mouse in the mid-1980s was the beginning of truly accessible ("user-friendly") software; no longer did one have to memorize and type in long commands simply to start up a program. Instead, the mouse, pointing at a graphic symbol, or "icon", is used to operate a program. In most popular software, the mouse is also used to cut and paste text, combine files, draw lines, and move around inside the file.

Evolving Software

Programming advances that took advantage of the mouse made it possible for many applications to share a common graphical user interface (GUI)-- Windows, or the similar Macintosh computer GUI--that standardizes the icons and menus for word processing, spreadsheet, graphics, and database programs. These icons make computers seem more "interactive" to the nonprogrammer. Interactivity can be defined as "the ability to determine in which direction or in what depth to pursue an idea, and the ability to engage in dialog."⁵⁷ Interactivity makes it possible to use software in a nonlinear manner, without memorizing commands.

The standardization of basic commands has made it easier to use different types of programs, and thus it is easier for the user to access different types of data, such as statistical and cartographic data. Advances in programming have also made it easier to

⁵⁷ Charles Kindleberger, "Multimedia--The Next Big Wave", Journal of Urban and Regional Information Systems Association 5, No..1, (Spring 1993), 122.

directly link various types of data. One can, for example, update census statistics in a spreadsheet program and have these changes flow through to a report created in a word-processing program.

Hypermedia

A number of popular programs now enable the user to combine various output media-- video, text, statistical graphics--in a single software application. There are three common terms for these integrated programs. "Multimedia" is software that enables one to combine text, graphics, sound, databases, animation, and videos in a single program and play them back together. Beyond multimedia is "interactive multimedia" or "hypermedia." Researchers Michael Shiffer and Lyna Wiggins defined hypermedia for planners in a 1990 review:

Hypermedia, also known as interactive multimedia, allows one to combine interactive video, maps, animation, text, graphics, sound and statistical data in a non-linear format. Until recently, most information has been organized for retrieval from a computer in a linear fashion, that is, in a set sequence. Hypermedia differs from traditional paper documents and databases by allowing the user to move immediately from one piece of information to associated information, typically by the simple click of a button.

A useful analogy to draw when comparing hypermedia tools to conventional databases is the difference between an encyclopedia and a phone book. Most databases work like phone books in that they can be used to retrieve specific information pertaining to a particular case, such as the address and phone number of the closest hobby shop, or a set of cases, such as the phone numbers for all the hobby shops in town. Hypermedia systems, on the other hand, work like encyclopedias in that they offer a description of what a hobby shop is, and allow the user to follow an associative path that may go from discussions about hobby shops to model trains to railroads to trolleys to streetcar suburbs. That is,

hypermedia differs from traditional databases in providing a nonlinear format that allows for a non-sequential presentation of ideas.⁵⁸

Figure 3.2 shows the evolution of applications related to hypermedia. These programs, especially geographic information systems (GIS) and computer-aided design (CAD) programs, have transformed environmental design.

The Internet

While IT historians may characterize the 1980s as the era of the mouse, the 1990s is likely to be known for the arrival of the Internet--the existing Information Highway--in America's living rooms. The Internet is the global network of other networks, founded by the U.S. military 25 years ago to safeguard major computing centers in the event of nuclear attack. Internet access was generally limited until fairly recently to the military, other large government agencies, universities, and large corporations. One needed a password to get in and a working knowledge of the specialized UNIX operating system commands to navigate through the Internet.

In the past year, the Internet became available to anyone willing to pay \$10 to \$30 a month for an account with one of the commercial services that provide Internet access. The large commercial services--America On-Line, Delphi--bundle Internet access with their own electronic mail ("e-mail") and various other information retrieval and communication services. America On-Line opened the Internet to its one million-plus

⁵⁸ Lyna L. Wiggins and Michael J. Shiffer, "Planning with Hypermedia: Combining Text, Graphics, Sound and Video," Journal of the American Planning Association 56 (Spring 1990), 227.

users last year. Six months ago, an estimated 30 million users, in 71 countries, were regularly on the Internet, and the current growth rate is estimated at 10% per month.⁵⁹

The expansion of Internet access to the general public has great repercussions for planning. Internet access enables a stand-alone computer to communicate with any other computer on the Internet. This "platform independence" allows microcomputer users to obtain applications and download data from a multitude of sources, using a modem and an ordinary touch-tone telephone line. Thus, a Californian concerned with toxic waste dumps could research federal libraries, "talk" to other environmentalists on the East Coast on a dedicated national bulletin board, and get the latest New York Times stories, all from the comfort of her living room. She might then download presentation software and census data to create a multimedia display for the next town meeting. The completed multimedia presentation could also go out over the Internet to other environmentalists. At this juncture, the example just described takes a fair amount of skill, but the commercial user interfaces are starting to make it easy to execute most of the tasks listed. The Internet multimedia software tools are still in their adolescence, but Internet multimedia software will most likely become simpler to use and less expensive as the consumer market grows. Thus, planning and design practices will continue to be strongly influenced by the opening of the Internet gates.

⁵⁹ Dr. Greg Parham, U.S. Department of Agriculture, conference presentation, "New Technologies Workshop and Training Session," Massachusetts Institute of Technology, July 9, 1994.

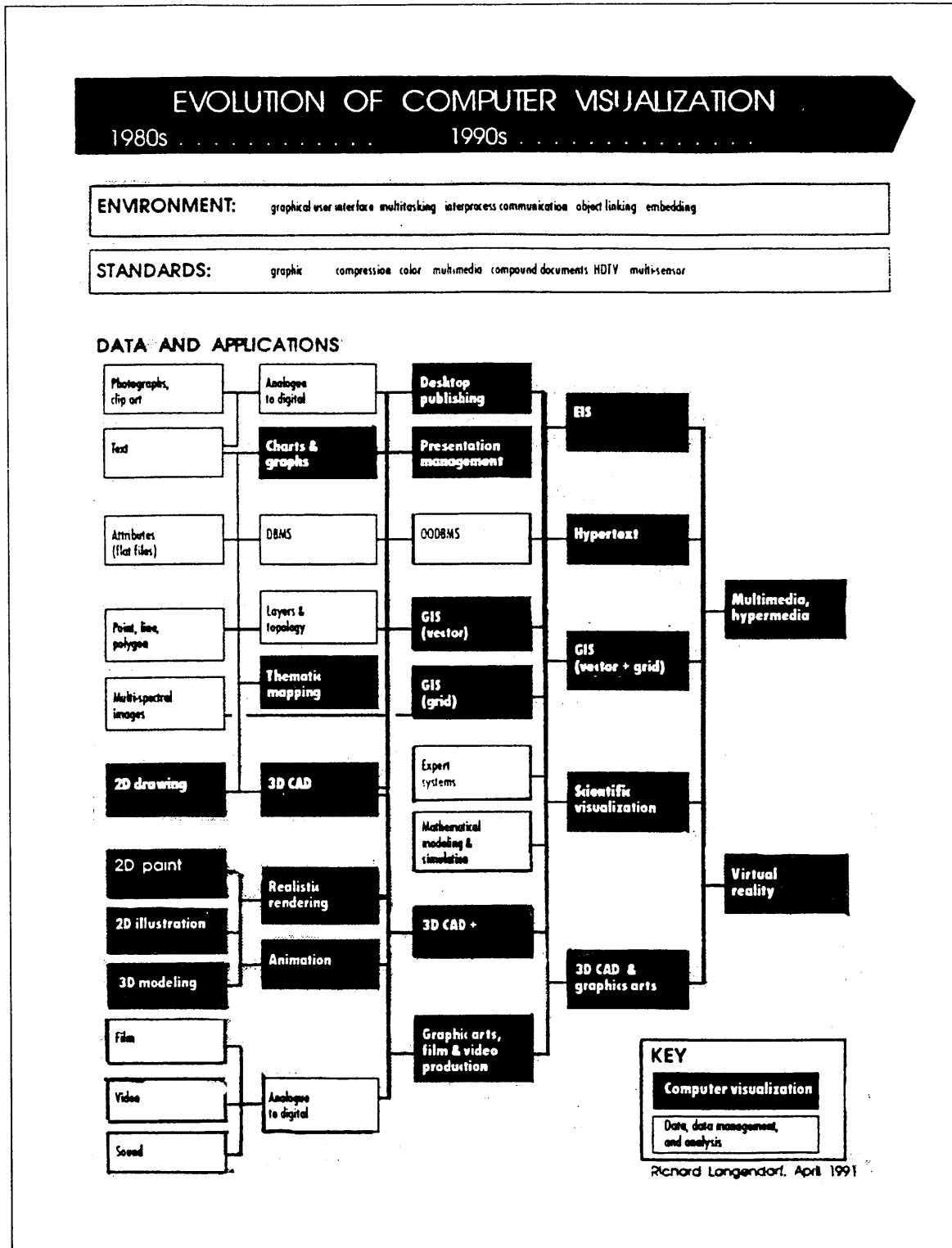


Figure 3.2: Evolution of visualization software

(SOURCE: R. Langendorf, "The 1990s: Information Systems and Computer Visualization for Urban Design, Planning and Management," in *Environment and Planning B*, Volume 19, 1992.)

Changes in Planning and Design Practice

In this section I will identify some innovative approaches that indicate how IT will be widely used in the near future. First, however, I will provide a brief history of computer technology in planning and design.

Richard Klosterman, in his history of computer technology in planning practice and research, characterizes planners' current fascination with computer technology as a revival of a long-lost passion⁶⁰. Planners had embraced computer technology in the early 1960s. They used computers primarily to create models of complex urban processes, e.g., transportation, or to test public policy outcomes. By the 1970s, many planners had grown disenchanted with these models, as they rarely proved useful in day-to-day planning practice. Furthermore, many believed that the computer models were symptomatic of a "rational planning" philosophy, and this led a substantial number to shun computer technology. Still, planning academics and transportation planners continued to utilize computers for modeling. Some local agencies did take advantage of mainframe computers to maintain their statistical databases, but most local agencies did not use computers, because of cost constraints and lack of interest.

By the early 1990s, this situation had reversed. Planners had rediscovered the possibilities of computer technology. In his literature review, Klosterman found:

These surveys reveal that planners' use of microcomputers is now very broad but shallow; that is, many planners are now using microcomputers, but they primarily use only general-purpose word processing, spreadsheet modeling, and database management software to process

⁶⁰ Richard Klosterman, "Evolving Views of Computer-Aided Planning," *Journal of Planning Literature* 6, No. 3 (February 1992): 249-260.

documents and maintain administrative records. These tools have proven very useful for improving the content, appearance, and timeliness of professional reports and for increasing efficiency in the areas of internal administration, code enforcement, and external liaison.⁶¹

Geographic information systems (GIS) are an exception to this. GIS software is more than an automated cartographic technique; by atomizing spatial data, GIS enables the user to analyze the data and map the results. Planners have wholeheartedly embraced GIS and are adapting GIS programs for specific planning purposes. GIS programs have been available since the late 1960s, but only in the past three to five years have they become more widely accessible. As Ginger Juhl reported recently in Landscape Architecture,

Little more than 5 years ago, implementing a GIS required an investment of at least \$20,000 and considerable computer literacy. Today, GIS has migrated to smaller and smaller machines with ever-increasing processing power and ever-decreasing costs. The amount of processing power that can be purchased for a constant amount has doubled every two years. The interface between the computer and the user has become so simplified that virtually anyone can operate a GIS with minimum training. According to Mullen (Steve Mullen, of the Design Workshop), a trainee can learn to manipulate an existing GIS database in a matter of three days to a week. Creating a database from diverse data sets requires a much longer learning period.⁶²

In 1992, Juhl reported that more than half of all the urban and regional planning agencies in North America had adopted GIS. Many planners said they had learned GIS on the job, although younger entry-level planners learned GIS as part of their planning education. Entry-level planners with strong GIS skills can command higher starting salaries.⁶³

⁶¹ Ibid., 251.

⁶² Ginger M. Juhl, "GIS Redefines Mapping and Master Planning," Landscape Architecture 84, No.6 (June 1994), 49.

⁶³ Ginger M. Juhl, "Getting on the GIS Career Track," Planning (July 1994):8-9.

Juhl illustrated why GIS skills are so critical in her report on The Design Workshop's (DW) Flathead County, Montana Project. GIS enabled DW to accomplish tasks that would have been prohibitively expensive, if not impossible, without GIS. Steve Mullen told Juhl that a single GIS workstation could do the work of several landscape architects, because tasks could be condensed by several orders of magnitude. This exponential increase in speed made it possible for DW to produce a master plan for the 3.4-million-acre county in one year.

GIS not only makes compiling spatial data faster and cheaper, it also enables the user to perform tasks that are difficult or impossible to do manually. Juhl lists some of these functions:

Map generalization resolves inconsistencies in map scale when maps from different sources are combined.

Polygon overlay allows two or more maps to be composited (overlaid) to create ad hoc maps, or to extract data from maps to create new data sets.

Buffer analysis allows buffer zones of any distance to be created from a specific point, line, or polygon. A buffer is often used in designating protection areas and significant ecological areas.

Each function is valuable in and of itself, but even greater value is realized through the system's capacity to combine functions.... Any point in the county can now become an index to an unlimited set of information about the land and demographics associated with that point and the land surrounding it.⁶⁴

⁶⁴Ginger M. Juhl, "GIS Redefines Mapping and Master Planning," Landscape Architecture 84, No. 6 (June 1994), 47.

GIS is potentially a better design technique for spatial analyses, because with GIS one can accomplish more complex analyses and thus generate a wider range of alternatives. GIS improves the environmental design process stages of inventorying, generating alternatives, and evaluating alternatives.

Designers, like planners, have wholeheartedly adopted software that replaces or enhances manual skills. Microcomputer CAD programs now have the capacity to do three-dimensional as well as two-dimensional rendering. CAD skills, like GIS skills, have been learned on the job by established designers and within the context of a professional education for younger designers. CAD skills are expected for most entry-level architecture jobs.

At the 1994 American Planning Association Conference, various practitioners and educators presented projects that employed the most current computer visualization capabilities for environmental design. Diana Salazar of San Jose State University traced the evolutionary path of environmental simulations beginning with Renaissance perspective principles, through the Berkeley Environmental Simulation Laboratory, and ending with the most current computer visualization techniques.⁶⁵

The Berkeley Environmental Simulation Laboratory pioneered the use of video for environmental simulations in the 1970s.⁶⁶ The laboratory created three-dimensional scale models of actual environments and placed a remotely controlled viewing device at

⁶⁵ Diana Salazar, "Computer Visualization" session, American Planning Association 1994 Conference, audio tape.

⁶⁶ The reader is referred to Peter Bosselman and Kenneth Craik, "Perceptual Simulations of Environments," Working Paper no. 444, Institute of Urban and Regional Development, University of California, Berkeley, October 1985, for a fuller description of this important simulation laboratory.

eye level inside the model. A viewer could guide the attachment through the three-dimensional scale model so that it simulated a walk or drive through the actual environment. Developers could insert models of proposed projects to test the street-level view. These simulated trips could be photographed, filmed, or videotaped. The laboratory also had the capacity to project the video trips as they took place to a larger audience.

Unlike the original Berkeley simulator, computer environmental simulations now enable the designer to add a temporal dimension. Salazar's own work utilizes state-of-the-art CAD and computer graphics programs to produce an environmental simulation. She was able to show the San Jose City Council how a proposed highway redevelopment project would look at different stages in the development process, at different times of day, and at different seasons. Her work shows how computer environmental simulations improve the traditional three-dimensional models: they add the fourth dimension.⁶⁷

Thus, computer-aided visualizations can make development proposals more compelling in a public presentation, which is not necessarily desirable. Just as designers have traditionally deployed elaborate watercolor renderings and three-dimensional wooden models to sway public opinion, we can expect elaborate computer visualizations to be used in a similar manner for public hearings and design review meetings.

⁶⁷ I was unable to attend the conference, and thus this description is based on the audio record, as are the other American Planning Association Conference references.

The Use of Hypermedia in Environmental Design

In the sections that follow, several different approaches to hypermedia will be described. First, the approaches of two designers, Gregory Rossel and Keller Easterling, who take somewhat opposite approaches to the use of hypermedia will be discussed. Both Rossel and Easterling emphasize the visual capabilities of hypermedia, and use these capabilities to create electronic pattern books for professional designers.

Some environmental designers and researchers are beginning to explore the use of hypermedia to enhance public involvement. The innovative work of three researchers-- Barbara Barros, Michael Shiffer, and Glorianna Davenport--representing three different approaches will be analyzed. Their work suggests how hypermedia can extend the effectiveness of the participation techniques described in Chapter 2.

Gregory Rossel's Visual Environmental Review Prototype

At MIT, researcher Gregory Rossel has used hypermedia to create a more interactive environmental simulation.⁶⁸ His "Visual Environmental Review" (VER) prototype uses hypermedia to integrate computer-aided visualization, GIS, and other programs to aid development review. As a case study, Rossel examined how a federal agency, the National Capital Planning Commission (NCPC), handled development review. The NCPC examines several hundred proposals each year, and over the past three years it has invested in a highly skilled IT staff and the latest hardware and software to expedite the proposal review process.

⁶⁸ Gregory Rossel, "Technical Augmentation of Visual Environmental Review in the Planning Process," (Masters Thesis, MIT, 1994). Rossel's research is part of a larger ongoing M.I.T. research program into the application of IT to NCPC's development review process.

After he observed the NCPC Commissioners at a development review meeting, observed NCPC planners at work, and studied a project under review, Rossel created the VER prototype. At the NCPC Commissioners' monthly meeting, Rossel had observed several problems with the visual presentations and discussion of development proposals. These difficulties frequently occur at public hearings and large group meetings: equipment failure and inadequacies, illegible graphics, poor visibility of three-dimensional models, difficulties with reordering the sequence of a visual presentation, and the inability to reference or cross-reference visual information presented in a linear format (such as a slide show).⁶⁹

Rossel's VER prototype addresses how visual information is referenced during a public meeting, although he indirectly addressed the other difficulties noted above. His prototype organizes visual information--site plans, color photographs, slides, topographical maps, artist's renderings, etc.--by geographic location and by topic. By converting (digitizing) visual information into a standard format, the NCPC Commissioners and planners can easily reference this data during a meeting. The geographic locations would be GIS data points, and the topical visual information would be linked to these points through a hypermedia program. Standard topical information might include aerial photographs, 360- and 180-degree views of the development site, a view of the surrounding neighborhood, time of year, site plans at a standard scale, CAD renderings of the proposed project. Once the planners load visual data for projects into the VER, they can reference and cross-reference development proposals in a non-

⁶⁹ *Ibid.*, 101.

sequential manner. They might, for example, call up all the 360-degree views on Pennsylvania Avenue between 10th and 22nd streets, or reference all unbuilt projects approved after an important zoning law was passed.

Rossel was to some degree successful in developing a prototype for an interactive visual referencing system. While he was unable to link all the individual visual data to a GIS program, he did create a partial model of a VER using the Internet hypermedia program MOSAIC. His prototype demonstrates not only how IT can facilitate formal presentations but also how such information can be shared before, during, and after those presentations using the Internet.

Rossel's NCPD prototype VER requires a fairly high level of skill and extensive equipment to set up and maintain the database. While a large government agency may support such a system for its own design review, a VER is a long way from being a participatory design tool. Even a fully loaded VER, as described by Rossel, would be at best a local pattern book or encyclopedia for design review. Because of its complexity, and the need to safeguard data, planners are unlikely to permit citizens to enter data into the VER. Once the VER is set up, planners will be loath to add the topical reference categories that persons outside their agency might want, and so, at best, one might expect that citizens will be allowed to make only simple queries over the Internet.

Keller Easterling's American Town Plans

At the other extreme from Rossel's proposed VER, Keller Easterling's American Town Plans: A Comparative Time Line is a working model of a simpler hypermedia approach that might be adapted for participatory design purposes. Keller Easterling has created a

book and a Hypercard stack of American town plans spanning American city planning history from St. Augustine, Florida (1565), to Peter Calthorpe's pedestrian pockets (1987).⁷⁰ Town plans have been redrawn to the same scale--the American section and acre-- so that one can easily compare, say, Seaside, Florida, with tiny Pullman, Illinois, or with a section of the huge Sun City, Arizona, development. In the book, Easterling has arranged the town plans in three graphic sequences: chronological (Figure 3.3), a comparison of details at the one-acre scale (Figure 3.4) and comparisons of relative scale (Figure 3.5). A standard text timeline is also provided. The Hypercard stack allows one to move through the sequences described above, but the medium allows one to do more with the same information: the user can also reorder the plans by state, alphabetically, or chronologically. The user can overlay the scales on individual maps (Figure 3.6), or press the buttons accompanying each map to learn more about the founders, transportation system, or plan type. Easterling's program takes advantage of the Hypercard's program menus, which permit users to print out individual screen displays.

Easterling's elegant program demonstrates how many environmental designers seem predisposed to use hypermedia technology. The program is a pattern book, a friendly source book that invites the novice to explore American city planning history.

Easterling, perhaps because she was aiming for the educational market (*American Town Plans* retails for \$20.00) missed the hypermedia mark in two important respects. First, she did not exploit the multimedia possibilities of Hypercard, e.g., there are no

⁷⁰ Hypercard is a hypermedia computer program published by Apple Corporation. Program users can use the Hypercard program to create custom files called "stacks". Easterling's Hypercard stack is published on a single diskette and bundled with the book.

color photos keyed to the maps, no audio clips of Walt Disney accompanying the Magic Kingdom map, and no video clips of Seaside. Second, her Hypercard stack allows one to make queries in a few categories, but allows little manipulation of the visual data without doing damage to the original stack.

Nonetheless, her stack design suggests how simple hypermedia programs could serve as a participatory design tool. One approach would be to take the American Town Plans format and apply it to town plans and subdivisions for smaller regions. For example, a Massachusetts region stack would enable a resident of Brookline to compare that town with Newton through a simple map overlay menu. One would be able to make comparisons and cross-reference urban design details, such as street widths, or test topological relationships. Census data and other commonly used planning information might be included, so that a user could not only reference cities of a certain age, but also cities of a certain population size or those with decentralized business districts. Black-and-white photographs, newspaper articles, perspective drawings, and other black-and-white graphics could be added at relatively low cost.

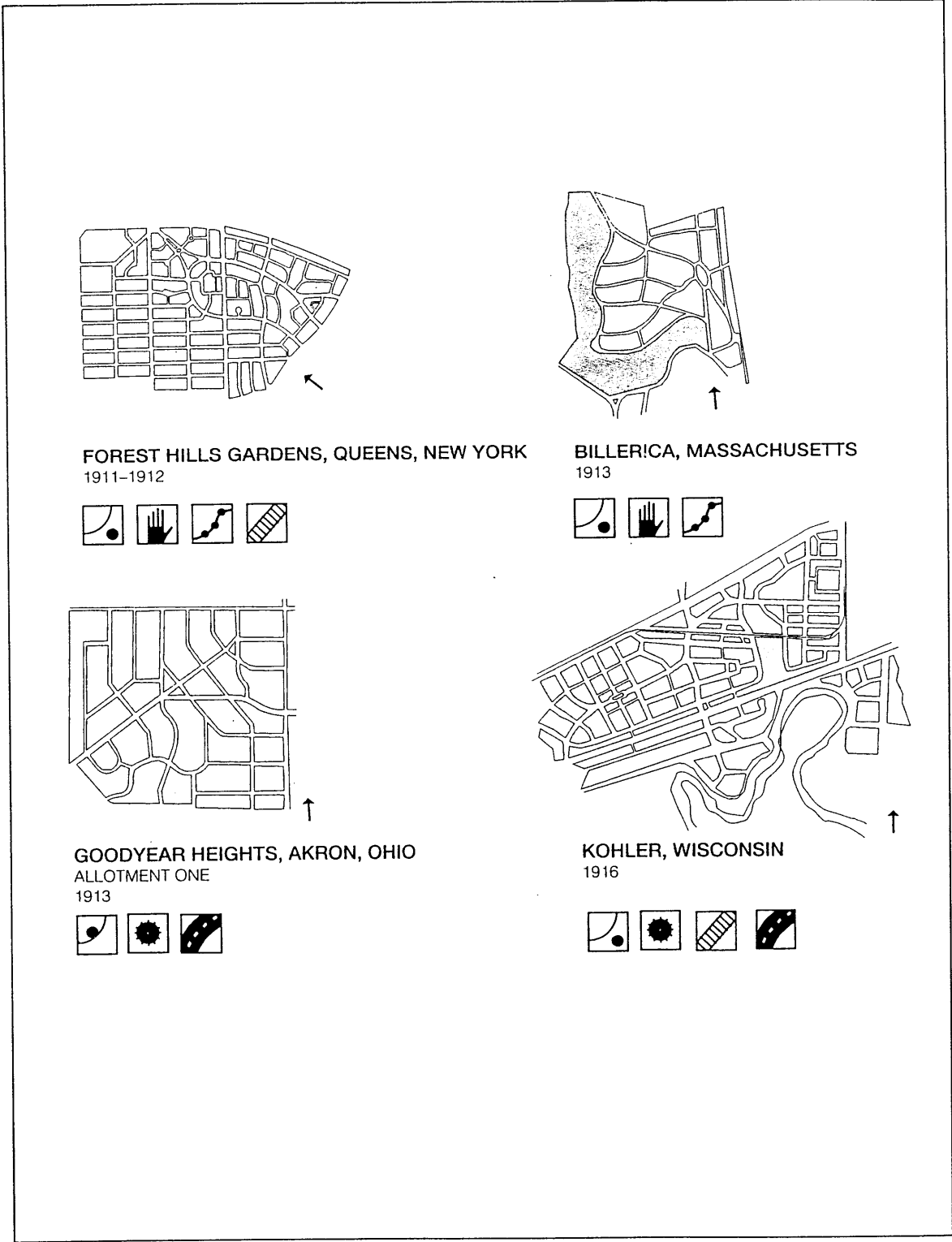


Figure 3.3: Chronological comparison of town plans
 (SOURCE: Keller Easterling, *American Town Plans A Comparative Time Line*, 1993.)

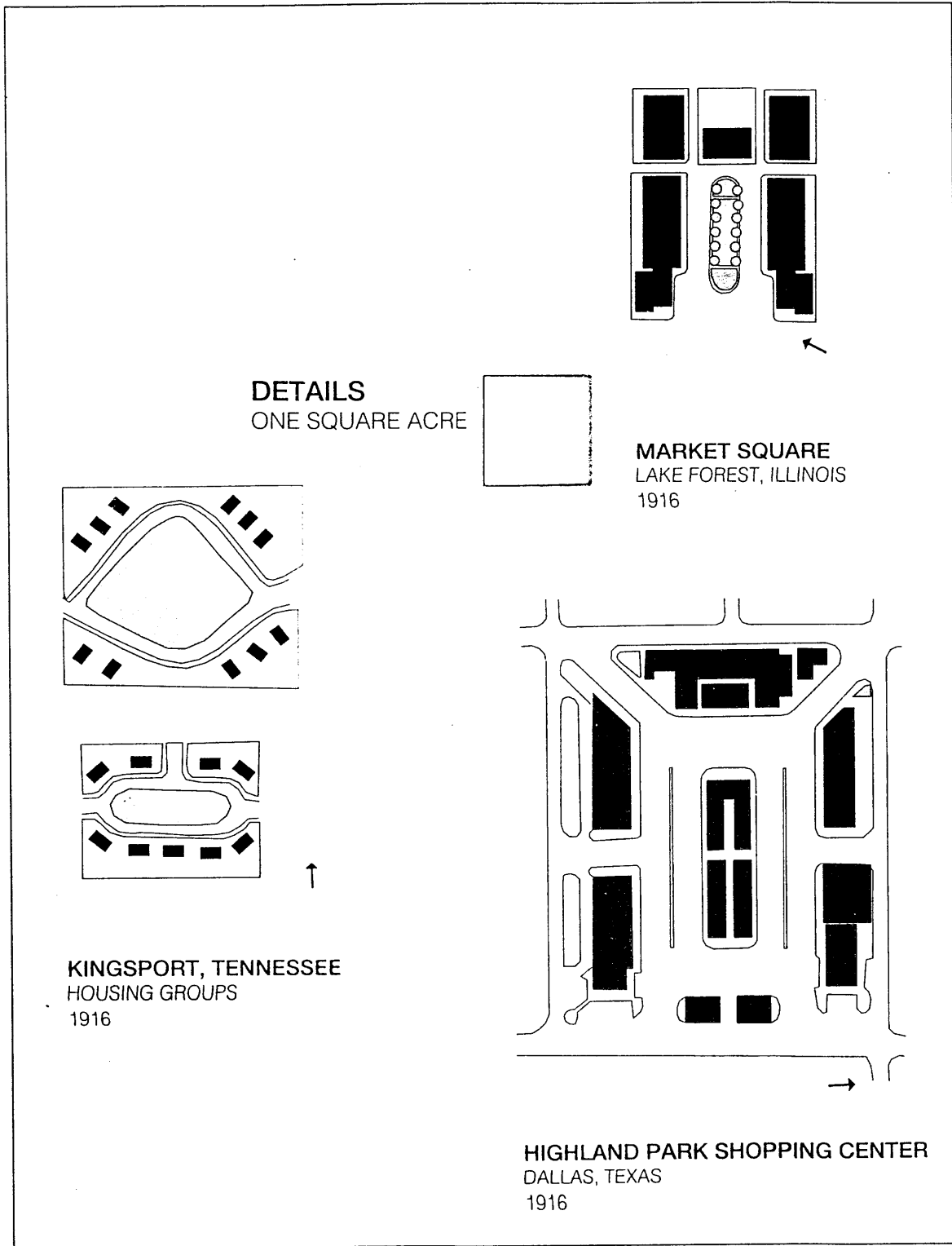


Figure 3.4: One acre scale comparisons of town plans

(SOURCE: Keller Easterling, *American Town Plans A Comparative Time Line*, 1993.)

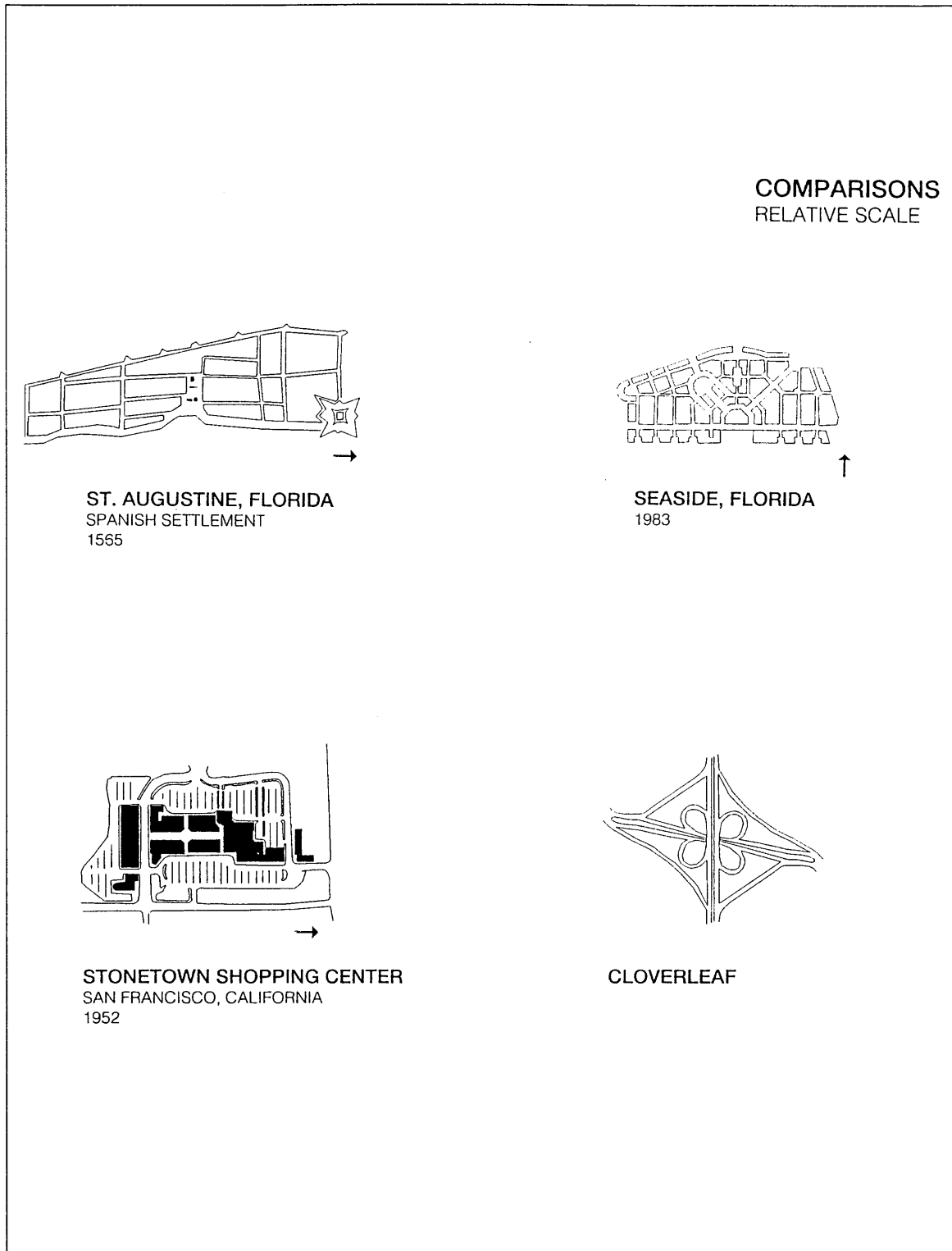


Figure 3.5: Relative scale comparisons of town plans

(SOURCE: Keller Easterling, *American Town Plans A Comparative Time Line*, 1993.)

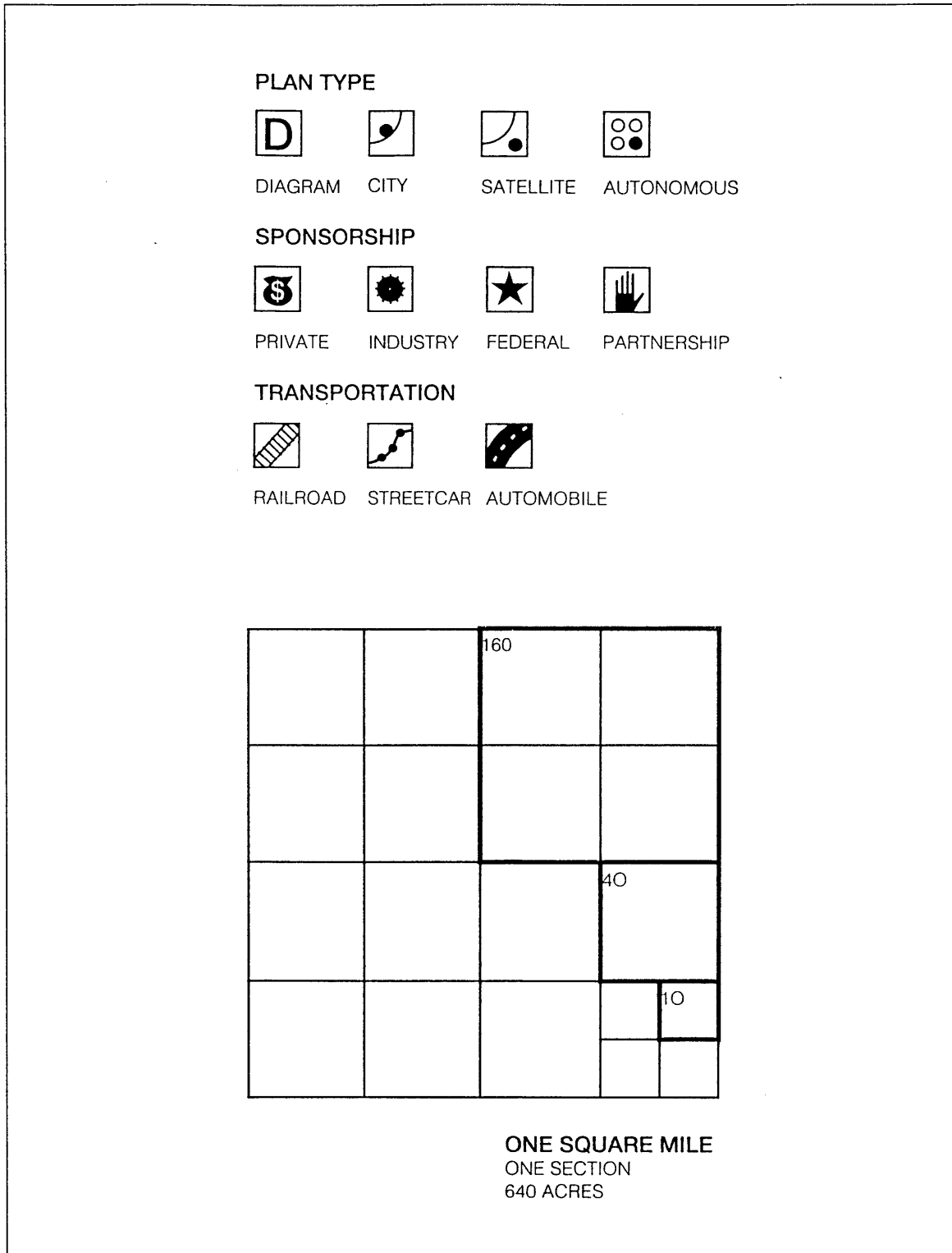


Figure 3.6: Legend and scale

(SOURCE: Keller Easterling, *American Town Plans A Comparative Time Line*, 1993.)

Barbara Barros's CityView/TownView

Barbara Barros, a Research Affiliate of the MIT Department of Urban Studies and Planning, has adapted the same Hypercard program used by Keller Easterling to create a sophisticated participatory tool. By customizing the software, she has created a tool that enables both the professional planner and the lay public to create overlay maps on the computer that can be manipulated as if they were a set of plastic transparencies. She has retained the free-form drawing and sketching capabilities of Hypercard, so as not to preclude individual contributions, while exploiting Hypercard's capacity to overlay graphics. She has also exploited the hypermedia possibilities by building in user-friendly links for text and graphics. Her work combines Lynchian mapping techniques and McHarg-type map overlays to create a powerful tool for community-based design.

Barros has tested the CityView/TownView program for the past three years and has trained a wide variety of users. Examples of their work can be seen in Figures 3.7, 3.8, and 3.9, and from these one can get an idea of how such a tool might actually be used in a planning context. Mario Cruz's gang territory maps reveal the hidden social structure of a neighborhood, information that one suspects is not found in the San Antonio planning department files. Cruz, a social worker and novice computer user, combined this specialized community knowledge of safe and unsafe territories with basic locational information to create a sophisticated analysis for education, advocacy, and fund-raising purposes. Barros believes that many community activists and social workers are not physically oriented; although they may be based in a particular neighborhood, they do not usually think of the geographic and spatial patterns in the

way that physical planners and designers do.⁷¹ In using her program, they can easily manipulate data, which encourages them to explore the sorts of relationships that one sees in the Healthy Boston and Walden Woods maps (Figures 3.8 and 3.9). As conditions change, or new data are obtained, changes and additions can be relatively easily made, and then a graphic product can be produced both on the computer and as a paper copy.

Barros's tool can be used as an individual tool or in a group setting. A group working on a neighborhood analysis might split up the task of mapping the neighborhood by assigning different neighborhood elements, such as transportation, housing, and social services, to various individuals. The maps, all composed with the same underlying base map, could then be combined in various permutations to analyze and portray neighborhood conditions. Design proposals might be tested by creating an enlarged map with a three-dimensional graphic for each alternative. Barros has demonstrated how this might work in a series of workshops with the Healthy Boston Coalition. Neighborhood organizations representing sixteen Boston neighborhoods sent representatives to training workshops held at a community-based computer center in the South End of Boston. Board members, staff, and volunteers compiled neighborhood maps, which were then pasted into reports and proposals.⁷²

⁷¹ Lee rRidgeway, "HyperMapping: A Tool for Urban and Community Planners," MIT Information Systems 9, no. 10 (June 1994): 2

⁷² During the summer of 1993, I assisted Barbara Barros in training Healthy Boston organizations to use the CityView/TownView program. This discussion is based in part on that experience, as well as my own experience in using an earlier version of the software to document historical changes in the Boston shoreline.

The Healthy Boston training sessions and Barros's Youthview program suggest an intriguing possibility: as young people are growing up with computers, they may find tools such as CityView/TownView simple to use, and this may spur them to become more involved in their communities. One can envision youth becoming more active participants in two ways: first, by using their computer skills to make their own points of view heard clearly, and second, to serve their own communities by offering their computer skills to others. Enthusiastic young community volunteers may draw in their friends and family as well.

CityView/TownView can be used in a variety of settings to enhance participation. Although Barros emphasizes the tool as an aid to preparing individual report and presentation graphics, the program could be used in a public hearing or workshop setting as a live sketching device. Currently available technology makes it possible to project the computer image onto a large rear-projection screen, while a skilled operator types or draws at the computer. Pointing devices may be available soon that would allow one to point at the screen and get a response, so that in a workshop setting it would not be necessary to be at the computer to make a query, or to sketch on top of the projected image. Of course, one can always place a blank paper over the projected image and draw on this, as people have traditionally done in design workshops.

Another intriguing possibility is to use CityView/TownView as a survey tool. Barros has frequently asked program users to sketch the answers to "Where I live," "Where I walk," "What I like about my neighborhood," and "What I don't like about my neighborhood." Free-form and structured responses could be compiled to create a community map, much as Herr did in the original Ecologue process with the free-form map exercises, or

as Lynch did in his sketch map studies. A base map technique might also be a good way to record these answers, although much of the richness of the blank paper technique is lost. The text, out-of-scale drawings, and strange images that appear in individual sketch maps will not be elicited with a highly structured base map technique.

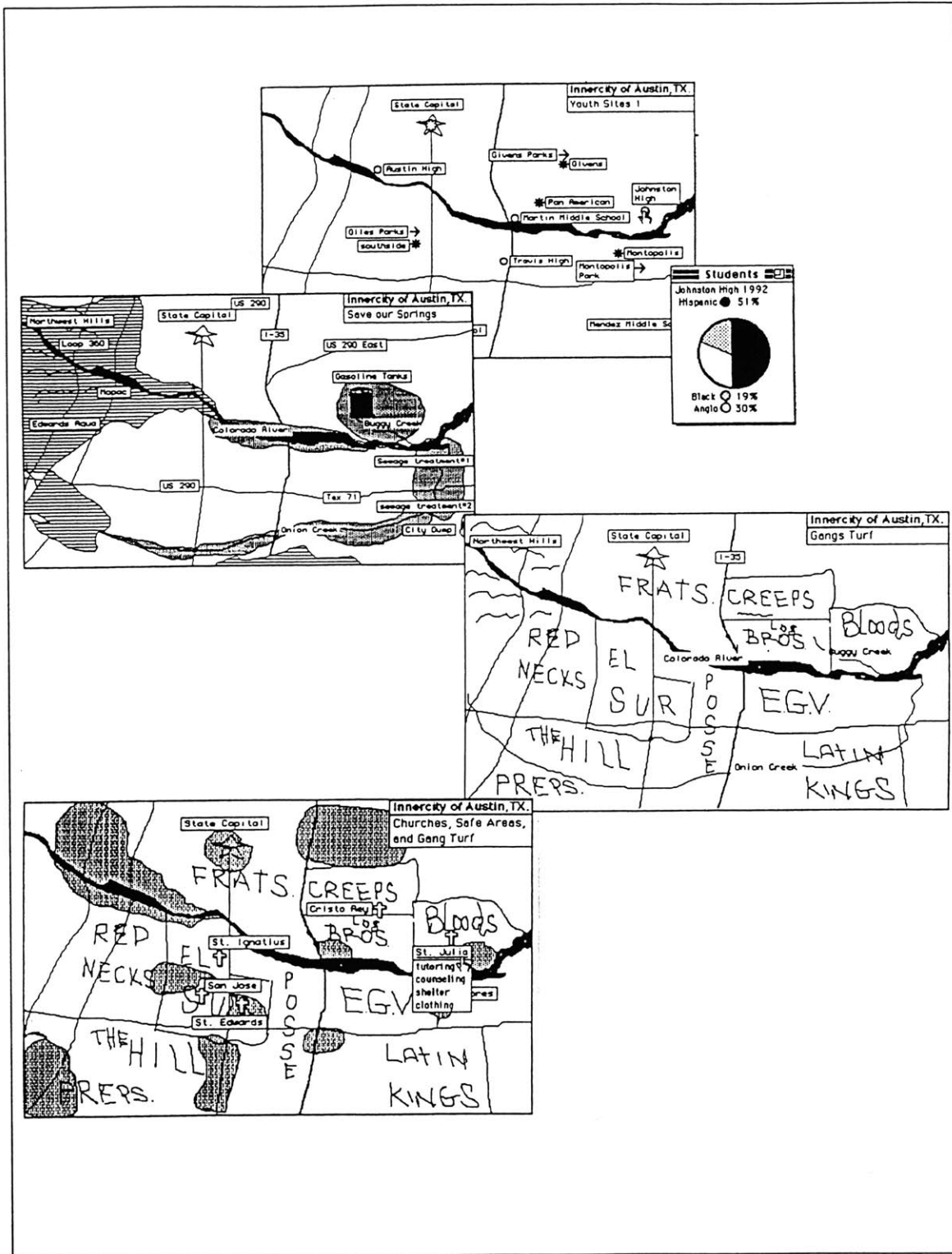


Figure 3.7: CityView/TownView: Maps by Mario Cruz
 (SOURCE: Barbara Barros, *CityView/TownView* brochure, 1994)

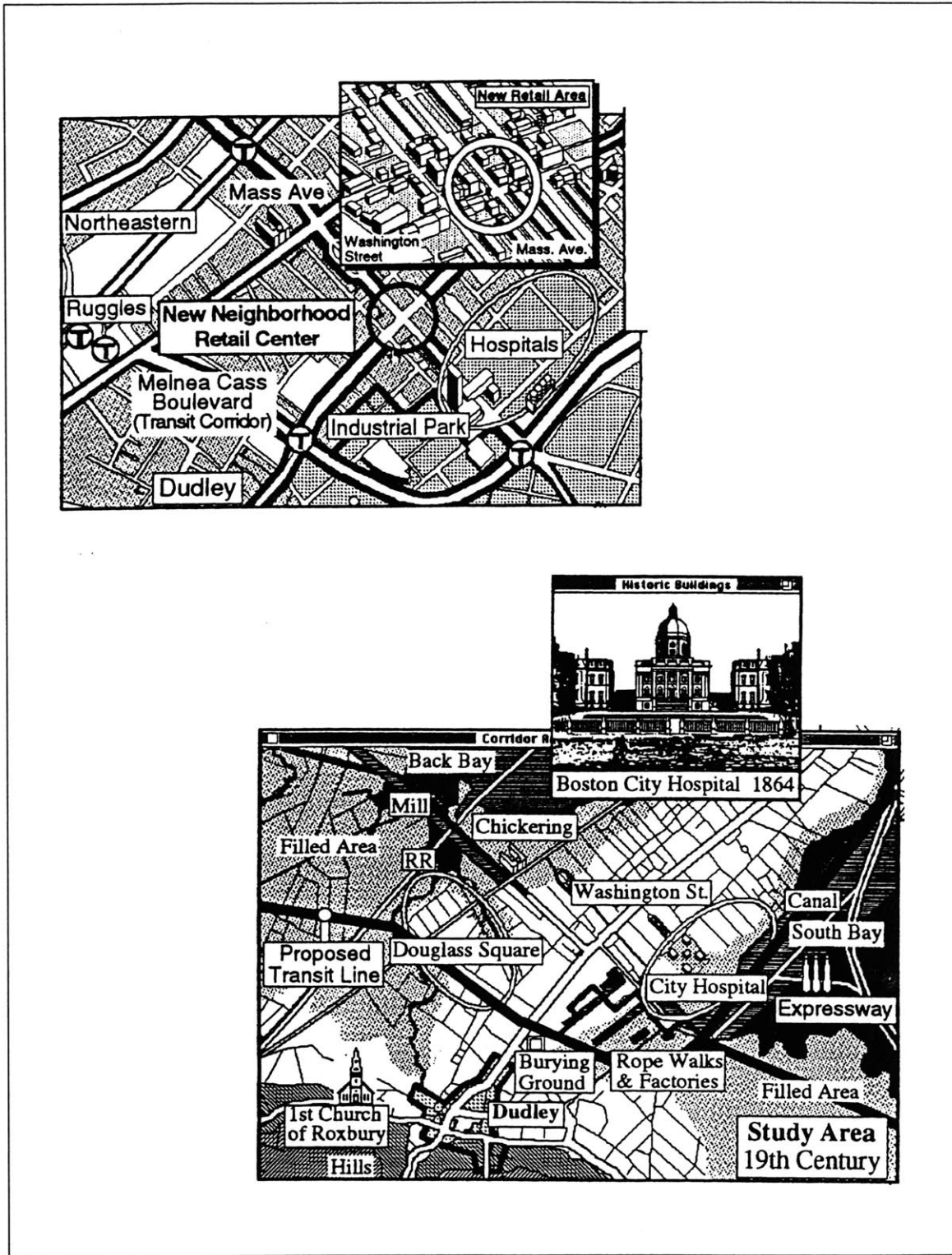


Figure 3.8: CityView/TownView: Various maps
(SOURCE: Barbara Barros, *CityView/TownView* brochure, 1994)

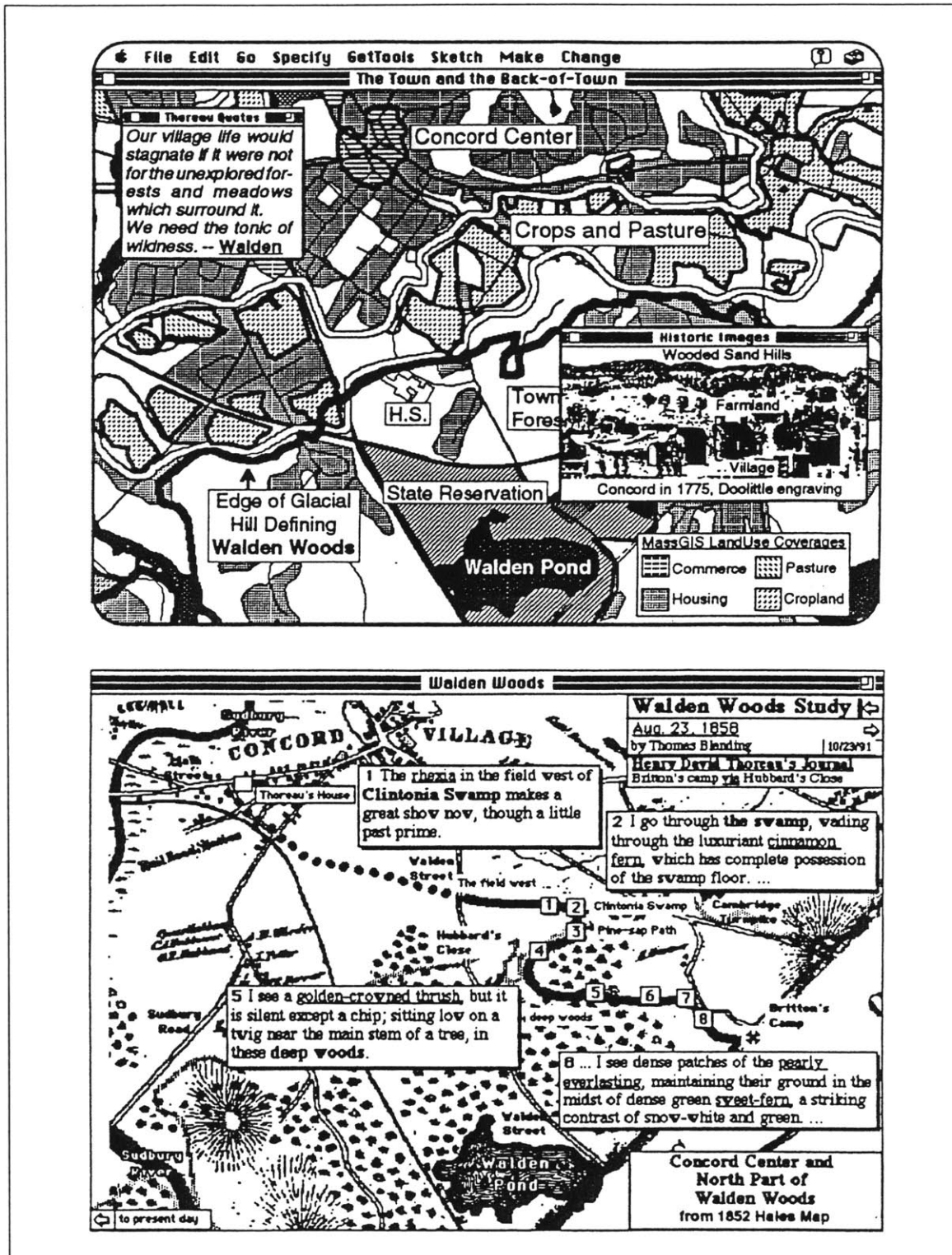


Figure 3.9: CityView/TownView: Walden Woods project

(SOURCE: Barbara Barros, *CityView/TownView* brochure, 1994)

Gary Hack, for example, cites a teenage Cambridgeport boy's "Boob Palace" in an Ecologue drawing, a place that surely exists only in a teenage boy's fantasies. A good survey or interview technique will not lose this kind of information, because however strange it may be, the drawing is a clue to the environmental values and concerns of that individual. Hack speculated that this image was as much a teenager's plea for privacy as it was a teenage boy's pornographic fantasy.⁷³

Figure 3.10 shows two Berkeley schoolchildren's responses to the question, "What would you like your school to be?"⁷⁴ Both sketches allude to the desire to reduce perceived crowding, but the two use different graphic languages and metaphors to express this desire. The junior high school student diagrams her idea of real and idealized classroom sizes, while the third-grader appropriates fairy-tale imagery to convey her desires. At the same time, both students generated a feasible design alternative to solve their "problem"--the teenager proposes larger group spaces, and the third-grader proposes small private spaces.

These two examples hint at the promise of CityView/TownView to engage individuals of all different backgrounds and skill levels in a continuing participatory planning process. Individuals may be intrigued enough by the survey to follow up on its results. If a large number of diverse responses are analyzed and exhibited, perhaps as part of a charrette, Take Part, or Ecologue workshop, persons who might have ended their involvement with a questionnaire may be inspired to stay involved. After the workshops, an archive of

⁷³ Gary Hack, "Environmental Programming: Creating Responsive Settings," (Ph.D. dissertation, MIT, 1976), 156.

⁷⁴ These drawings were part of a classroom survey conducted by members of the Berkeley School Project described in Chapter 2 in the section on public hearings. The drawings were reproduced in the MIT team's final report, "Planning and Design Recommendations for the Berkeley Unified School District," MIT Department of Architecture, 1994, 136.

CityView/TownView maps might be available for reference, thereby retaining the richness of individual responses.

Michael Shiffer's Hypermedia Projects

Michael Shiffer's work, like that of Barbara Barros, exploits the potential of hypermedia for citizen participation. He has created several hypermedia projects with inexpensive commercial software.⁷⁵ His projects usually offer the same free-form graphics opportunities as CityView/TownView, but he has generally emphasized the "multi" in multimedia.

Shiffer's early work includes a simulation game for beginning planning students, an interactive information kiosk for a large urban community development agency, and a hypermedia analysis tool for neighborhood residents living near an airport. In these projects, he refined the hypermedia approach that he is now applying to what he and others have dubbed "collaborative planning systems." I will discuss here some of the major elements common to his different hypermedia projects.

The Rantoul Airport project's most spectacular multimedia feature is deafening. The user, by selecting an airplane type from a pull-down menu, can play the sound of a Boeing 747 taking off, or call up any of the other planes that might normally take off from a commercial airport. A photograph of the plane appears as the plane takes off and the sound gradually fades away. The acoustical effect is not gratuitous, rather it is an essential part of the analytic tool. Users can not only hear the difference between

⁷⁵Shiffer has customized Hypercard and Supercard to create his applications.

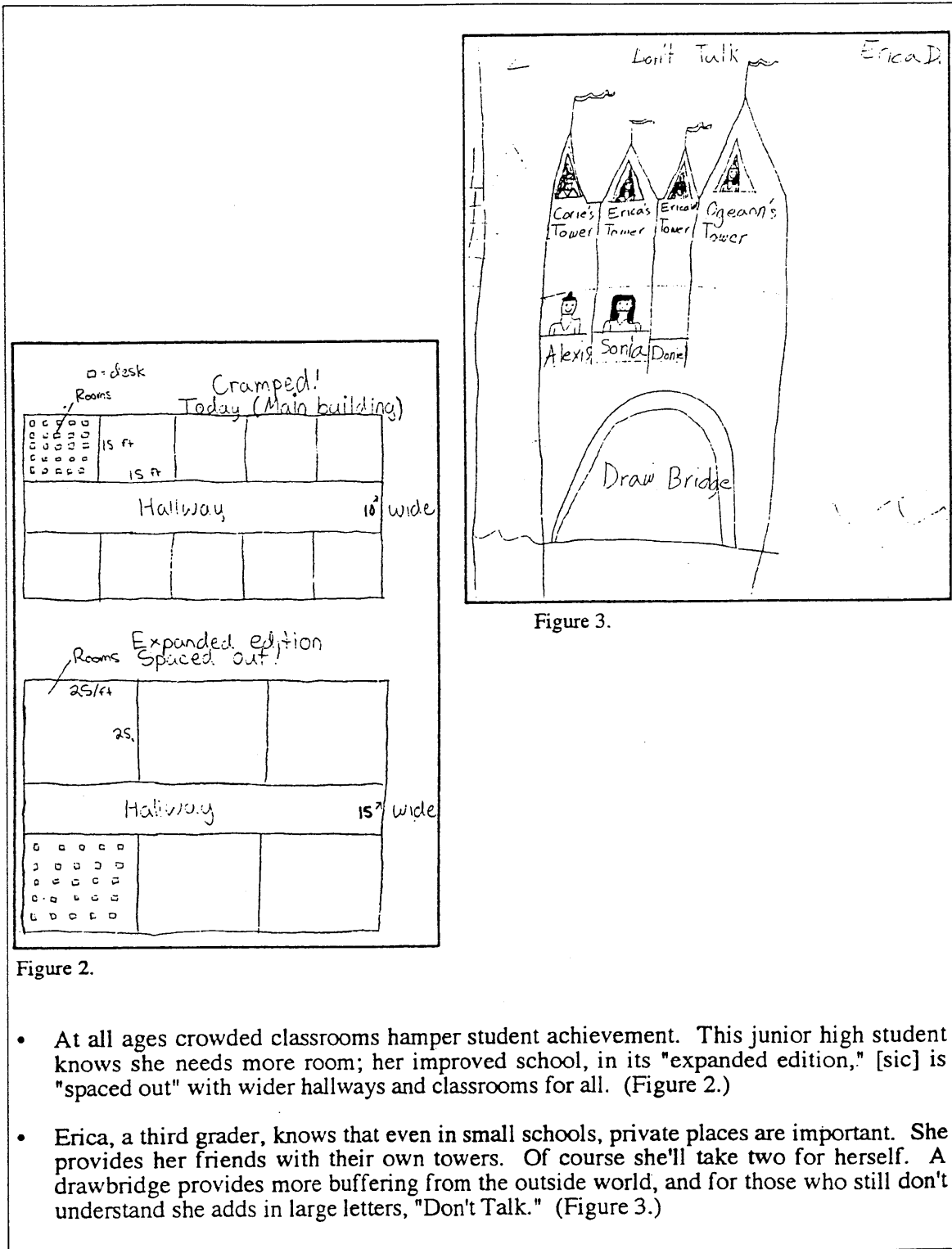


Figure 2.

Figure 3.

- At all ages crowded classrooms hamper student achievement. This junior high student knows she needs more room; her improved school, in its "expanded edition," [sic] is "spaced out" with wider hallways and classrooms for all. (Figure 2.)
- Erica, a third grader, knows that even in small schools, private places are important. She provides her friends with their own towers. Of course she'll take two for herself. A drawbridge provides more buffering from the outside world, and for those who still don't understand she adds in large letters, "Don't Talk." (Figure 3.)

Figure 3.10: Berkeley schoolchildren's ideal school

(SOURCE: Barbara Stabin, "Epilogue: Suggestions from Berkeley School Children," in *Planning and Design Recommendations for the Berkeley Unified School District*, ed. New American School Design Project, 1994.)

various types of airplanes, they can also correlate the noise with map locations and property values.

Airplane type and decibel level can be correlated with housing prices by first selecting an area of the base map. Then the user can test the likely effect of noise on property values by sliding a bar up and down a decibel scale. The sliding decibel bar responds in two ways: it displays what percentage of area residents are likely to be disturbed by that decibel level, and it triggers the hidden calculator that computes the probable drop in housing prices (the user types in a base price). The percentage decrease in housing prices and the dollar decrease will be calculated off-screen and appear instantly. One can also calculate the aggregate price drop for a whole neighborhood.

As befits a program about an airport, there are color photographs sequenced to simulate the view from an airplane flying over the Rantoul area. The user selects a spot on the map and calls up the associated photographs. The photographs are sequenced so that one can choose to continue North, East, West, or South by pressing an arrow.

The base map is a high-resolution aerial photograph. Large transparent color contours are overlaid to indicate the extent of airplane noise. Small transparent color rectangles indicate links to locational data. For example, one might press on a small blue rectangle and find out that it is a trailer park. Text, photos, and audio data may be associated with the trailer park or any other location.

Hypercard stacks can be programmed to permit varying degrees of user modification. In the Rantoul project, Shiffer made it possible for the user to annotate the map. Thus,

one can add audio or text comments, e.g., "I think it's time to rezone this trailer park for casino gambling" to supplement the data that has already been loaded into the program.

Shiffer has combined these different multimedia effects in different permutations in all his programs. In a project that represents a Washington neighborhood for NCPD, for example, the sliding bars are used to correlate building height instead of dollar values with map locations. City buses replace aircraft noise in the NCPD project. Digitized motion video replaces still color photos in his latest projects for the NCPD and the St. Louis Collaborative Planning System. Video is much more effective for simulating flyover views, walking tours, and 360-degree views. As the software and hardware have evolved, Shiffer has incorporated these improvements into his work. His recent collaborative planning system for the NCPD capitalizes on improved hypermedia palette drawing tools, CAD, and GIS links.

Shiffer standardizes the buttons and other user interfaces in his projects, so that even if one is unfamiliar with Hypercard or Macintosh graphical user interfaces, there is a limited vocabulary to acquire. This simplicity makes it feasible to use these tools at public hearings and meetings. For the same reason, Shiffer uses large windows to display graphics and video wherever possible--larger windows mean visuals will be legible at a greater distance, and thus they make his work more of a collaborative tool.

The large graphics and standardized buttons also make Shiffer's work easy to record on videotape. By attaching a cable from a standard hand-held video camera, it is possible to record the output that is normally transmitted to the computer monitor. The computer graphics and text will be slightly fuzzy, but video clips and audio clips will record clearly.

Hypercard or any other computer program output can be documented in this way, but the wise author should consider the possibility of videotaping program output when first designing the program. Videotape then becomes another medium for distributing programs like Shiffer's Rantoul airport project to interested citizens who do not have computer access or who want a permanent record of public meetings.

Glorianna Davenport's Storytelling Approach

Glorianna Davenport's work with Hypercard and hypermedia represents yet one more approach to the use of IT to improve citizen participation. Davenport has employed the Hypercard program more like a post-modern novelist than an environmental designer. Her three-year study of historic New Orleans's Vieux Carre district before and after the World's Fair focuses ultimately on people, not places.⁷⁶ She organized the video material around five major characters, so that one can follow their individual stories. The finished project shows the conflict--centered around the approval of the Jackson Brewery project--and its resolution from these different points of view. Hypercard allows the viewer to navigate through the video clips in a non-linear sequence. The viewer may choose to follow one character's story chronologically, in reverse chronological order, or hop between characters in chronological order.

Her current project focuses on Boston's massive Central Artery highway project. She and her research team are linking landscape imagery with a cross-section of Boston residents to record the drama of the Artery project. Once again, the hypermedia user interface will focus on individual stories as an organizing principle. While Davenport

⁷⁶ Glorianna Davenport, "City in Transition", MIT Project Athena., 1993

uses hypermedia to document planning history, her approach offers enormous potential for participatory processes.

SUMMARY

In this chapter I have defined information technology and its impact on the planning and design professions. Many IT innovations occurred during the 1980s and 1990s: microcomputers, the arrival of the mouse, user-friendly software, low-cost GIS, and hypermedia. Of these innovations, hypermedia was identified as one of the most promising technologies for enhancing participatory design and planning. Several innovative approaches to applying hypermedia to environmental design were discussed. In the next chapter, I will provide the background for a hypermedia prototype.

4

The Case Study *MightyMart and PrettyPlace*: Megastores and the Vermont Town

Introduction

In this chapter I will delineate a contemporary planning problem: the issue of megastore siting in rural New England. The megastore siting problem is typical of the kind of multidimensional physical planning problems facing small town planners. For this reason, the problem was chosen as the basis for the hypermedia prototype *MightyMart and PrettyPlace* described in Chapter 5.

For the small towns who must decide whether to award building permits to megastores, the discussion frequently becomes polarized. The debate is often framed as a contest between the local economy and the environment, and so the debate epitomizes many contemporary planning discussions. Yet a polarized discussion that frames the situation in terms of winners and losers can ultimately be self-defeating for a community that faces development pressures.

In a polarized discussion, each side may think it has the "right answer", and thus the discussion is narrowed. Environmental design problems, however, are "wicked problems," that is they have no ultimate correct solution; rather the solutions just have "degrees of sufficiency," and there is "no stopping rule," i.e., the problem is solved when the participants decide to cease working on the problem because they have agreed to a

particular solution.⁷⁷ The solution may be judged barely adequate but preferable to an existing situation, it may be an improvement, it may be even be exemplary. The so-called right solution often turns out to be a compromise between the original goals and objectives and the need for an expedient, politically and economically palatable solution.

Widespread citizen involvement in local siting decisions could broaden the discussion, and it could lead to a wider array of alternative solutions to choose from. Ideally, the public would be fully involved from the start in a comprehensive local planning process. Then the public might first frame the megastore siting issue as "Do we want development on this agricultural land, and if so, what, when, and how should it be developed?" instead of the more limiting "Should we allow megastore X to build 100,000 square feet on old Farmer Smith's land next spring?"

However, as is often the case in planning, public involvement in megastore siting usually happens later rather than earlier in the process. With this limitation, how then could a town planner help the public come to a satisfactory decision? To begin with, the planner needs to help inform the public debate so that the citizens can base their decisions on a shared base of information and a full range of options.

Framing the Megastore Siting Issue

A creative problem-solving approach suggests that one must look at the megastore siting problem with fresh eyes, from another point of view. Using a visual analogy, one

⁷⁷Jeff Conklin, "Hypertext: An Introduction and Survey", *IEEE* (September 1987): 24.

can step back, close in, walk to the side, or circle round the problem on the ground and in the air. Stepping back, one sees landscape issues: How does the megastore fit into its surrounding landscape and architectural context? Closing in on the site, one wonders if the megastore is well laid out, well sited on its lot? Will the trees and plantings shade the site, help prevent runoff? Has the ground been paved over? Will the water table be affected? Off to the sides are the neighbors: What will be the immediate impact of the new megastore on these neighbors? What noises, air quality, traffic, economic effects will there be? From above, if we could cruise over the landscape in a slow-moving balloon, we might wonder at the pattern below: Is the megastore part of a strip development trend, or is it an anomaly in its setting? Is the region forming a new pattern, one of edge cities, of curled ribbons linking formerly compact islands of settlement?

We might similarly look at time frames: we examine the near future, like the megastore's next-door neighbors, and we peer farther away, toward the distant future, to the emerging regional and global pattern of long-term trends. We might look back to the distant and recent past for successes, for failures, and for discarded ideas that may regain their currency. The metaphor of the "four-way Janus"⁷⁸ has been used by planning educators to describe the planner's need to view problems from multiple points of view. From the vantage point of the present, where problems must be faced, the planner must simultaneously look back into history, forward to the future, around at the local arena and the global pattern.

⁷⁸ MIT, DUSP Handbook, 21st ed., 1992, 3.

Yet our own views are not enough; even the wisest planner is limited by the prison of his own experience. Even the four-faced Janus can only see so far; to go beyond his own range, he must work with others to comprehend more. By listening to others, by using a storytelling frame (as Glorianna Davenport did in New Orleans), we can begin to apprehend the world as seen through other eyes. This is where our hypermedia case study, the story of a megastore, *MightyMart*, and an archetypal Vermont town, *PrettyPlace*, begins.

Developing the Story: Situation, Character Development, Plot

To develop the case study of *MightyMart and PrettyPlace*, discount department store and warehouse club companies were studied to create the character of *MightyMart*. Vermont towns and other communities facing the megastore siting problem were studied to create the various characters and town of *PrettyPlace*, Vermont. By studying the national and regional trends, the past history and projections for actual companies and towns, we can see the range of views and information that should be incorporated into the story. The potential relevance of the hypermedia prototype *MightyMart and PrettyPlace*, beyond Vermont, becomes apparent as well.

The Megastores

To begin with, we can frame the megastore siting problem in the larger national context by examining the perspective of the megastore discount companies. What are the generic qualities of the big-box general merchandise discounters? Are there significant differences between individual companies that communities should consider? What are the companies' strategies, and how have these companies approached Vermont and New England?

There are a number of large retailers that have been classified as "big box," megastore, or value retailers. Companies such as Wal-Mart, Kmart, Target, and Price/CostCo. form a subset of the larger set of big box retailers, the discount department store category.⁷⁹ While similar planning concerns arise with any large value retailer, (e.g., the size of the store site, market share of local sales, traffic congestion), the discount department stores have an especially dramatic impact. They compete with a wide variety of smaller merchants, as their product lines include appliances, home furnishings, clothing, athletic equipment, and auto parts. Another subset, the warehouse clubs, are often owned by the discount department stores; they offer the same range of general merchandise, but they sell a smaller number of brands, in bulk quantities, to members.

Table 4.1 compares the four major players listed above in the discount general merchandise category. Wal-Mart will be the focus of much of the discussion that

⁷⁹ The taxonomic description is based on the categorization of value retailers in "Doing Business with Big Box Retailers" by Michelle Gregory, *Zoning News*, American Planning Association, October 1993.

follows, as it is the now the leading discount retailer in the nation,⁸⁰ and the one that is currently most aggressive about expanding into New England. First, though, the other retailers are presented briefly to highlight both the generic and distinctive qualities of Wal-Mart. MightyMart's corporate character is based largely on Wal-Mart, although it is meant to represent the generic qualities of the discount megastore companies rather than any one company.

Kmart

Kmart stores are descended from the Kresge dime stores that date back to turn-of-the-century Detroit. Kmart opened its first store in 1962. The company has recently embarked on a major renewal and expansion program to update its general merchandise stores. The stores are being expanded in size to match their often larger-sized competitors, layouts have been similarly modernized with wider aisles, and merchandise has been upgraded. By the end of 1992, the company had expanded or upgraded half of its general merchandise stores. In contrast to Wal-Mart, Kmart's overall strategy is to improve and enlarge its existing Kmart stores rather than open many new stores.

However, Kmart has created a new group of stores, the Super Kmart Centers, which are similar to Wal-Mart's Hypermarts. While only four were open in 1992, the company expected to open another 15 in 1993, and to open perhaps as many as another 450 Super Kmart Centers in the next seven years. These stores enlarge the original dime store concept to include a a full-scale grocery line in addition to the usual Kmart general

⁸⁰ According to Wal-Mart's January 31, 1993, Form 10-K, the company ranks first in net sales in both the discount and the retail department store industries.

Table 4.1: Comparison of Major Discount Retailers and Wholesale Club Operators

Fiscal year 1993 (a)	Wal-Mart	Kmart*	Target	Price/ CostCo
Sales per square foot (b)	\$320	\$181	\$209	N/A
Net sales (millions) (c)	55,484	26,470	10,393	12,906
Employees (d)	434,000	358,000	170,000	43,000
No. of states	45	49	32	22
No. of US stores (e)	2,135	2,435	506	170
New US stores in FY93 (f)	161	45	43	23
U.S. stores closed in FY93	1	15	N/A	4
Projected new stores FY94 (g)	150	131	40-50	24
Mean store size (h)	81,000	N/A	103,000	120,000
Store size range (1000 sf) (i)	30-196	40-120	N/A	N/A

Notes:

- a: Wal-Mart, Kmart, and Target have a fiscal year ending at or near January 31; Price/CostCo has a fiscal year ending August 29. Data was derived from the annual reports and 10-K filings for the fiscal year ending January 1993, except for Price/CostCo., where the August 1993 Annual Report was used. The FY93 (1992) reports are the most current and complete data set available as of March 1994.
- b: Sales per square foot for Kmart's US general merchandise stores only; Wal-mart provides aggregated sales per square foot data for all stores of \$319.52/square foot.
- c: Net sales are shown for the general merchandise stores and warehouse clubs for Wal-Mart and Kmart. Target and Price/CostCo amounts represent the entire net sales reported for those companies.
- d: The number of employees is shown to convey an order of magnitude, as these figures are aggregated totals for the general merchandise, specialty retail, and warehouse club subsidiaries of these companies.
- e: The number of stores includes all US general merchandise stores and warehouse clubs for Kmart and Wal-Mart; US stores and warehouse clubs only for Target and Price/CostCo. respectively.
- f: The numbers represent new stores opened, exclusive of closings, relocations, or expansions of existing stores.
- g: Company projections for new stores to be opened in 1993 is based on the third quarter (10/31/93) earnings statements for Kmart, the 1992 annual reports and 10-K for Target and Wal-Mart, and the March 24, 1994 Price/CostCo. press release reporting year-to-date financial results for fiscal year 1994.
- h: Mean store size is shown as reported in the 1992 annual reports.
- i: Store size ranges are also derived from the company's own statements.

merchandise selection. They also differ from the basic Kmart store format in the extended hours--24 hours a day, seven days a week--and their larger size--150,000 to

185,000 square feet. The company may transform some of its existing Kmart's into the new Super Kmart Center stores.

Kmart is also active internationally, and appears to be focusing its attention on expanding its foreign store facilities. As of 1992, the company reported 140 stores in the 10 Canadian provinces, 13 stores in the Czech Republic and Slovakia, and negotiations are under way for joint ventures for stores in Mexico and Hungary.

Target Stores

Target Stores, a division of the Dayton Hudson Corporation's retailing empire, is an active competitor of Wal-Mart's in many parts of the country. However, as of January 31, 1993, Target had no stores in the Northeastern United States. (see Figure 4.1 and Appendix A). However, it seems quite probable that Target will seek to expand its realm by moving into the lucrative Northeastern market. According to the 1992 annual report, Dayton Hudson plans to

Table 4.2: Change in the Number of Wal-Mart and Target Stores for the Six-Year Period Beginning in 1987

Year	Wal-Mart stores	Net increase	Percent change	Target stores	Net increase	Percent change
1986	980			246		
1987	1,114	134	13%	317	71	29%
1988	1,259	145	13%	341	24	8%
1989	1,402	143	12%	399	58	17%
1990	1,573	171	12%	420	21	5%
1991	1,720	147	9%	463	43	10%
1992	1,880	160	9%	506	43	9%
Six-year Total	1,880	900	92%	506	260	105%

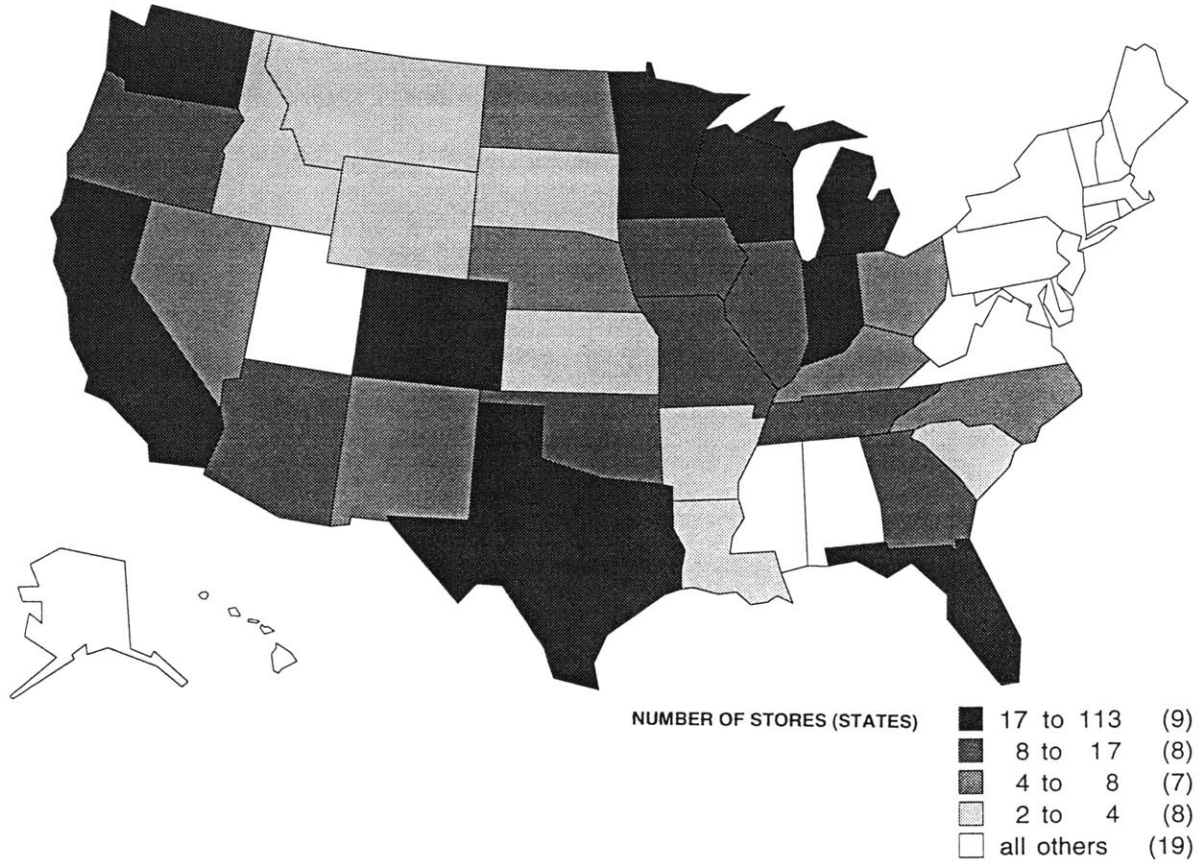


Figure 4.1: Location of Target Stores as of January 31, 1993
 (SOURCE: Adapted from *Dayton Hudson Corporation 1992 Annual Report*)

"Build stores in new markets to enhance growth," and "the majority of new store capital continues to be allocated to Target due to its proven record of successful expansion and profitable growth."⁸¹

While the annual store expansion rates for Target and Wal-Mart stores differ significantly, both companies doubled the number of stores over the same six-year period (Table 4.2). The Northeastern U.S. market has relatively few of the discount

⁸¹ Dayton Hudson Corporation *1992 Annual Report*, 18.

department megastores, and thus Target, like Wal-Mart, is likely to expand in this direction. Target's past concentration in major metropolitan markets⁸² -- such as Minneapolis/St. Paul, where it has 26 stores, or the San Francisco Bay area, where it has 12 stores--suggest that Target may have the edge over Wal-Mart when the two companies compete for sites and market share in the more heavily urbanized Northeast.

Price/CostCo.

Price/CostCo., Inc. was formed by a merger of two membership warehouse clubs, The Price Company and CostCo Wholesale Corporation (CostCo.) on October 21, 1993. The merchandise lines are similar to Target, Kmart, and Wal-Mart, but are offered in bulk quantities at prices slightly above wholesale.

The Price Company, per its own statements, was the inventor of the warehouse club concept in 1976.⁸³ While their store base is just a fraction of that of Kmart or Wal-Mart, the warehouse clubs are a rapidly growing sector of the retail industry that is challenging the traditional discount department store format. Price/CostCo. boasts that its warehouse format, with its no-frills facilities, minimal advertising, and lower merchandise handling costs, can operate more efficiently and thus more profitably than the retail discount stores.⁸⁴

Both Kmart and Wal-Mart have small warehouse club divisions (Pace Membership Warehouses and Sam's Clubs, respectively) that compete with Price/CostCo.⁸⁵ As

⁸² Dayton Hudson Corporation 1992 Annual Report, 37.

⁸³ Price/CostCo., Inc. Form 10-K/A, 1993, 7.

⁸⁴ Price/CostCo., Inc., Form 10-K/A, 1993, 4-5.

⁸⁵ The company sees Wal-Mart, Kmart, and Target, as well as other warehouse clubs, as its prime competition. Price/CostCo., Inc. Form 10-K/A, 1993, 7.

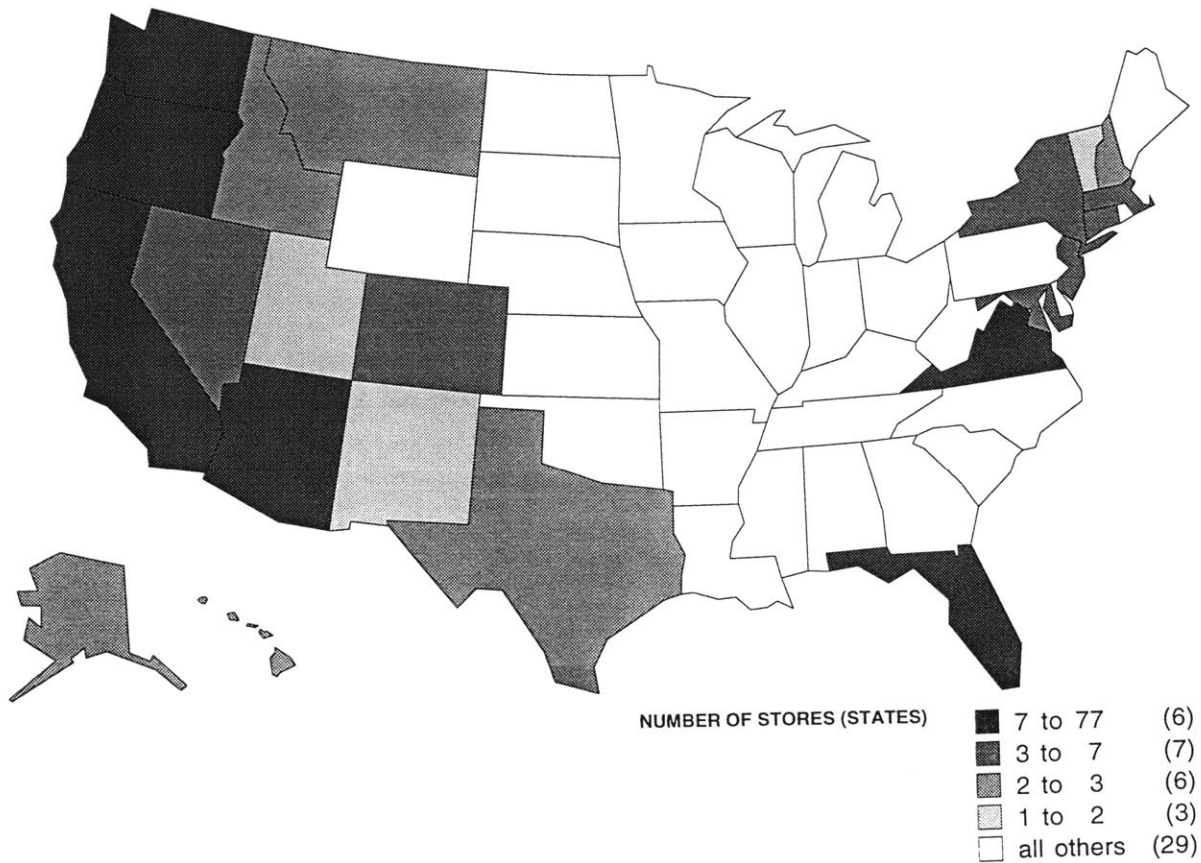


Figure 4:2: Location of Price CostCo warehouse clubs as of August 29, 1993
 (SOURCE: Adapted from *Price CostCo 1993 Annual Report*)

noted below in the discussion of Wal-Mart's expansion plans, Price/CostCo. has been able to build in Vermont with little or no opposition, unlike Wal-Mart. The relatively low profile of the company, as compared to the well-known Wal-Mart and Kmart chains, may have given it some advantage in finding sites in Vermont and other New England states (Figure 4.2).

Like Wal-Mart and Kmart, the company is also active in Canada, with 37 warehouses,⁸⁶ and it has also begun some joint ventures in Mexico in the past two years. Price CostCo. has opened a warehouse in the United Kingdom, and expects to be active in South Korea by the end of 1994. Their expansion plans for the coming year include 12 new stores in the United States, and another 15 to 20 stores in other countries.⁸⁷

Wal-Mart

The first Wal-Mart store opened in 1962, which, as Wal-Mart founder Sam Walton notes, was the same year that Kmart and Target stores appeared. The company grew relatively slowly at first, with only 18 stores to Kmart's 250 stores in the first five years.⁸⁸ Since 1967, Wal-Mart has built an empire that rivals Kmart in the number of stores and exceeds it in net sales. The company's consistent expansion strategy was revealed by Sam Walton in his autobiography:

Our key strategy, which was simply to put good-sized discount stores into little one-horse towns which everybody else was ignoring....We knew our formula was working even in towns smaller than 5,000 people, and there were plenty of those towns out there for us to expand into....Maybe it was an accident, but that strategy wouldn't have worked at all if we hadn't come up with a method for implementing it. That method was to saturate a market area by spreading out, then filling in....Each store had to be within a day's drive of a distribution center...So we would go as far as we could from a ware-house and put in a store. Then we would fill in the map of that territory, state by state, county seat by county seat, until we had saturated that market area....Like so many of the ideas that made our company work from the beginning, we're still more or less following this same strategy, although today we've moved into some cities outright.⁸⁹

⁸⁶ Price/CostCo. Inc., *1993 Annual Report*, 6.

⁸⁷ *Ibid.*

⁸⁸ Sam Walton, *Sam Walton: Made in America* (New York: Bantam Books, 1992), 63.

⁸⁹ *Ibid.*, 140-141. Note that at this point, New England is served by only one warehouse--in Baldwinsville, New York--approximately 150 miles west of the Vermont border. Each warehouse, however, normally serves up to 150 stores,

The Regional Context

Figure 4.3 shows Wal-Mart stores and Sam's Clubs located in 45 states, as listed in Wal-Mart's January 1993 Annual Report. By October 1993, Wal-Mart had expanded its domain to four new states--Rhode Island, Hawaii, Washington, and Alaska. Although there are relatively few stores in New England, at least two dozen have been opened within the past 18 months. Wal-Mart is clearly eager to expand throughout New England, especially into the northern tier, where the small town and agricultural economy resemble the southern and midwestern towns where Wal-Mart has been so successful.

While individual New Englanders may welcome a big-box discounter,⁹⁰ it reportedly takes Wal-Mart an average of 30 months to build its stores in New England, as compared with six to nine months elsewhere.⁹¹ The region's strong land use controls and extensive permit reviews may account for much of the delay.

and so the capacity for a rapid expansion seems to be in place. Warehouse locations are listed in Wal-Mart's Form 10-K for the fiscal year ending January 31, 1993.

⁹⁰ According to Sam Walton, "We have created so many new friends down in Florida--Yankee friends, folks who live up North--who see our stores in Florida while they're down there for the winter, and they can't wait for us to get up there. Believe it or not, I get letters all the time asking us to put a store in some place up North because our customers miss us when they get back home....so we are pre-sold, almost, when we go into some of these areas that are new for us. we're still spreading out and filling in, and we've got a heck of a long way to go before we saturate territory which we consider to be basically friendly to Wal-Mart." from Sam Walton: Made in America, 143.

⁹¹ Sara Rimer, "Around New England, Main Street Faces Peril", New York Times, February 28, 1993, 22.

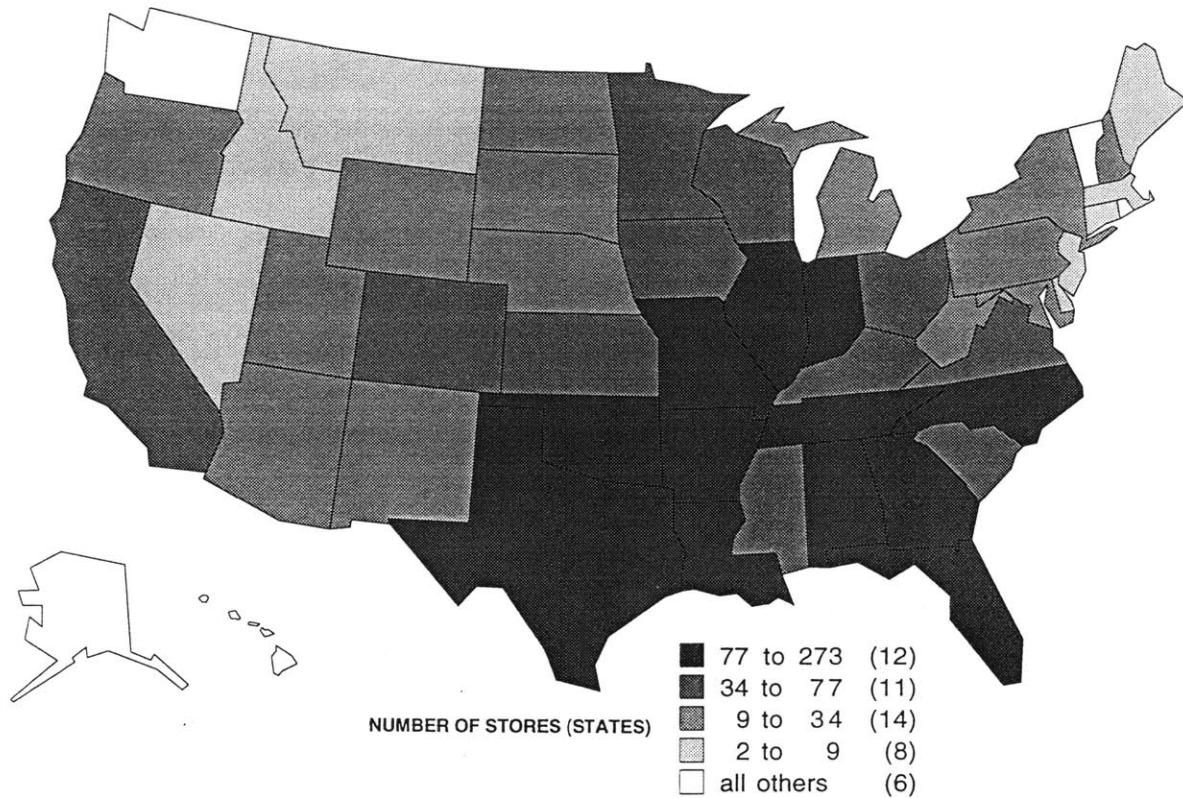


Figure 4.3: Location of Wal-Mart Stores and Sam's Clubs as of January 31, 1993
 (SOURCE: Adapted from *Wal-Mart 1992 Annual Report*)

Megastore Expansion into Vermont

As of March 1994, Vermont is the only state without a Wal-Mart Store or a Sam's Club. Although Vermont has a relatively small and scattered population (562,758)⁹² compared to its more populous New England neighbors, it still has significant market potential. Wal-Mart's first two sites, in northwestern Vermont, may capture customers from Western New York and nearby Quebec, in addition to serving the greater Burlington metropolitan area. Vermont now has a few Wal-Marts just outside its borders (Figure 4.4) such as the store in Hinsdale, New Hampshire which opened in January 1993

⁹² 1990 US Census.

across the Connecticut River from Brattleboro. Another new Wal-Mart can be found in North Adams, Massachusetts, approximately 20 miles from Bennington. The western New Hampshire locations--such as Hinsdale⁹³ or Claremont--should continue to draw high numbers of Vermont shoppers seeking low prices and an escape from Vermont's sales tax.

For Wal-Mart, the conquest of Vermont has great symbolic value as well; Act 250, the powerful state land use regulation, provides many obstacles to development. Wal-Mart's applications for its first Vermont stores have been dragging through the development review process for over two years in Williston and for one year in St. Albans. Once Wal-Mart is vetted by the State environmental Boards for one of these sites, many suspect that the other permits will fall into place like dominoes south down Route 7,⁹⁴ and eastward to the Northeast Kingdom. St. Johnsbury, Bennington, Barre, Vergennes, Rutland, and Brattleboro (Figure 4.5)⁹⁵ have been mentioned as potential sites.

The owner and developer of the Williston site, Jeffrey Davis, claims that Wal-Mart has told him it intends to persevere with the Williston site: "As long as it takes you, because we want to be there and the citizens want us there."⁹⁶ The public relations value of a successful campaign in Vermont should help the company open additional stores in the lucrative New England market, which is now dominated by rivals like Kmart and Ames.

⁹³ As reported in the Boston Globe, a survey of the Hinsdale Wal-mart parking lot found Vermont licenses to outnumber those from New Hampshire or any other states. "The Battle of Vermont", Boston Sunday Globe, July 18, 1993, 61.

⁹⁴ In "Back against the Wal", a documentary by Vermonters Ann Cousins and Ron Powers, it is suggested that Wal-Marts may "hopscotch down Route 7".

⁹⁵ The projected store locations were derived from "Back Against the Wal".

⁹⁶ Jeffrey Davis as quoted in "The Battle of Vermont," Boston Sunday Globe, July 18, 1993, 61.

Some Vermonters have recently been expressing grave doubts about the growth management and land use controls that have delayed Wal-Mart's opening in Williston. Jeffrey Wennberg, Mayor of Rutland, Vermont, stated the pro-development point of view in reaction to the National Trust for Historic Preservation's designation in June 1993 of the entire state of Vermont as one of the eleven most endangered places in America :

The National Trust for Historic Preservation designation of Vermont as "endangered" was made without any factual, statistical, or even anecdotal basis. Nonetheless, it was echoed by a chorus of elected leaders chiming in on the "Sprawl-mart" crisis facing Vermont. But what about the crisis facing Vermonters?...The National Trust designation will have two results. First, its national coverage will further undermine our efforts to bring jobs and investment to Vermont. Second, it will be used like a battering ram by every no-growth special-interest lobby in the state to defeat desperately needed permitting reform in the Legislature.⁹⁷

In this view, Act 250 and Vermont's commitment to land use planning are squared off against jobs and out-of-state business investment. One wonders if this view is held by many Vermonters, and if the megastore siting issue has brought Vermonters to regard environmental planning controls in such a polarized way. To better understand how Vermonters may in fact perceive the megastore issue, and the wider issue of land use controls, we will need to take a closer look at Vermont's people, landscape, and economy. In the following section, a discussion of Vermont will provide a more complex and complete set of perspectives, from which the character of PrettyPlace and its inhabitants can be constructed.

⁹⁷ Jeffrey Wennberg, "Opinion: Vermont Has to Create Jobs," Burlington Free Press, July 4, 1993, 3e.

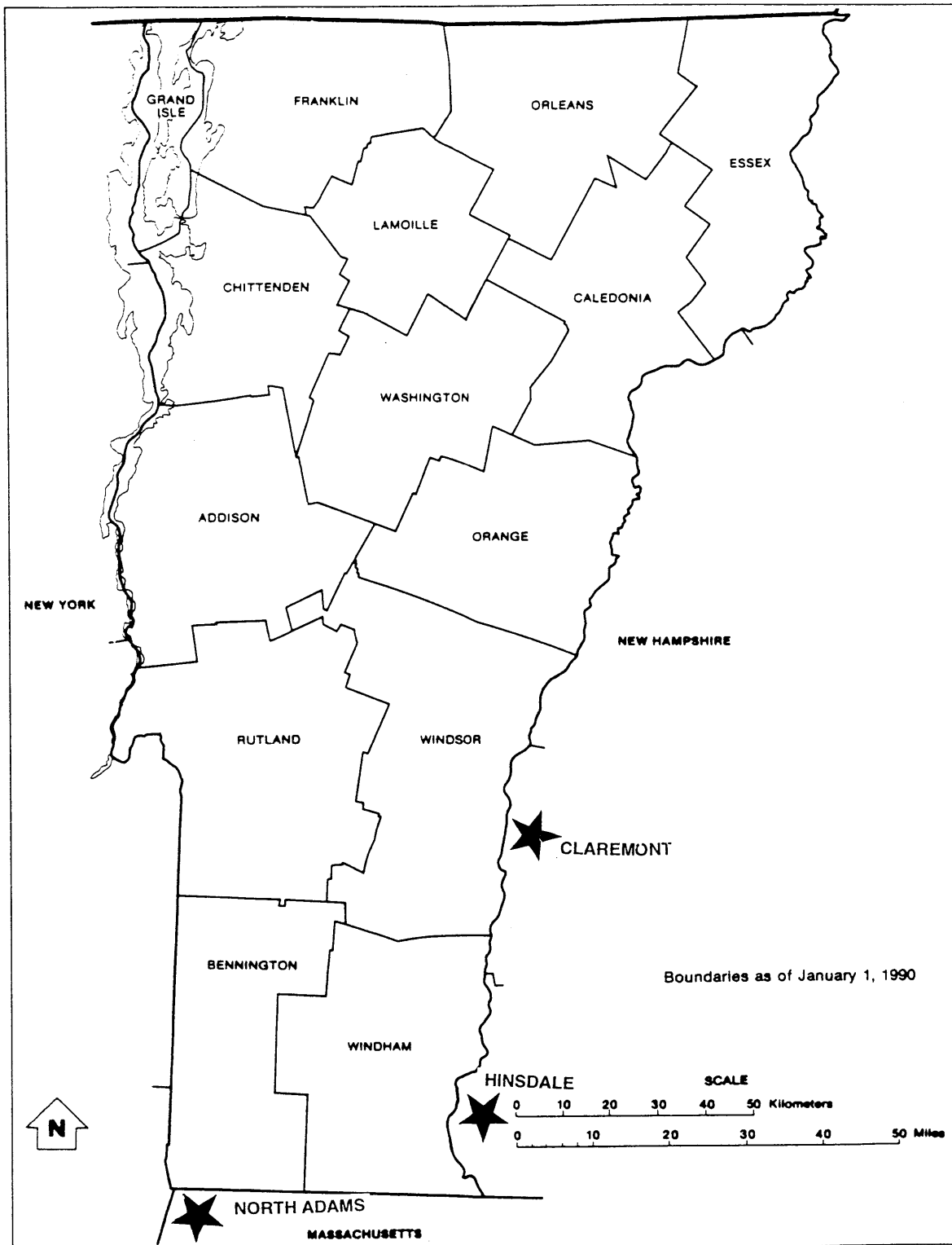


Figure 4.4: Wal-Mart Stores located near the Vermont border
(SOURCE: Sara Rimer, "Around New England, Main Street Faces Peril," in *New York Times*, 28 February 1993.)

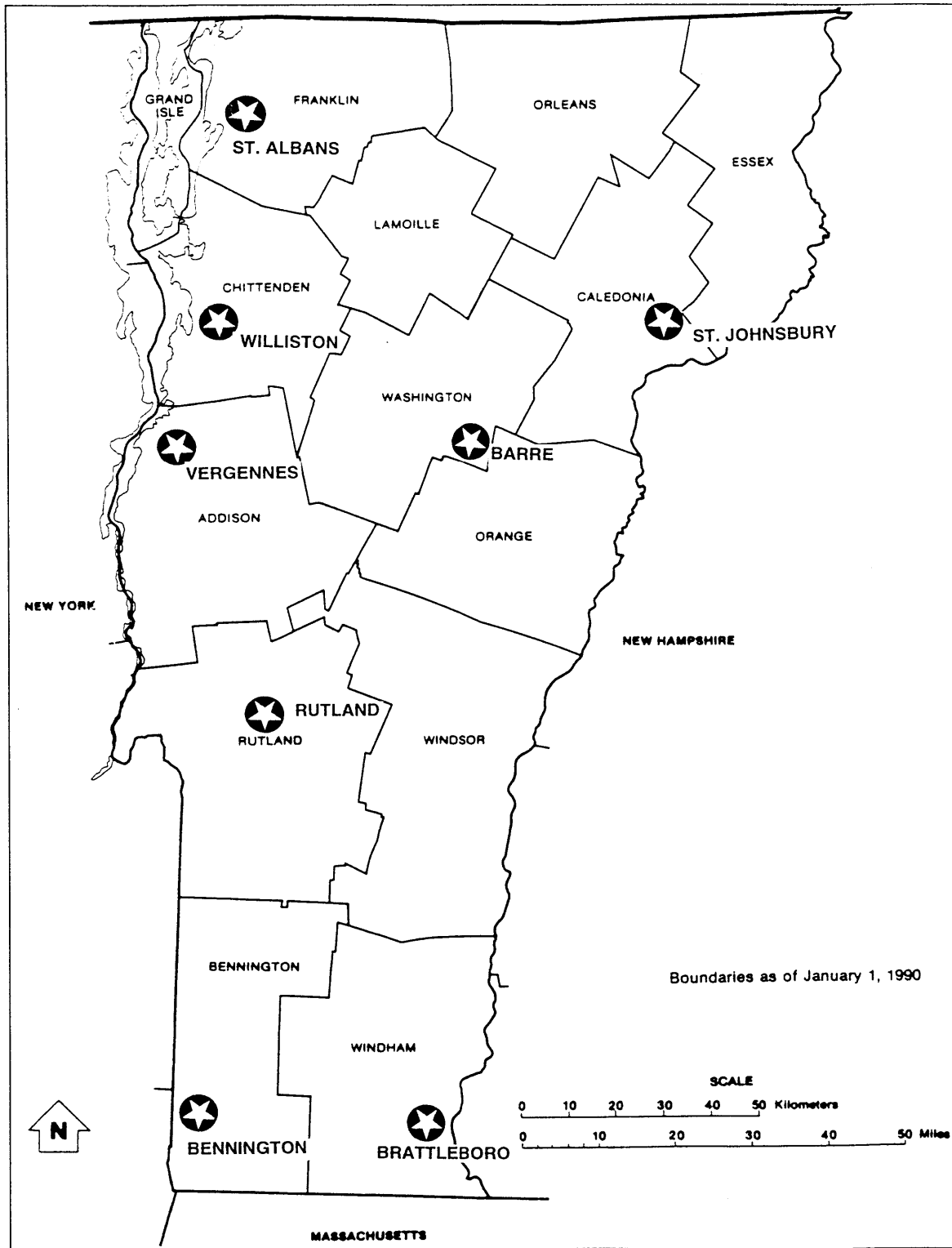


Figure 4.5: Probable Vermont locations for Wal-Mart stores
(SOURCE: Ann Cousins and Ron Powers, *Back Against the Wall*, video, 1994.)

Vermont

Vermont's Landscape

*(Things at their worst will sometimes mend.)*⁹⁸

Vermont, named after the Green Mountain chain that stretches from the Quebec border south to the Massachusetts border 157 miles away, remains a pastoral ideal for much of America. The undulating green tapestry of forest, farm and town lures hundreds of thousands of visitors a year; in the past two decades, many out-of-state retirees and self-employed professionals have also chosen to settle here. Its proximity to the Boston-Washington megalopolis and the urbanized belt around the Great Lakes makes Vermont the "flavor in the sandwich," the greenbelt of choice for much of the Northeastern United States. ⁹⁹

The verdant landscape and often picture-postcard-perfect towns lead many to believe they are in an unsullied, timeless part of America. In fact, Vermont's landscape has undergone dramatic change over the 270 years since the first European settlement. The thick forests, for example, now covering approximately 76% of the land (some 7,030 square miles)¹⁰⁰ are largely second growth forests. In chronicling the changes in the land, Vermont geographer Harold Meeks characterizes the forest transitions as an altered ecological cycle. The forests are gradually reverting to a climax stage, but a climax that differs significantly from the pre-European settlement forests. Present forests are more diverse; species planted for ornament or shade now diversify the

⁹⁸ Old Vermont proverb cited in Wolfgang Mieder, *Talk Less and Say More: Vermont Proverbs*. (Shelburne, Vermont: New England Press, 1987), 43.

⁹⁹ Norman Williams, Edmund H. Kellogg, and Peter M. Lavigne, *Vermont Townscape* (New Brunswick, New Jersey: Center for Urban Policy Research, Rutgers State University of New Jersey, 1987), 11.

¹⁰⁰ *The Vermont Almanac*, 96.

woodlands mix, and formerly dominant species, such as beech, are now surpassed by maple and birch in much of the state.¹⁰¹

Past landscapes can be reconstructed from literature, surveyors' accounts, and botanical sleuthing, but we are dealing with a range of probability rather than certainty. After 1850, the extensive land use data from the United States census provide a consistent measure of land use patterns. It appears that the height of the clearing was in the 1870s, when perhaps as little as 20% of the land was forested. Extensive logging operations and farming led to the clearance of the more convenient lowland areas first; gradually, farmers and loggers moved upland toward the 2,000-foot elevation line. As the steeper slopes were less convenient, and often less productive, these higher elevations were frequently abandoned first. Thus, the uplands have had the longest time to revegetate. Some of these areas are just beginning to reach the northern hardwood climax stage, which takes at least 125 years to achieve.

Vermont writer and farmer Noel Perrin captures the essential character of the Vermont landscape today:

The central truth about our landscape is that it's introverted. It's curled and coiled and full of turns and corners. Not open, not public; private and reserved. Most of our best views are little and hidden. It was only after I started doing contract mowing of hayfields around town that I got behind people's houses and saw vista after vista that you'd never guess from the public roads. We like secrets.¹⁰²

¹⁰¹ Forest composition and historical changes were derived from Harold Meeks' discussion of Vermont vegetation patterns, in *Vermont's Land and Resources* (Shelburne, Vermont: The New England Press, 1986).

¹⁰² Noel Perrin, *Last Person Rural* (Boston: David R. Godine, 1991), 124.

His introverted Vermont landscape is largely a late twentieth-century phenomenon. Its green cover masks more than abandoned farms; the ruins of industry are hidden as well, made picturesque by decay and the passage of time. In describing the ruined copper mining landscape of Copperfield Village, he speculates:

I see no assurance that present or future waves of factory-building will leave such handsome remains behind as former ones have. The people who built back then had the advantage of natural materials, which generally age well. It's hard to go wrong when your ruin is of stone, or rosy old brick, or weather-beaten clapboards. But most modern factories start with basically ugly materials, and they age quite badly. ...But here I go too far. How can I know they never will be? It is notoriously hard to judge the artifacts of one's own time. I have seen photographs of Copperfield Village in its heyday, and that was an ugly sight, too. If I had lived then, I think I would have said that corner of Vershire was ruined, probably forever. I think I would not have imagined people coming a century later to stare in awe at the smelter chimney....

Unless we manage to kill off trees and grass altogether (in which case we'll presumably kill ourselves off, too), it may be that the alternating cycles of forest, farm, and factory will keep on making the New England landscape richer and richer for a thousand years to come.¹⁰³

Perhaps his speculations on the intrinsic regenerative power of the New England landscape are correct, and thus the Vermont landscape as we know it today has a promising future.

¹⁰³Ibid.

Vermont Townscape

*(Keep a thing seven years and it will sort of do.)*¹⁰⁴

Other students of the Vermont landscape are less sanguine, especially when it comes to the classic Vermont town. The compact towns of Vermont have distinctive physical qualities that evolved over a long period of settlement. In a detailed study of the Vermont townscape,¹⁰⁵ Norman Williams and co-authors found that typically the towns have architecture of consistently high quality; although nonresidential buildings were built during different periods, they are compatible and human-scale (normally, three stories or less, similar in scale to nearby houses). Towns are centered around a town common, with the principal civic, religious and cultural buildings clustered around an open green space. Figures 4.6 and 4.7 show an archetypal example, South Royalton, with its rectangular town common surrounded by post office, bank, inn, church, and commercial buildings. While the principal street(s) flows around the town common, through traffic is light.

In the Vermont townscape study--dating from the mid-1980s--the authors identified several threats to the beauty of the townscape. Ironically, the reforestation of Vermont is seen as an aesthetic problem in regard to townscape, as formerly open views are blocked. Town form is more dramatically threatened by strip commercial development; Williams and his group believe that strip development has begun to attenuate the formerly compact townscape. They describe this problem as a "creeping suburbia,"¹⁰⁶

¹⁰⁴Old Vermont proverb, cited in Talk Less and Say More, 16.

¹⁰⁵ Vermont Townscape, 44-45.

¹⁰⁶ Vermont Townscape, 7.

although Vermont towns are often under 5,000 population and far from any large urban centers. Increasing development may also lead to a more cluttered appearance, with a thicket of traffic and commercial signs blocking the views in town as well as on the roads into town (Figure 4.8).

Incompatible architecture is seen as another aesthetic threat. Traditionally, small general stores, neighborhood shops, and professional services have located in converted residential buildings, or in buildings composed of similar architectural elements (Figure 4.9 and 4.10). In recent years, unattractive and incompatible commercial facilities have replaced the more compatible residential-scale buildings in the center of town, as well as along the roads leading into town. The strength of the highly prized ensemble is thought to be weakened by these discordant elements.

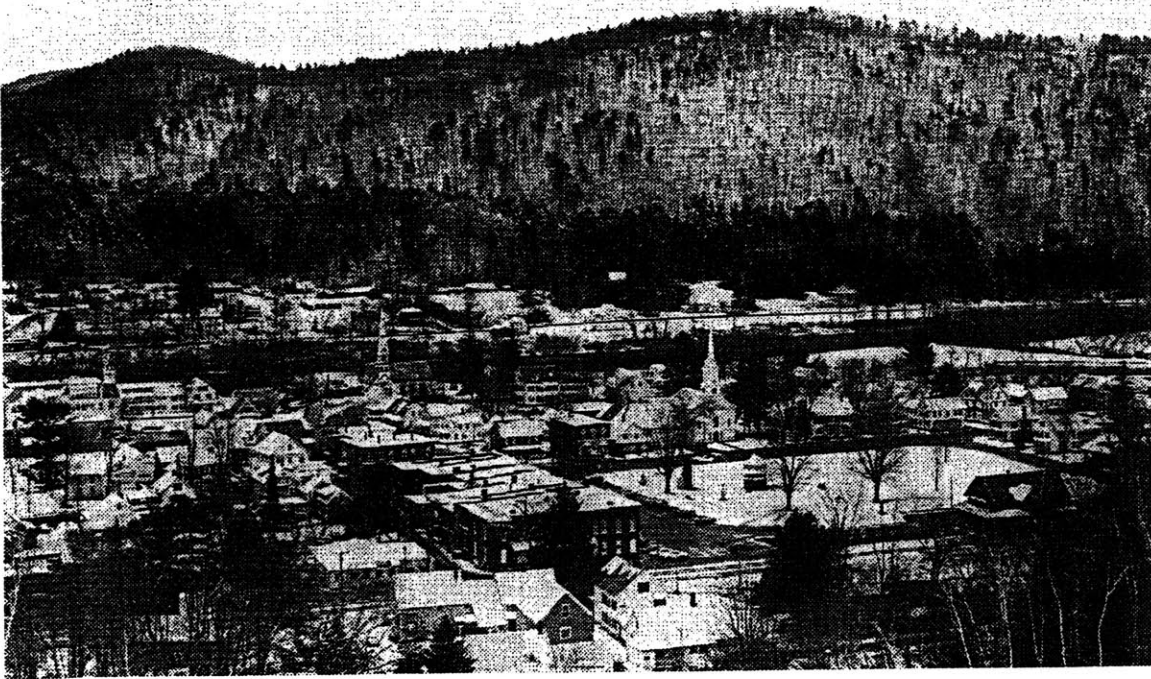


Figure 4.6: South Royalton
(SOURCE: Norman Williams et al., *Vermont Townscape*, 1987.)

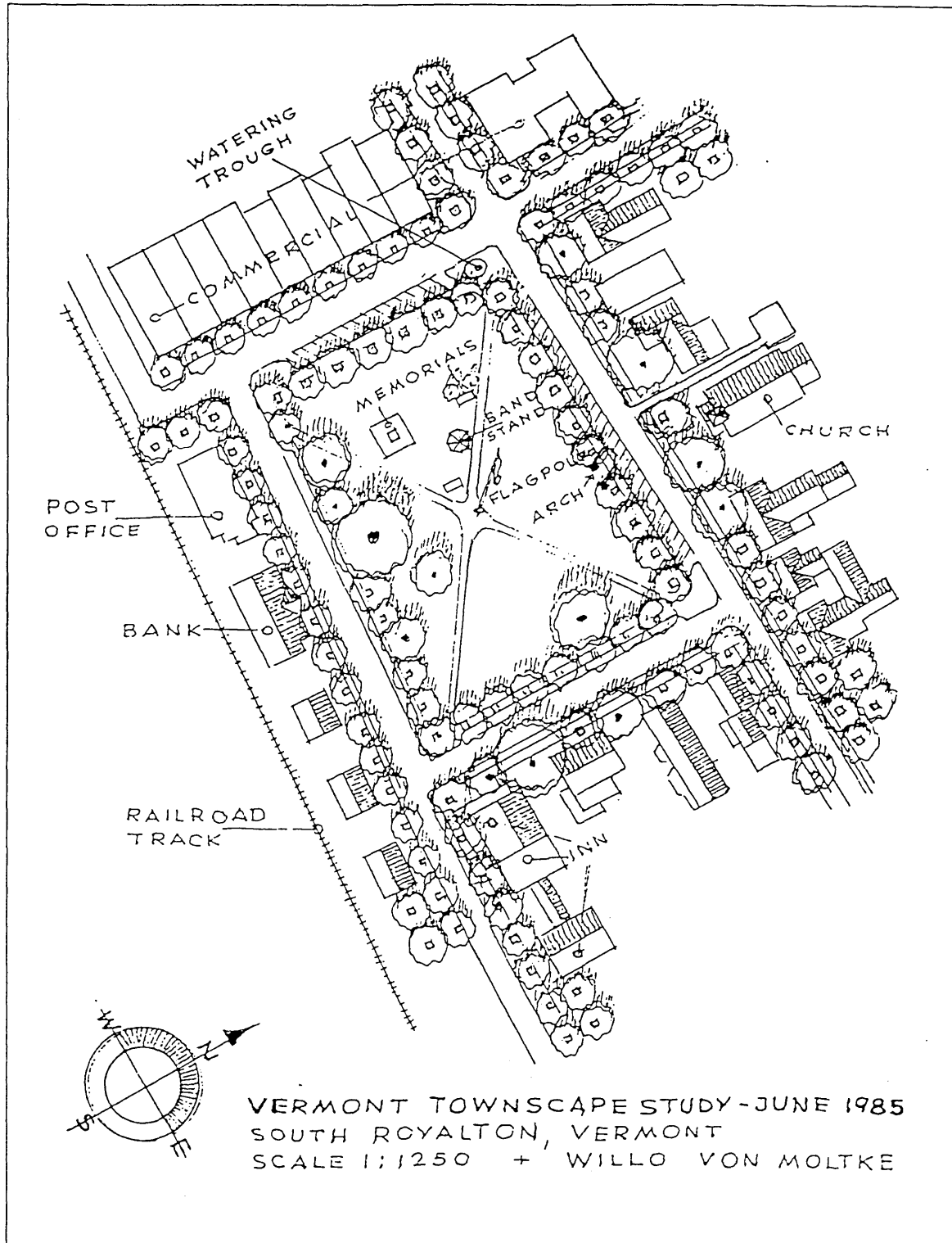


Figure 4.6: South Royalton

(SOURCE: Norman Williams et al., *Vermont Townscape*, 1987.)

Beyond aesthetics, whose importance should not be underestimated for both visitors and residents alike, lie the more pressing issues of the day. While preservationists and designers may consider aesthetics the primary issue, they have linked their concerns to economic, ecological, and social statements. The linkages may not be direct; connections between the many possible social and economic changes and the physical effects of these recent changes are difficult to verify. Nevertheless, organizations such as the National Trust for Historic Preservation (NTHP) risk making these links because there is enough compelling evidence to support their point of view, and because a coherent story is much more convincing to a skeptical public.



Figure 4.8: Cluttered commercial Vermont roadside
(SOURCE: Norman Williams et al., *Vermont Townscape*, 1987.)

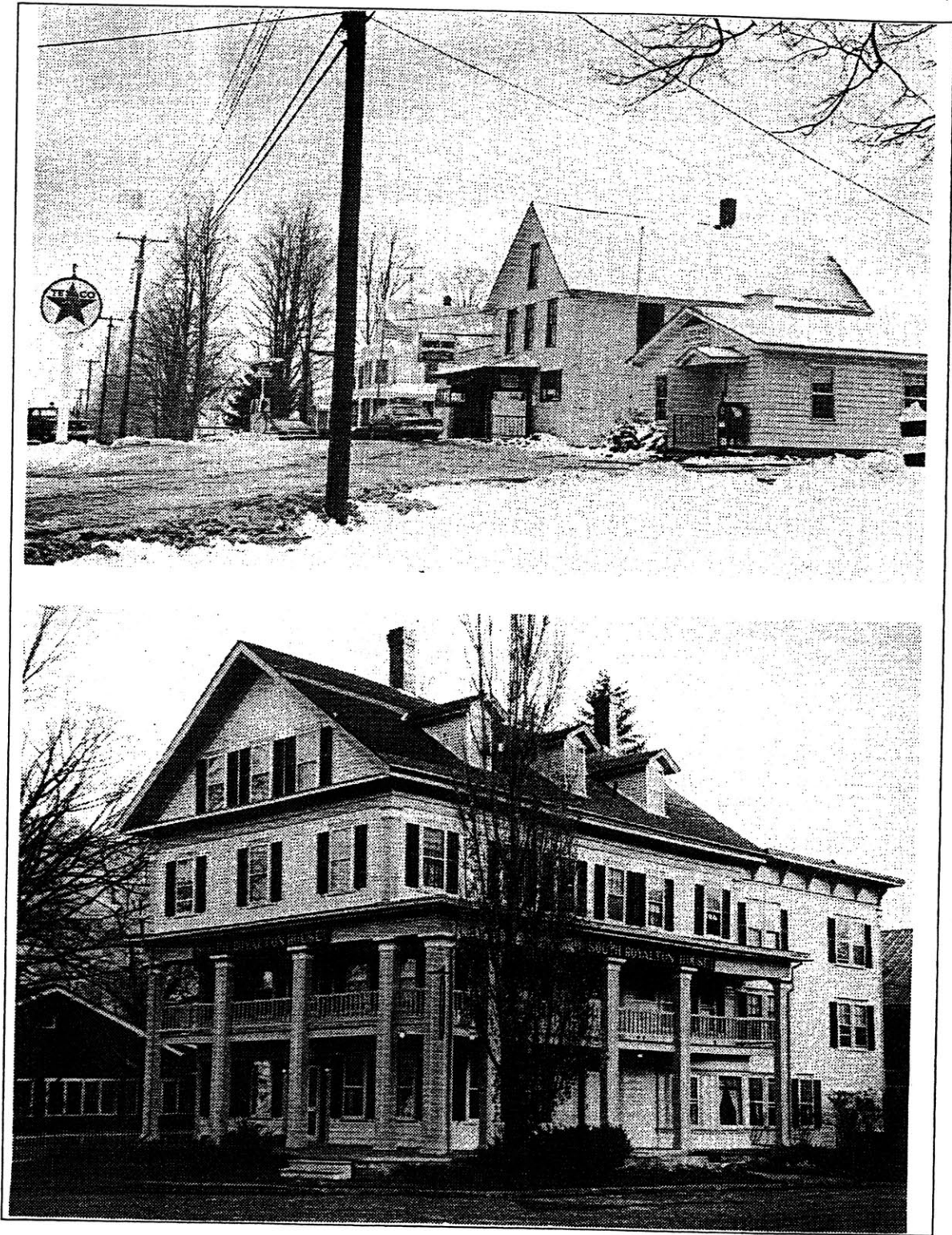


Figure 4.9: Typical Vermont commercial building
(SOURCE: Norman Williams et al., *Vermont Townscape*, 1987.)

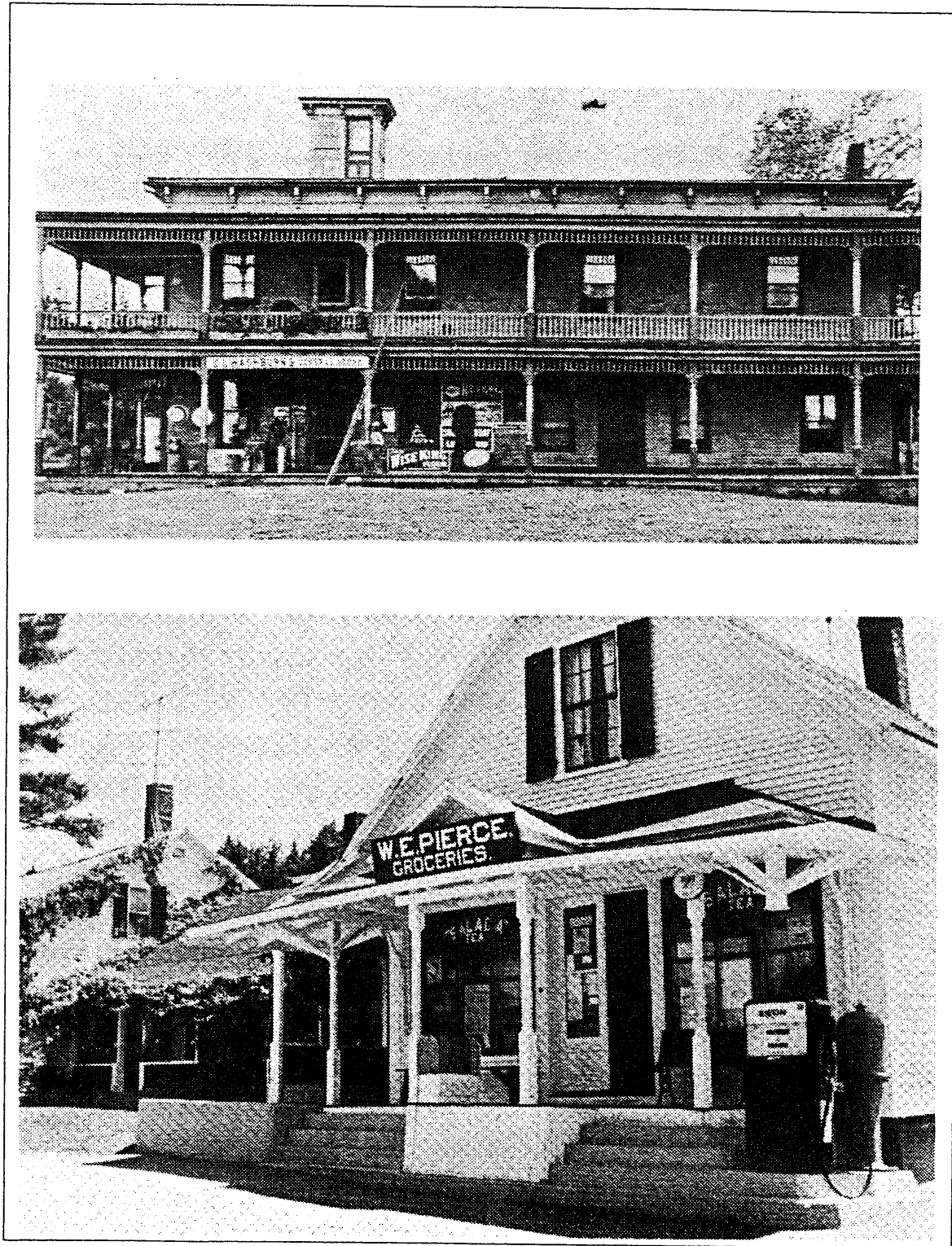


Figure 4.10: Typical Vermont commercial building
(SOURCE: Norman Williams et al., *Vermont Townscape*, 1987.)

Population Changes

*(What you lose in the dance, you make up in the turnabout.)*¹⁰⁷

In the past two decades, Vermont has experienced rapid population growth after a long quiescent period. We can glean much from studying recent and historical U.S. census data. Figure 4.8 shows an almost stable population between 1850 and 1950. After the early period of settlement, there was an out-migration.

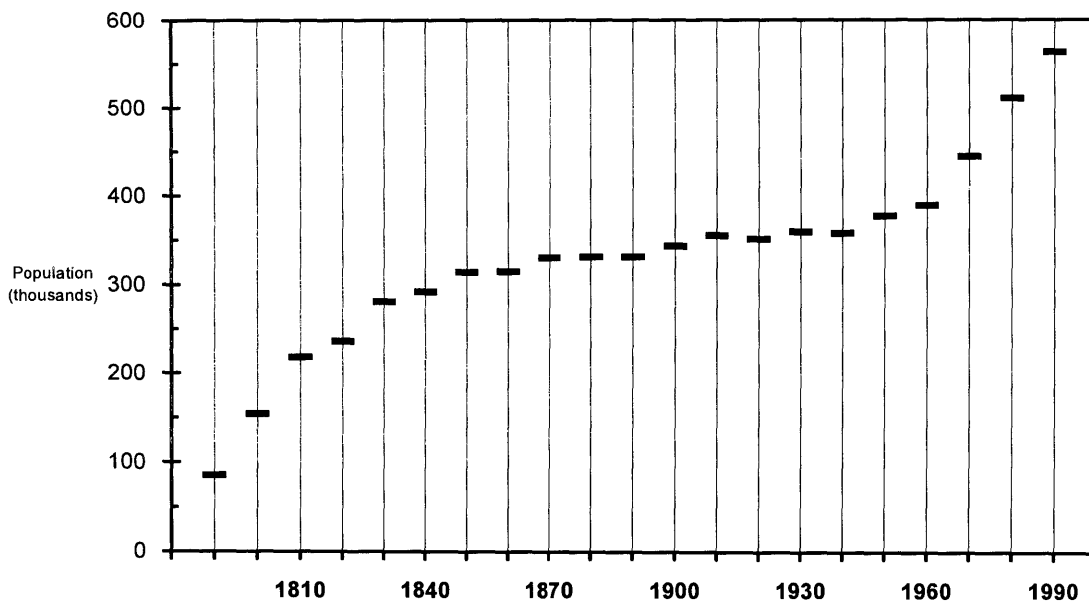


Figure 4.11: Vermont Population Growth 1790 to 1990

(Source: U.S. Census)

Many Vermonters headed west during this period in search of larger and less difficult farming opportunities, as they discovered the truth of the old Vermont proverbs, "When you buy the land, you buy the stones" and "It's a rare farm that has no bad ground."¹⁰⁸

¹⁰⁷ *Talk Less and Say More*, 30.

¹⁰⁸ *ibid.*, 22.

Dairy farming gradually replaced sheep farming; after 1900, there was also movement out of the hills, down toward the valleys and nearer transportation to the milkshed.¹⁰⁹

As Figure 4.11 indicates, there was a marked increase in population beginning in 1970. By 1990, an estimated 39% had not been born in Vermont, as compared with 20% in 1960. Proportionally, out-of-state immigrants far exceeded the number of natives leaving, as net population growth was 14% in 1970 and 15% in 1980. The overall growth rate for 1990 exceeds the mean US rate, 9.76%, although Vermont's growth rate doesn't come close to the fastest-growing far-Western states such as California (26%) and Nevada (51%).

The makeup of the population changed markedly in other ways as well. In 1920, approximately 125,000 Vermonters were considered "rural farm population"; by 1980, only 18,000 were similarly classified. Meanwhile, the nonfarm population almost tripled, from 118,000 to 320,000 in 1980.¹¹⁰ Relatively few earn their living full-time from farming now, but on anecdotal evidence, Vermont is filled with many part-time farmers, such as Noel Perrin, who work their land for pleasure as much as sustenance.¹¹¹

Yet in the technical sense, Vermont remains a predominantly rural state, although the number of farmers and farms has shrunk as a result of the increased mechanization and productivity of modern American agriculture. Among the New England states, Vermont

¹⁰⁹ Summary of historical population changes from The Vermont Papers and Vermont Townscape.

¹¹⁰ Vermont Townscape, 15.

¹¹¹ Perrin, who earns most of his living as a Professor of Environmental Studies at Dartmouth College, writes of the baby tractors, miniature bulldozers, mini-harrows, and pre-fab barns now available for the weekend farmer. See "In Praise of Old Equipment," Last Person Rural, for a fuller description.

has the second lowest population per square mile, after Maine. Vermont's population density is comparable to the least dense regions of the country, such as the farm belt of the Midwest. Population is distributed in 236 towns, most with under 6,000 residents, several unorganized townships, and nine cities. The cities are small for the most part, under 15,000 population, except for Burlington. Burlington counts a population of some 38,000 within city limits and contains almost a quarter of Vermont's population in Chittenden County. Unlike the rest of Vermont, its urban density is similar to that of southern New Hampshire, but it is still far below even the suburbs of Boston, New York City, and New Jersey.¹¹²

Income levels generally mirror population concentrations--the highest median family incomes are found in the more urbanized counties, with their higher proportion of higher income professional occupations. Table 4.6 shows counties in descending population order, which to a great extent correlates with median family income and mean annual wages. Figure 4.12 shows county boundaries, cities, and well-known towns to place these data in context.¹¹³

Finally, regarding this sketch of Vermont's population, it may be noted that the state, like much of New England, is very homogeneous in terms of its ethnic and racial composition. Even with the strong growth rate and churning of the population, as native Vermonters leave to seek work or retire elsewhere, the population has maintained a similar composition.

¹¹² 1990 Census analysis based on graphic and tabular summaries in Atlas of the 1990 Census by Mark T. Mattson, Macmillan Publishing, 1992.

¹¹³ Income tables and accompanying map were derived from The Vermont Almanac, 3rd ed., 1993.

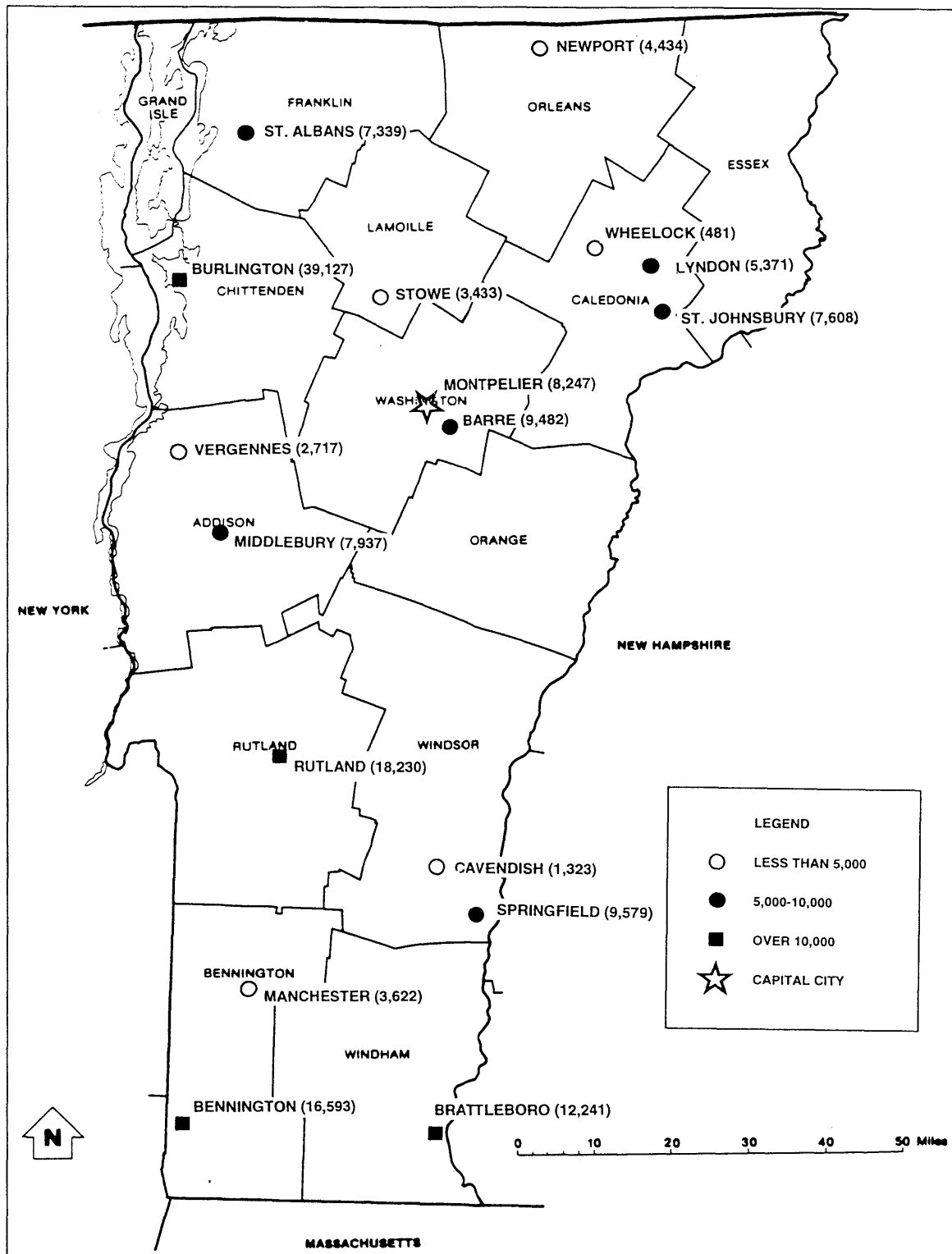


Figure 4.12: Vermont Counties and Municipalities
 (SOURCE: Northern Cartographic, Vermont City Maps, 1993.)

Table 4.3 Vermont Counties Population and Income

County	1990 Pop.	Percent of State	Mean Annual Wage 1990	Median Family Income 1989
Chittenden	131,761	23.4%	\$24,044	\$43,972
Rutland	62,142	11.0%	\$19,542	\$32,743
Windsor	54,055	9.6%	\$19,226	\$34,691
Washington	54,928	9.8%	\$20,067	\$35,396
Windham	41,588	7.4%	\$19,734	\$32,593
Franklin	39,980	7.1%	\$18,557	\$32,272
Bennington	35,845	6.4%	\$18,924	\$33,513
Addison	32,953	5.9%	\$19,344	\$34,561
Caledonia	27,846	4.9%	\$18,172	\$29,877
Orange	26,149	4.6%	\$17,080	\$31,066
Orleans	24,053	4.3%	\$16,516	\$26,469
Lamoille	19,735	3.5%	\$15,727	\$31,772
Essex	6,405	1.1%	\$19,106	\$26,096
Grand Isle	5,318	0.9%	\$14,044	\$33,629
Total Vermont	562,758	100%	\$20,531	\$34,780

In 1990, the census showed that African Americans, Asians, and Latinos made up 1.6% of the population; in contrast to neighboring New York (32.1%), Massachusetts (12.2%), and Connecticut (14.8%). This lack of diversity may be a positive factor when a community is facing difficult land use decisions, in that a more homogeneous group may hold a more unified set of values, goals, and objectives.

Summary

In this chapter, I have provided the background for a case study concerning the issue of megastore siting in Vermont. The major megastore companies were described, with an emphasis on Wal-Mart, the largest retailer. Wal-Mart's store siting strategies and their plans to expand into New England were discussed. Because Vermont has been targeted by Wal-Mart, the particular qualities that characterize Vermont were highlighted.

This background forms the basis for the hypermedia programming decisions that will be explored in Chapter 5, which describes a hypermedia prototype for informing the public debate in megastore siting situations.

5

Creating a Hypermedia Prototype for Informing the Public Debate

Introduction

In this chapter, I will describe a project that explored the use of hypermedia in framing planning problems and enhancing public discussion of possible solutions. The process of creating the hypermedia tool for public involvement, which is now in its third version, will be detailed. Finally, I will explore how the prototype described in this chapter may be tested and used to enhance traditional citizen participation efforts.

First Steps: Defining the Project

In October 1993, MIT Professor Philip Herr was asked by the Northeast Office of the National Trust for Historic Preservation (NTHP) to explore the use of hypermedia for an informational presentation on the impact of megastores on the New England landscape. NTHP is a quasi-governmental organization concerned with the preservation of America's historic landscapes and buildings. Although NTHP maintains scores of nationally significant individual historic properties across the country, much of its energy is focused on educating the public to appreciate the less-significant historic structures and common landscapes that altogether make up our national environmental heritage. As the "client" for the hypermedia project, they provided the project team with information, staff assistance, and some office services.

Herr recruited a group of MIT students to work on the project on a pro bono basis in October. I joined the group of six MIT graduate students who elected to work on the project as part of a fall semester class. Once the semester was over, I continued to work independently on the prototype.

NTHP asked the MIT team to explore how small towns might respond to a megastore that seeks to build in their town. In 1993 NTHP named the entire state of Vermont as one of America's "Eleven Most Endangered Places", largely to call attention to the Wal-Mart Company's attempt to establish a beachhead in historic towns such as St. Albans and Williston. NTHP also considers other large discount chains and large regional malls that plan to locate in Vermont a threat to the Vermont landscape and way of life. While NTHP has taken a strong position on the issue, which they have elaborated on in their June 1993 position paper¹¹⁴ and other materials, Herr encouraged his students to consider other perspectives in addition to the position taken by NTHP.

NTHP was particularly interested in strategies that towns might use when faced with an application from a megastore company. They hoped that the MIT team would reinforce their work with more detailed case studies of towns that had successfully negotiated mitigations with developers, or fended off megastore development altogether. The National and Northeast Region NTHP staff had done a great deal of research already, yet they hoped that there was more to be discovered.

¹¹⁴ National Trust for Historic Preservation, "Vermont", Memorandum, June 22, 1993, Washington, D.C.

The team's essential contribution, however, was to package all this information in a compelling way. While Vicki Sanstead, the Director of the Northeast Office, did not specify how to present the work, she encouraged the team to explore multimedia software as an educational medium. Sanstead had worked with Barbara Barros on a CityView/TownView Hypercard project on Walden Woods (see Figure 3.9), and she was enthusiastic about the potential of interactive multimedia as a tool to enhance citizen involvement. Because Hypercard is so widely available (it was bundled as free software with Apple microcomputers in the late 1980s), and because it was familiar to some members of the project team, we decided that it would be best to create the interactive multimedia project with Hypercard.

Structuring the Presentation

Hypermedia Design Issues

The Hypercard software is extremely flexible, and as the examples in Chapter 3 indicate, it allows great leeway in stack design and linkages. Unlike print, film, or other well-established media, hypermedia does not have a long history of standard formats and preferred styles. The structure of the hypermedia presentation and its style must be determined by the hypermedia project author.

There are some general principles for structuring projects, as well as a set of graphic standards based on the commercial operating programs. Probably the two most important organizing principles for participatory design projects are: first, give the user a clear set of paths through the program, and second, allow the user to exit at any point. Because most traditional presentation media have relied on linear sequences,

there is a certain comfort level with a linear format. The path through a book, documentary film, and so on is programmed; e.g., with a book, one always knows that one is on a certain page and that that page is so many pages from the end. Furthermore, the writer will structure the information accordingly; there will be an introduction, chapters, chapter sub-sections, a summary, and conclusion.

One could create a hypermedia book with one linear sequence, but this does not take advantage of the true potential of hypermedia. With hypermedia, information is stored in separate chunks that can be linked to any other chunk by the hypermedia project author. In a Hypercard stack, the individual "cards" carry chunks of data that can be linked with buttons. Each card will also be linked to the card in front and in back of it, in the order that it was created, but the author can shuffle the cards. Stacks, which are tightly linked groups of cards comparable to a single document file, can also be linked to other stacks, adding yet another level of complexity. In a well-designed project, the user presses a button to move from card to card without being aware of the computer programming that lies behind that action. Thus, the project author is limited more by the user's ability to see and comprehend the linkage choices available than by the capacity of the hypermedia program to handle a large number of linkages.

The second organizing principle is really a corollary of the first: there must be a clearly marked escape hatch so that the user always knows how to exit the program at any point. If the array of choices becomes overwhelming, or the user becomes bored, or runs short of time, it only takes moments to safely exit the program. The escape hatch reassures the visitor to "hyperspace," the mysterious world of non-sequential

experiences, that it is possible to control the trip through hyperspace and thus control the amount of time one devotes to exploring the program.

Structuring the Hypercard Stacks

The project team began by trying to frame the planning problem identified by the client. The team reached the conclusion quickly that small towns are not dealing with a simple yes or no decision. Beyond the siting decision, a town faces a number of issues when deciding whether to allow a megastore to build. As Chapter 4 suggested, these issues traverse the gamut from architectural style to job retention in a depressed economy. While some team members aligned themselves with the NTHP viewpoint, and framed the problem accordingly, others were less certain of their position or even somewhat inclined toward an opposite viewpoint.

As the data started to accumulate, the team realized it needed an overarching design that would cover the full scope of the problem, yet incorporate as much case study and background data as possible. Within whatever framework the team decided on, the goal was to create a program compelling enough to lure the casual browser to explore issues more fully and, on the other hand, create a program that would persuade the highly opinionated user to consider other perspectives. The team pondered the following questions as to how to structure the hypermedia product as case study material and background information was collected.

1. What are the available strategies for a town?

1. Turn down the megastore's application to build (no compromises)
2. Accept the megastore with mitigations (some compromises by the megastore and town)
3. Accept the megastore unconditionally (no compromises)

2. What are the possible outcomes of any megastore siting situation?

If a megastore wants to build in a town, we outlined four possible outcomes from the small town's point of view:

- A. Megastore builds with no compromises/town outcome is overwhelmingly negative:
the megastore builds as it pleases, the town loses more than it gains
- B. Megastore builds with no compromises/town outcome is overwhelmingly positive:
the megastore builds as it pleases, the town gains more than it loses
- C. Megastore builds but compromises/town outcome is generally positive:
the megastore builds but offers mitigations, town gains more than it loses
- D. No build/town outcome is overwhelmingly positive:
the megastore doesn't build, the town keeps the status quo

3. How should the information be organized?

- ◆ **Audience(s):** Who is the audience? Is it Vermonters? Or a regional or national audience? Adults only? The National Trust's audience/perspective?
- ◆ **Plotting:** Should there be a story or stories? Is there a beginning, middle and end to the information in a plotted sequence of events? Should case study material be presented as a set of stories? Should the team create its own story based on the case study and background material?
- ◆ **Point of View:** Should different points of view be used to present the issues and strategies for dealing with a megastore? How many and whose points of view should be included? Should the megastore's point of view be presented?
- ◆ **Topical::** Within any overriding scheme, should there be a topical organization, e.g. "design issues, economic issues, transportation issues"?
- ◆ **Interactive?:** Where can the user make choices in the program? Should users be able to insert their own material? Where would this be appropriate--in comment sections for each part, or perhaps in the form of a complete but separate module for their own town?

Using traditional presentation media, one might logically first decide who the audience is so that the style and organization of material is consistent throughout the presentation. Because hypermedia permits many levels of detail and choices, it is tempting to avoid making this decision. Even if the author wants to appeal to a heterogeneous audience, some choices need to be made so that the final user

interface is coherent. To this end, the project team decided to define the audience as adult residents of small towns in New England.

Later, after designing the framework, the team decided that the program would target Vermont residents in particular, as originally suggested by the NTHP staff. This was done for three reasons. First, as was outlined in Chapter 4, the megastore siting issue is now particularly salient in Vermont, and thus Vermonters have a great deal of interest in learning more about the situation. Second, Vermont has an especially robust tradition of participatory democracy, as manifested in its town meetings, and thus the hypermedia prototype might actually be used to inform the public debate on megastore siting. Third, by focusing on one specific area, the team could limit the amount of data necessary to convey the essentials of the megastore siting issue.

Beyond this first decision as to the audience, the team considered several very different frameworks that addressed the questions listed above. The most obvious framework was an interactive kiosk framework. In a kiosk organization, the user seeks his own path--there is no obvious sequencing or plotting of information, except perhaps from the general to the specific. Kiosks usually organize information by topic, so that in this case, the kiosk approach would direct the user to categories like "transportation" or "job loss" or "building styles." Most of the case studies of other towns and background information could be included under each topic. There is no one identifiable point of view, although there is an attempt to be "objective" in the way that a newspaper or encyclopedia is objective.

Another familiar framework was a war games approach. This approach capitalizes on the excitement of a war story. The material is carefully plotted and the emphasis is on strategies to deal with a perceived threat rather than exploring whether there is a threat or to what degree the town is threatened. In this approach, the user would see the megastore's building permit application mainly as a declaration of war, i.e., primarily from the town's point of view. However, a less polarized approach could work: the town might be divided over whether the megastore was really the enemy, and there might be spies who present the megastore company's point of view. The emphasis would still be on strategies rather than problem definition or final outcomes.

A third framework, dubbed by the student team as the Rashomon approach, was also considered. Akira Kurosawa's classic Japanese film Rashomon (1951) begins with a priest and woodcutter in ancient Japan sitting in a temple in the rain. The woodcutter, shaking his head, tells the priest there's been a murder, and goes on to relay a chilling story of seduction, betrayal, and murder. The other principal characters (a samurai warrior, his wife, and an evil bandit) relay their stories in turn, and the murder becomes a suicide, the seduction becomes a rape, the innocent witness (the woodcutter) becomes a thief as the storyteller changes. We see each character's version of events as a fully realized story, and so by the end of the movie, we are left uncertain as to what has actually occurred, and whether it is even possible or desirable to place a single interpretation on the events relayed.

The Rashomon framework can give each point of view a fair hearing, no matter how opposed it is to the listener's perception of reality. Each point of view regarding the megastore issue is considered and given voice. Characters represent these different

positions, and they have a chance to state their values, beliefs, issues, strategies, and expected outcomes. The approach relates closely to the Ecologue affinity group philosophy--let each group within the larger community have its say, and then help the groups disaggregate the beliefs, issues, and strategies to bring different groups to some kind of consensus about issues and strategies.

The Framework: The Story of MightyMart and PrettyPlace

The team chose the Rashomon framework and contrived a central plot device to organize the characters around. The device was the Vermont town meeting. Vermont towns hold their official town meetings the first Tuesday in March, and town residents receive an annual town report and a "warning" (the agenda) of what will be discussed. Town residents vote on everything from the town's charitable contributions to major land use changes. Conceivably, at an annual town meeting, residents might have to consider a megastore's application for a rezoning or consider the megastore's impacts in their capital budget.

The team created the story of a typical small town that must decide what to do when a megastore requests permission to build on an abandoned farm property. The permitting decision will come up for a vote at the annual town meeting next month.

PrettyPlace, the fictional town of some 12,000 residents, is modeled after the small towns in Vermont to give the story the geographic background that a land use decision requires. Its retail suitor, *MightyMart*, is modeled after megastores such as Wal-Mart, Price CostCo, K-Mart, and Target. Chapter 4 summarizes the background material that was drawn on to delineate the megastore *MightyMart* and the town of *PrettyPlace*.

The program user is welcomed to *PrettyPlace* as a visitor to the town. The Mayor, *Mayor Mary Magnani*, is an impartial figure (or at least one who keeps her own counsel) whose job is to guide the visitor through a discussion of the issues. She takes the visitor to an informal discussion at *Mel's Diner*, where a cross-section of the town can be found discussing the *MightyMart* situation. While *Mel* hosts the discussion (which sounds something like a participatory planning workshop), the mayor asks the visitor to listen in as she asks for feedback. The visitor will actually choose at this point what happens next. It is possible to listen to any or all of the four characters sitting in *Mel's Diner*. The four characters represent a combination of the four outcomes and three basic strategies listed above.

Charlie Collins, the conservationist, represents the "No Compromise" scenarios, and thus believes the town should fight *MightyMart*. *Anna Alcott*, the architect, represents a less firm opposition, but still feels that *MightyMart* might do more harm than good. She seeks compromise, that is, mitigation efforts by *MightyMart* to lessen the expected physical impacts. *Samuel Stephens*, the shopkeeper, is wary of *MightyMart* but believes he may get some spin-off business. On the other hand, his business may fail if he and other shopkeepers do not learn quickly how to coexist with a *MightyMart*. *Samuel* seeks some mitigation from both *MightyMart* and the town, but realizes he will have to do much of the compromising. *Franklin Furness*, an unemployed construction worker, speaks for a consumer point of view, and thus is totally pro-*MightyMart*. Rather than ask *MightyMart* for mitigations, he believes the town should fully support *MightyMart's* application to make sure *PrettyPlace* reaps all the benefits.

Each character expresses his or her views first as a listing of issues or concerns and second as a set of strategies to address those concerns. The visitor can stay with one character all the way through the issues and strategies or, instead, go back to *Mel's Diner* after listening to one character's issues to begin another character. After completing a character, the visitor can choose to go to the mayor's summary rather than listening to other points of view. The mayor, a cagey politician, will of course refer to all the characters, and she will show some of the links between them. The idea is to encourage the visitor to give each character a fair hearing, and thus to consider different points of view. When the visitor is done listening to the four characters, the mayor offers to print her notes and a reference list. The reference list at the end provides the visitor with the possibility of expanding his or her knowledge beyond the introduction the hypermedia program offers to a very complicated planning problem.

In Figure 5.1, a diagram of stacks shows the different paths one can take through the program. Along the way, as shown in the reproduction of some of the actual screens from the Hypercard program in Appendix B, the visitor can also choose the level of detail while listening to the character. For example, *Anna Alcott* sketches parking lots and building elevations, and *Samuel Stephens* quotes newspaper articles, but the casual visitor can skip this level of detail by ignoring the buttons that bring this information to the screen.

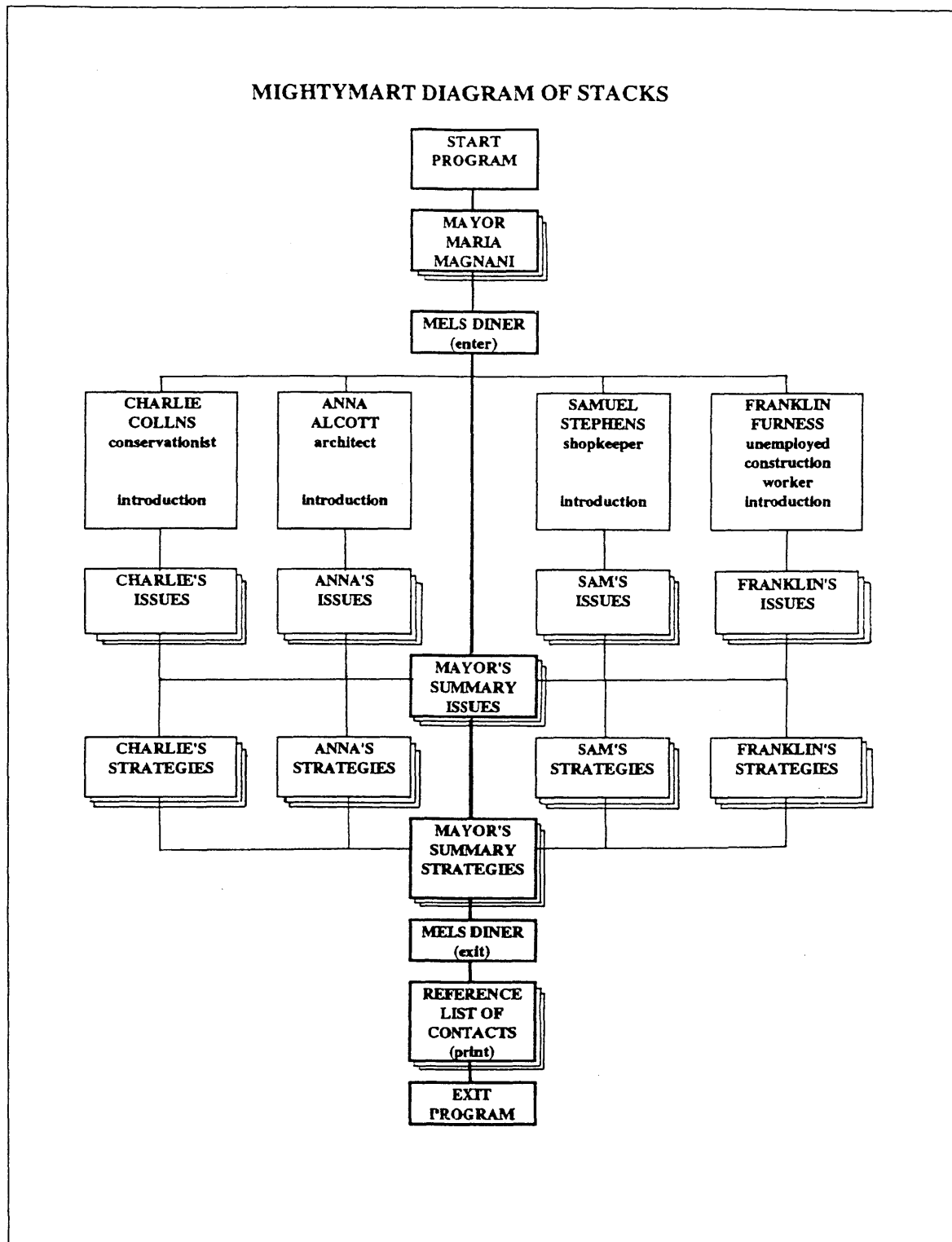


Figure 5.1: MightyMart diagram of stacks

(SOURCE: Barbara Stabin et al., MightyMart project, December 1993)

Refinement and Testing of the MightyMart Prototype

Refinement

After the project team had completed a skeletal version of the entire set of characters, the first version was presented to two NTHP staff in December 1993. Project team members took turns presenting the characters and the rationale for Hypercard card text and graphics. The NTHP response was generally positive; they liked the idea of using characters to represent different viewpoints, and the simple story structure. As the Hypercard version the team used had no color capacity built into the program, the only color graphics were a few color photos linked to the Hypercard program. NTHP staff commented that color would much improve the cartoon-like black and white graphics, and since they knew video links were possible, they suggested video would enliven the character biographies in the beginning.

I refined the original team project over the next few weeks to create a colorized version called *MightyMart and PrettyPlace*. The *MightyMart* cards had been designed so that each character had a black and white border that symbolized their interests and acted as an orientation device. In *MightyMart and PrettyPlace*, these borders were colored to help differentiate the characters and to make the whole more appealing. Other graphic design refinements were made to improve legibility and visual appeal: the buttons for navigating through the story were moved and standardized, an exit button and print card button was placed on each card, the text on all the cards was reformatted in a larger font, and additional text was added.

Video clips were excerpted from NTHP's own *Saving Places*, a 39-minute video on the New England landscape. A clip was chosen to represent each character's philosophy and placed in Mel's Diner (Figure 5.2) as an introduction to that character. At a second presentation to the NTHP staff, they commented that they missed the vitality and interest of having different presenters when the original project team read out the text on the cards, although the audio accompanying each video clip helped.

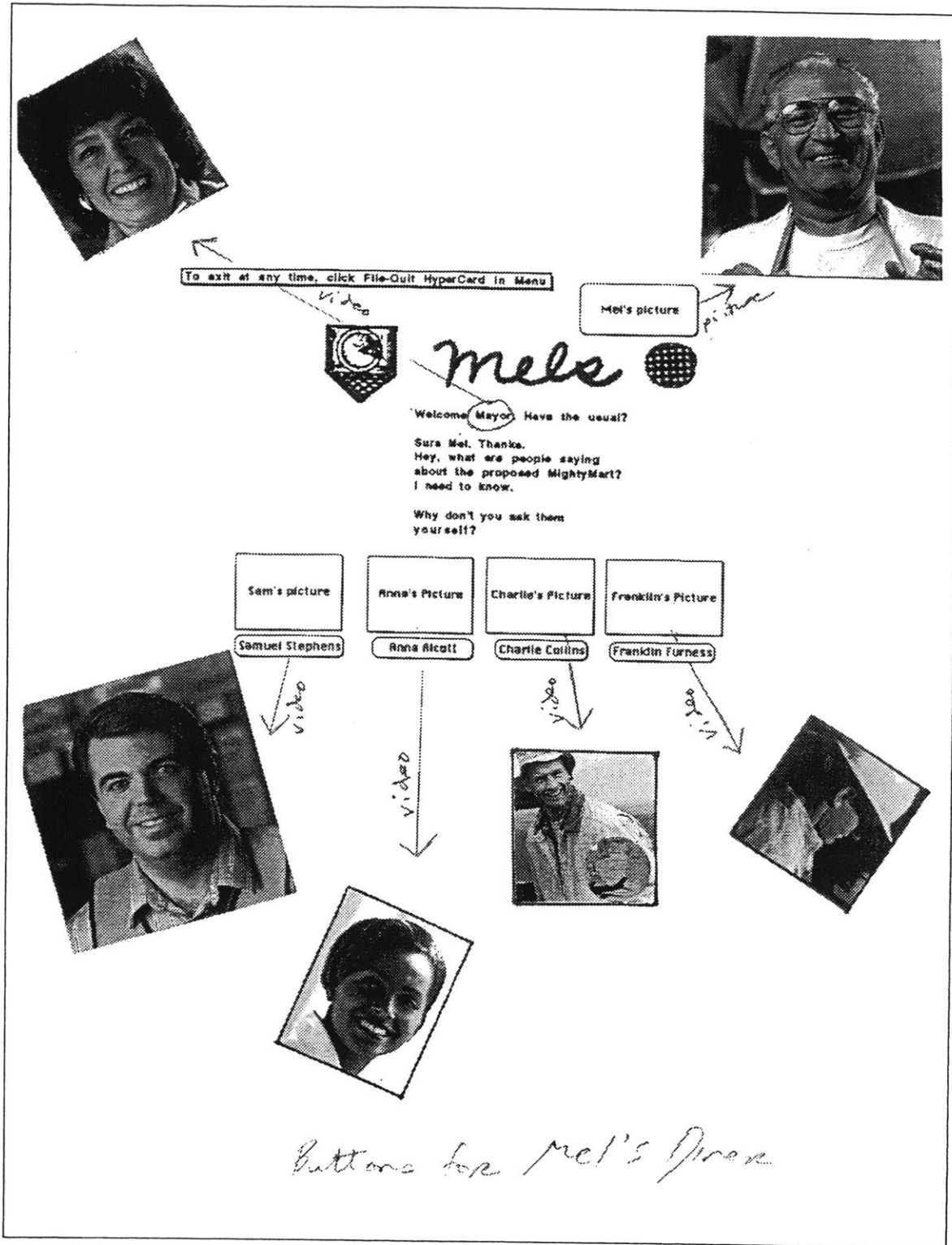


Figure 5.2: Mel's Diner card

(SOURCE: Barbara Stabin, *MightyMart and PrettyPlace* project, January 1993)

With this feedback, the Northeast NTHP office was approached for funding to continue working on a prototype. A small grant was awarded to cover some of the production costs involved in improving the second version. It had become clear with the second version that given the MightyMart story structure, it would be difficult to create a truly multimedia Hypercard product that would fit on one or two diskettes. Each character would require a number of color graphics, video clips, and audio clips to make them come alive. The time and cost of gathering the graphics and audio material, and the cost of storing it, were not predicted up front by the original project team. The first version had fit on two 1-megabyte diskettes, but the second version required four times as much storage. The third version is now stored on removable hard disks and will eventually be published on a CD-ROM disk, which holds approximately 600 megabytes.

The third version, *PrettyPlace, Vermont*, utilizes the same story structure but adds full multimedia effects. Video sequences have been added to certain cards to enliven the whole and to provide real references to actual physical environments referred to by the characters. For example, the architect, Anna Alcott, begins her biography and issues statement with a video tour of her *PrettyPlace*. She points out her favorite street scene and notes where she has coffee each morning. The video clips provide information about the physical environment that amplifies the character's position statements, as well as providing information that is difficult to convey in words. To gather the video footage, I traveled to Vermont in the early spring to capture streetscapes for *PrettyPlace*. Footage of St. Johnsbury and other Vermont cities and towns was then edited to create a reference set of streetscapes, architectural highlights, and Vermont landscapes. Footage was also gathered at the North Adams, Massachusetts, Wal-

Mart, several other New Hampshire Wal-Marts, and other major discounters to create reference footage for MightyMart's buildings.

Color photographs and slides were also taken for the same purpose. As a test, a color photograph of a Wal-Mart parking lot sign was digitized and the Wal-Mart logo was altered to say "*MightyMart*." The photograph was shown to several design students, who did not recognize the alteration. This suggested that one approach to improving the product would be to do more digital manipulation of photographs and videos to create a completely-fleshed out and seamless world of *PrettyPlace*. With unaltered photographs, videos, and clippings, the characters must reference real examples, which take the user outside the hyperworld of *PrettyPlace*.

By keeping the user within a fictionalized world and minimizing direct references to actual towns, it may make the suspension of disbelief easier. Fewer specific outside references also make *PrettyPlace, Vermont* a more generic story, and that will increase its utility to a greater number of towns in New England, and potentially outside New England as well. In this way, the hypermedia approach used in this project is like that of the 1970s simulation game designers. Designers such as Sanoff and Halprin created fictional environments to distance citizens from their own biases, so that they could examine planning problems in a fresh way and practice problem-solving skills in a safe way.

Audio was also be used to amplify the text or to comment on it. For example, the real Wal-Mart worker chant referred to by Franklin Furness, "Stack it deep, sell it cheap, stack it high and watch it fly, hear those downtown merchants cry," may be more

exciting if heard by the user rather than read off the card. Once again, it may be more effective to alter the audio references to reinforce the illusion of the MightyMart character. With audio, as well as with video and other media, there may be copyright problems as well, so this is another reason to create original material for this type of hypermedia planning tool.

Field Testing

Although time and funding constraints prevented a field test, I would recommend that a full field test be conducted before a hypermedia product such as *PrettyPlace, Vermont* is finalized. One or more sites should be selected, and several groups approached regarding the possibility of a field test. On the basis of my preliminary research, the Northeast Kingdom of Vermont (Caledonia, Orleans and Essex Counties) seems to be an appropriate area to run a test, since they are likely to be facing a megastore situation soon, and because they have a number of small towns with good town meeting attendance.¹¹⁵

PrettyPlace, Vermont might be shown and used at church meetings, colleges and high schools, fraternal clubs, chamber of commerce meetings, and so on to get a cross-section of the population. A before-and-after attitude survey could indicate whether the program is an effective tool for changing individual views, and how views vary between different segments of the population.

¹¹⁵ Vermont town meeting attendance has been going down in recent years, but generally towns with smaller populations in more remote areas, such as the Northeast Kingdom, seem to have better meeting attendance. For further information see Vermont Commission on Democracy, *Doing Democracy 1994: A Report for the Vermont Commission on Democracy* (Montpelier, Vermont: Office of the Secretary of State, 1994).

If attitudinal patterns vary significantly by age, sex, occupation, etc. in a way that challenges the basic characters and issues, the characters might be altered to reflect these differences. Altering the characters is relatively easy; it might involve rewriting text or reallocating issues and strategies between the four main viewpoints. New characters could also be added, although the discussion theoretically taking place in Mel's Diner should be kept small, since it simulates a workshop discussion group. Adding new characters is more of a hypermedia programming challenge; the programmer must link the new character with all the existing characters, in addition to creating a new stack of cards.

Once the hypermedia program is field-tested, a final CD-ROM version might be produced for distribution. Vermont and other New England communities might place a *PrettyPlace Vermont* program in their libraries, community colleges, town halls, or other easily accessible places. Individuals could use the hypermedia program to inform themselves about megastore siting issues and strategies. Community groups and town governments might wish to integrate a *PrettyPlace, Vermont* presentation into meetings that touch on megastore siting issues in the context of broader community planning concerns. More ambitious planners or activists might try to use the hypermedia program to stimulate and guide discussion in a more focused planning workshop preceding a town's decision on a megastore's rezoning application or building permit. In a workshop setting, the program could be used to begin brainstorming issues and alternative strategies for addressing these issues.

Summary

In this chapter I have detailed the creation of a hypermedia prototype for informing public debate. The strategies and choices involved in creating a hypermedia tool for a specific physical planning issue were explored.

Although the original project team collaborated to create a tool that was oriented more to individual than group use, the subsequent versions were improved with an eye toward creating a more flexible tool that could be used in large meetings and workshops as well as by individuals. For this reason, improved multimedia effects and standardized graphics were stressed in the second and third versions.

The potential field testing and application of the prototype were discussed. In the final chapter, I will touch on how the MightyMart project points to an important direction in the application of hypermedia to citizen participation.

6 Summary and Conclusions

Summary

In Chapter 1, I asserted that environmental design is more of an art than a science, and that citizen participation techniques are an essential part of the craft that environmental designers must master. With thirty years of citizen participation experience, American designers and planners now can choose among techniques to involve citizens in all manner of planning and design projects. Criteria for evaluating participation techniques were discussed, and an attempt was made at defining what constitutes a "faster, better, cheaper" technique.

In Chapter 2, I illustrated several commonly used techniques: public hearings, advisory boards, surveys, simulation games, focus groups, Take Part workshops, and Ecologue workshops. While the 1960s and 1970s were the age of innovation for participatory design techniques, environmental designers continue to refine the commonly used techniques and to come up with new permutations.

In Chapter 3, I outlined the evolution of information technology and its impact on planning and design practice. Hypermedia was identified as an especially promising tool for environmental designers. The works of several innovative researchers who have developed hypermedia applications for environmental design were described.

Three different hypermedia approaches to enhancing citizen involvement were identified in the works of Barros, Shiffer, and Davenport.

In Chapter 4, I detailed a current planning problem: the issue of megastore siting in rural New England. The megastore issue was chosen for this thesis as an example of a classic physical planning problem--what at first seems a simple issue becomes very complex when a comprehensive planning approach is applied.

In Chapter 5, I described how hypermedia was employed to create a prototype for informing citizens about the megastore siting issue detailed in Chapter 4. The development of the prototype was described, and potential applications were suggested.

Conclusions

In this thesis I have attempted to show how a recent IT innovation--hypermedia--can be applied to the problem of engaging citizens in an informed debate on physical planning issues. A new approach to using hypermedia for informing public debate was developed. This Rashomon approach relies on a storytelling framework, with different characters representing various points of view, to provide the program user with alternative scenarios for a particular place. This approach differs from other hypermedia approaches to environmental design issues. The hypermedia authors discussed in Chapter 3 focus more on the use of hypermedia as an individual research tool or as an archival device. In the Rashomon approach, the focus is on finding the commonalities among alternative values and alternative futures as a basis for community decision-making.

As with any tool, there are tradeoffs involved in using hypermedia as part of a citizen participation effort. The controlled storytelling approach used in the *MightyMart* project can result in a skewed presentation, in spite of the best efforts of the hypermedia author to overcome personal biases. The presentation of planning information in any medium is bound to reflect the bias of the author, and so ultimately the goal is not to eliminate all bias but to give different interpretations of a problem a fair hearing. An advantage of the Rashomon approach is that it makes these biases obvious, in the same way that a documentary film director's perspective is obvious in the way film clips are edited. By testing a prototype with potential users, the hypermedia author should be able to adjust a skewed presentation by analyzing users' response and reworking the characters as needed to reflect the full range of community views.

Furthermore, hypermedia allows users to edit, annotate and comment on the hypermedia presentation in a very direct way: comments can be typed in, maps can be annotated with sound, graphic overlays can be used. Although the *PrettyPlace, Vermont* prototype does not take full advantage of this capability, the potential is there. The original intent was to allow users to annotate the text, and with some additional programming, users should also be able to draw pictures or add audio clips to the original stacks.

Once again, however, there is a tradeoff for providing this flexibility to the user. The program users will need more elaborate equipment and skilled help to work with the program, whereas if the hypermedia program is issued as a finished publication--i.e. as a CD-ROM disk--the program will be accessible to a greater number of users at

considerably less cost. Many small towns now have Macintosh computers equipped with CD-ROM drives in their schools, libraries and other community institutions that can play back the *PrettyPlace, Vermont* program, but they may not have the proper equipment for adding sound, scanning images, or otherwise producing a full-fledged interactive multimedia program themselves.

Ultimately, to get around the problem of platform-dependent software and the cost of multimedia hardware, planners and citizens may want to create hypermedia programs for public discussion that take advantage of the Internet. The Internet should eventually bring down the costs of creating and storing the hypermedia program, as well as making it accessible to a larger community. In small towns with limited resources, using the Internet for an interactive multimedia public forum may be more feasible than investing sizable portions of the town's budget in elaborate computer equipment and software.

There may be other institutional barriers, beyond cost, that may constrain the use of hypermedia products such as *PrettyPlace, Vermont* in a small-town planning context. Political pressures may prevent the local planners from spending the time required to prepare a hypermedia presentation for the public, and from assisting citizens who wish to prepare their own presentation using the town's facilities and records.

Politics may also determine who controls information, whether it is centralized or decentralized, open to the public or limited access. Information technology has recently made a new world of planning-related information available to the public, and this has begun to impact citizen participation. Citizen activists can rapidly obtain a wider array of information than ever before, and this should translate into a more informed discussion.

Hypermedia can help citizens, planners, and decision-makers navigate the maze of information, both on-line and off-line. Hypermedia may not directly change the way local planning decisions are made, or who makes those decisions, but potentially it can open the planning dialogue to the public. The Rashomon approach shows what this dialogue might look like.

Appendix A

Table A.1: Location of Target Stores as of January 31, 1993

State/Territory	Target Stores
California	113
Texas	58
Florida	38
Minnesota	35
Michigan	32
Indiana	29
Colorado	18
Washington	17
Wisconsin	17
Iowa	16
Georgia	15
Arizona	14
Tennessee	13
Illinois	10
Missouri	8
Oklahoma	8
Oregon	8
Nevada	7
Ohio	7
Kentucky	6
Nebraska	5
North Carolina	5
New Mexico	4
North Dakota	4
Idaho	3
Kansas	3
South Carolina	3
Arkansas	2
Louisiana	2
Montana	2
South Dakota	2
Wyoming	2
Total	506

Table A.2: Location of Price CostCo Warehouse Clubs as of August 29, 1993

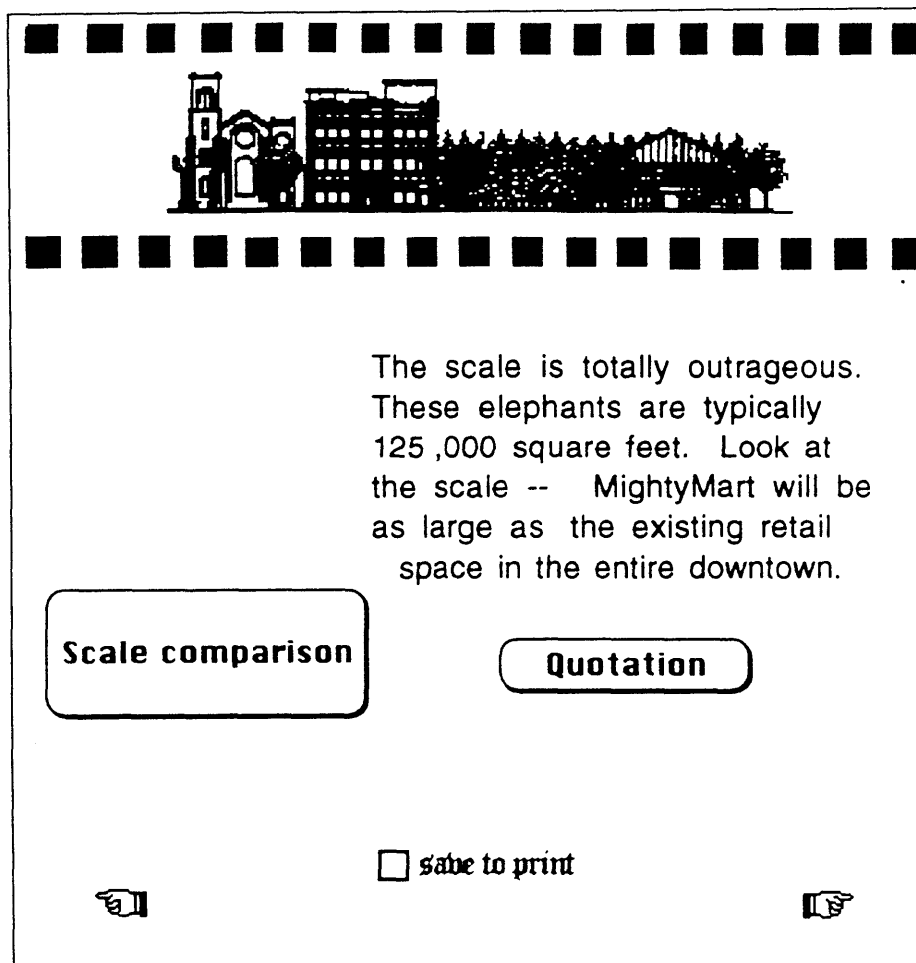
State/Territory	Price CostCo Warehouse Clubs
California	77
Washington	14
Florida	11
Oregon	9
Virginia	8
Arizona	7
New Jersey	6
New York	6
Connecticut	4
Maryland	4
Colorado	3
Massachusetts	3
Nevada	3
Alaska	2
Idaho	2
Hawaii	2
Montana	2
New Hampshire	2
Texas	2
New Mexico	1
Utah	1
Vermont	1
Total	170

Table A.3: Location of Wal-Mart Stores and Sam's Clubs as of January 31, 1993

State/Territory	Wal-Mart Stores	Sam's Clubs	Total Stores
Texas	229	44	273
Florida	122	23	145
Illinois	97	18	115
Missouri	105	9	114
Tennessee	86	7	93
Georgia	83	9	92
Oklahoma	81	6	87
Louisiana	74	9	83
North Carolina	74	8	82
Alabama	74	7	81
Arkansas	77	4	81
Indiana	65	12	77
Kentucky	66	4	70
Mississippi	57	3	60
Ohio	42	16	58
Wisconsin	47	9	56
South Carolina	49	5	54
California	43	3	46
Iowa	43	3	46
Kansas	43	3	46
Virginia	37	6	43
Colorado	32	3	34
Minnesota	27	7	34
Pennsylvania	26	5	31
Arizona	28	-	28
Michigan	22	6	28
New Mexico	19	1	20
New York	16	3	19
Nebraska	16	1	17
West Virginia	10	3	13
Oregon	12	-	12
Utah	11	-	11
North Dakota	8	2	10
Maryland	7	2	9
New Hampshire	7	2	9
South Dakota	8	1	9
Wyoming	9	-	9
Maine	6	2	8
Nevada	5	2	7
Idaho	5	1	6
New Jersey	3	2	5
Massachusetts	2	2	4
Delaware	2	1	3
Montana	2	1	3
Connecticut	1	1	2
Puerto Rico	2	-	2
Total	1,880	256	2,135

Appendix B

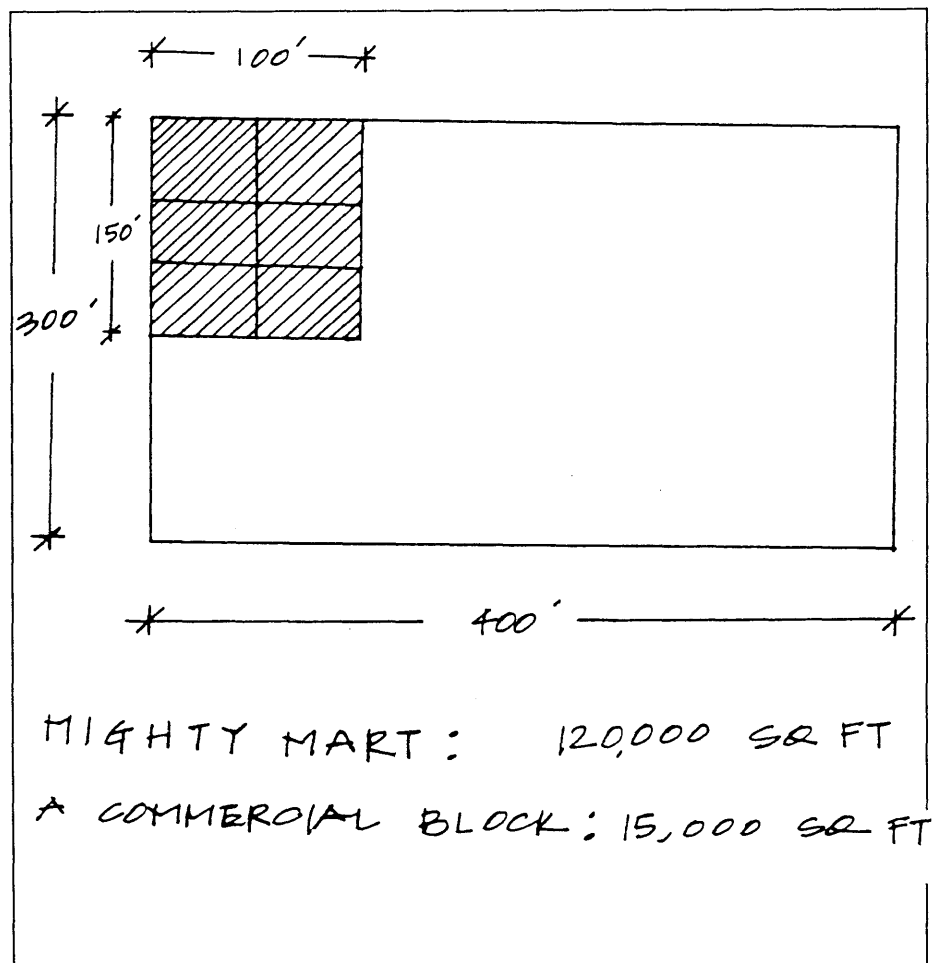
MightyMart: sample screens from the first and second versions



Anna Alcott, Architect

Appendix B

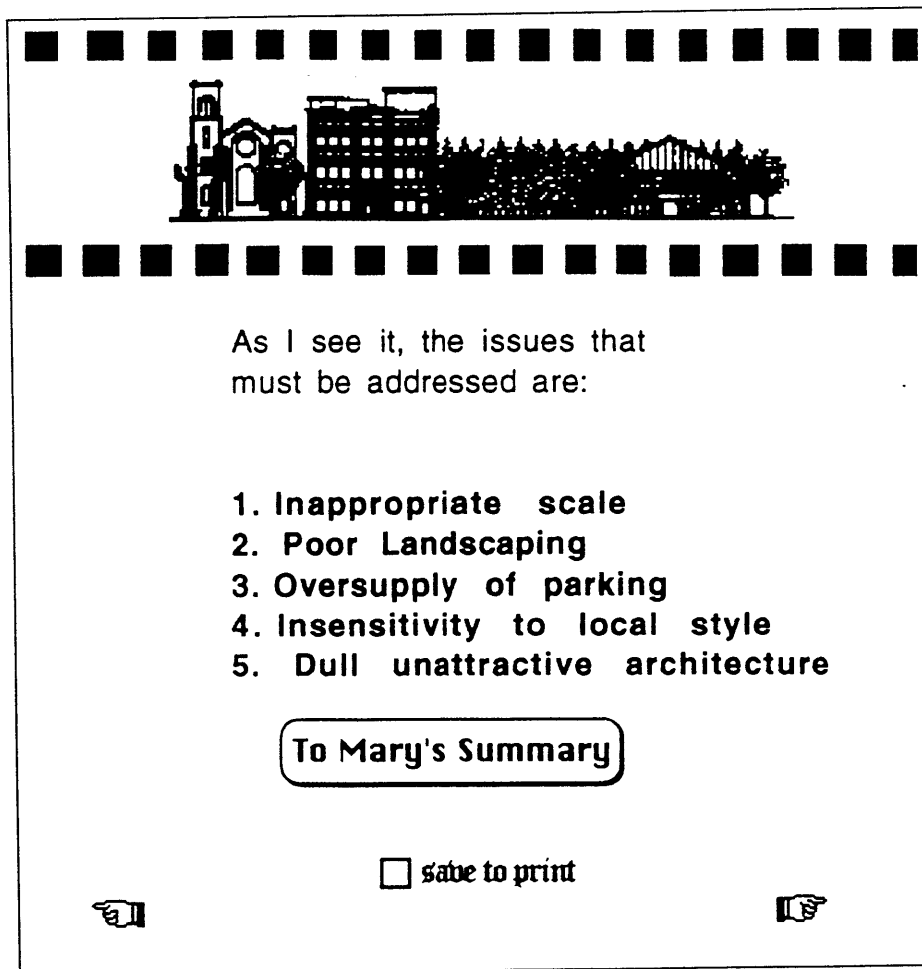
MightyMart: sample screens from the first and second versions



Anna Alcott, Architect

Appendix B

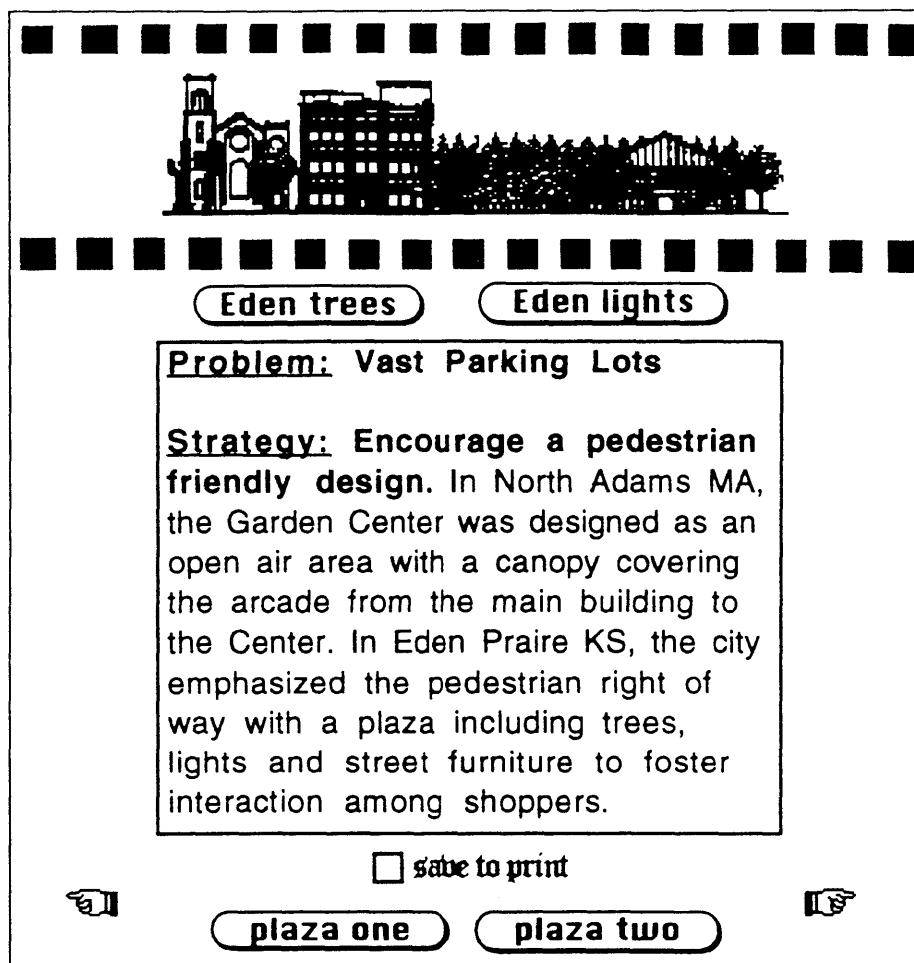
MightyMart: sample screens from the first and second versions



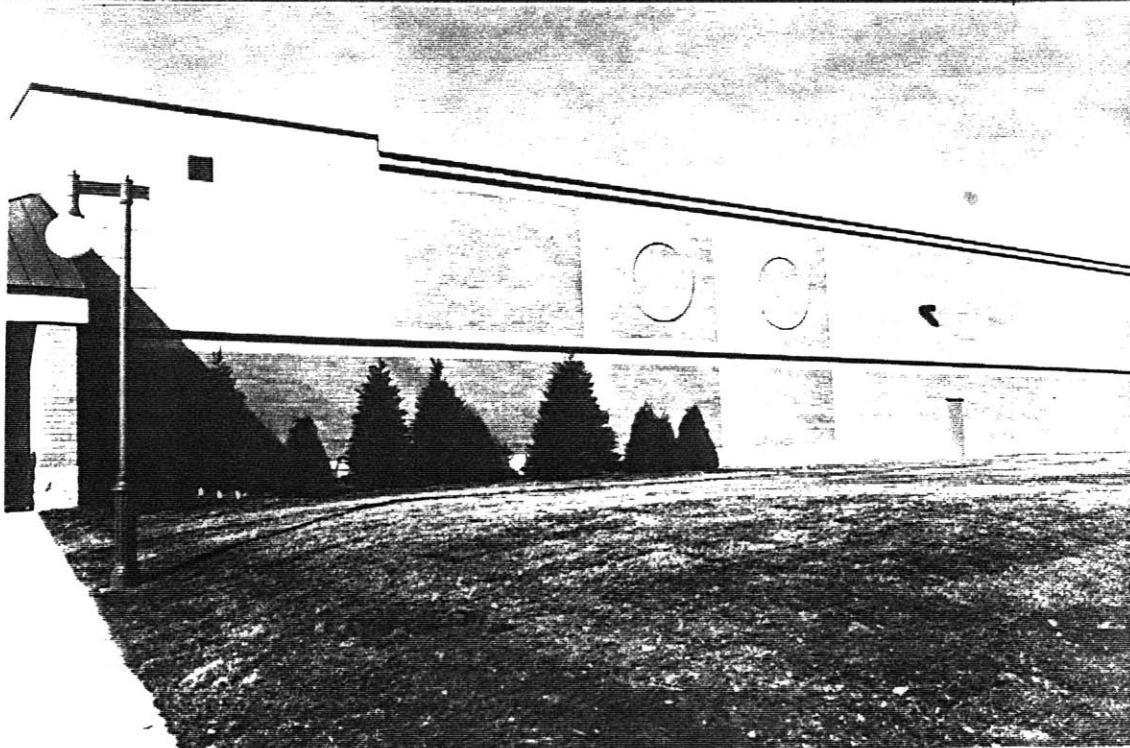
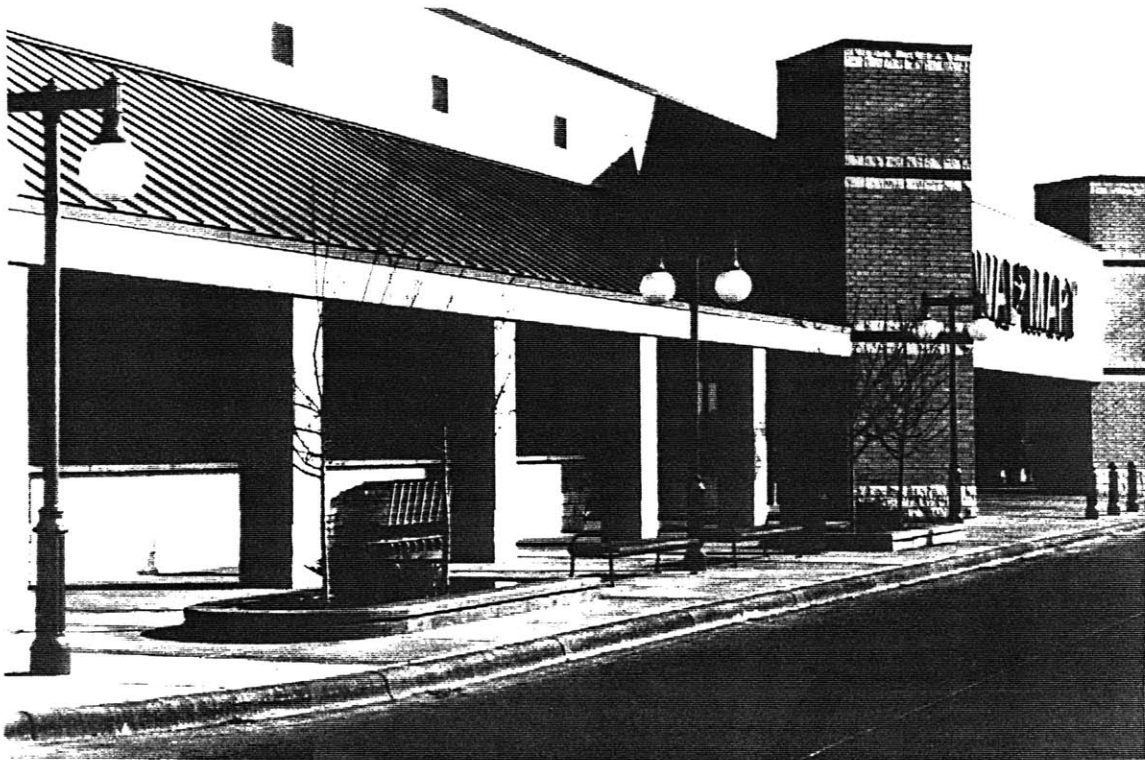
Anna Alcott, Architect

Appendix B

MightyMart: sample screens from the first and second versions



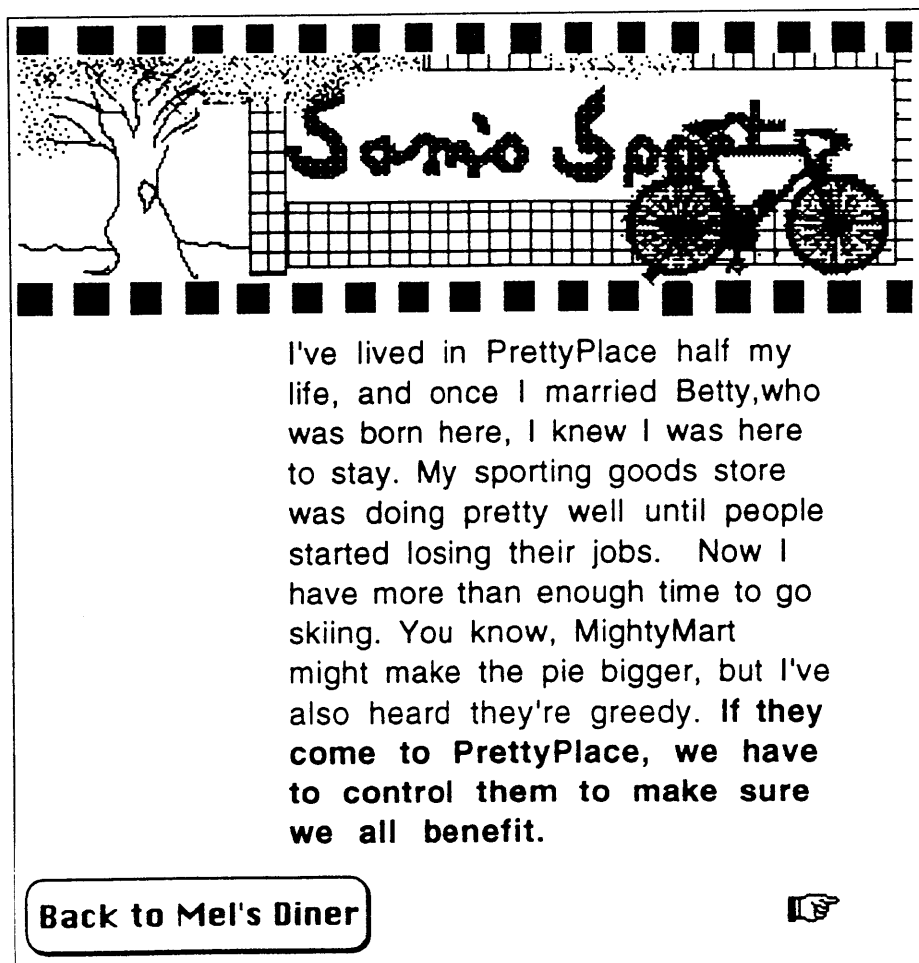
Anna Alcott, Architect



Anna Alcott, Architect

Appendix B

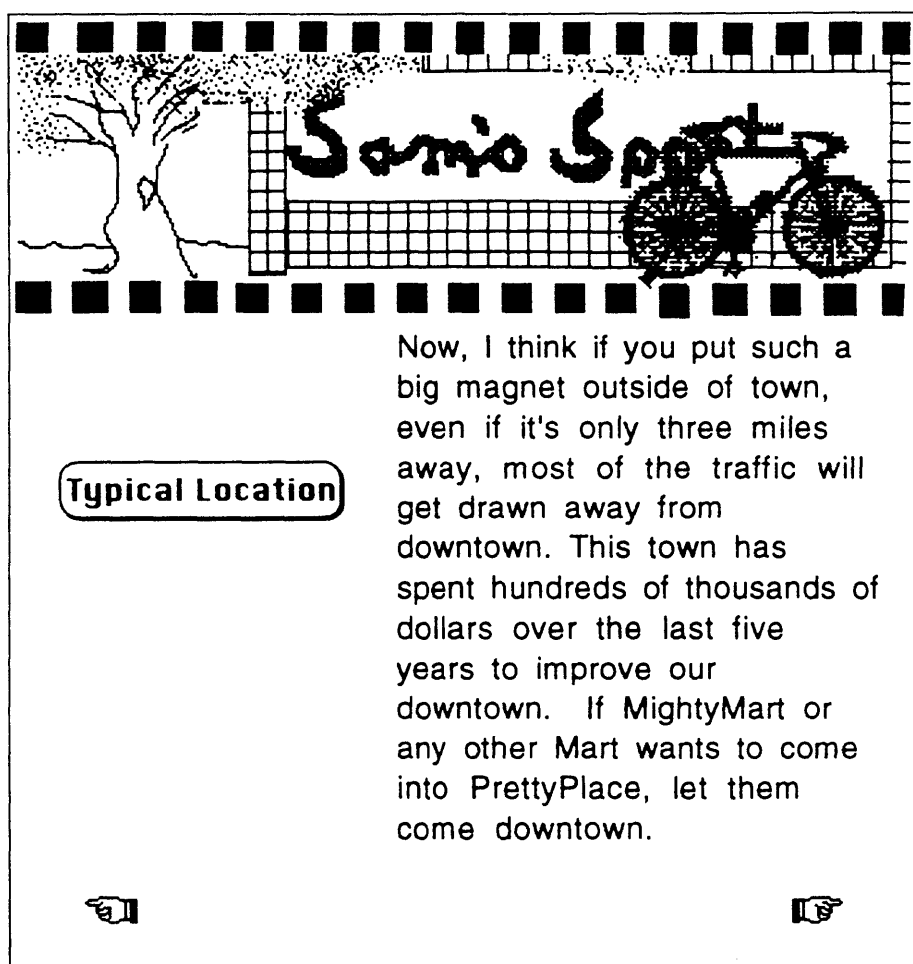
MightyMart: sample screens from the first and second versions



Samuel Stephens, Shopkeeper

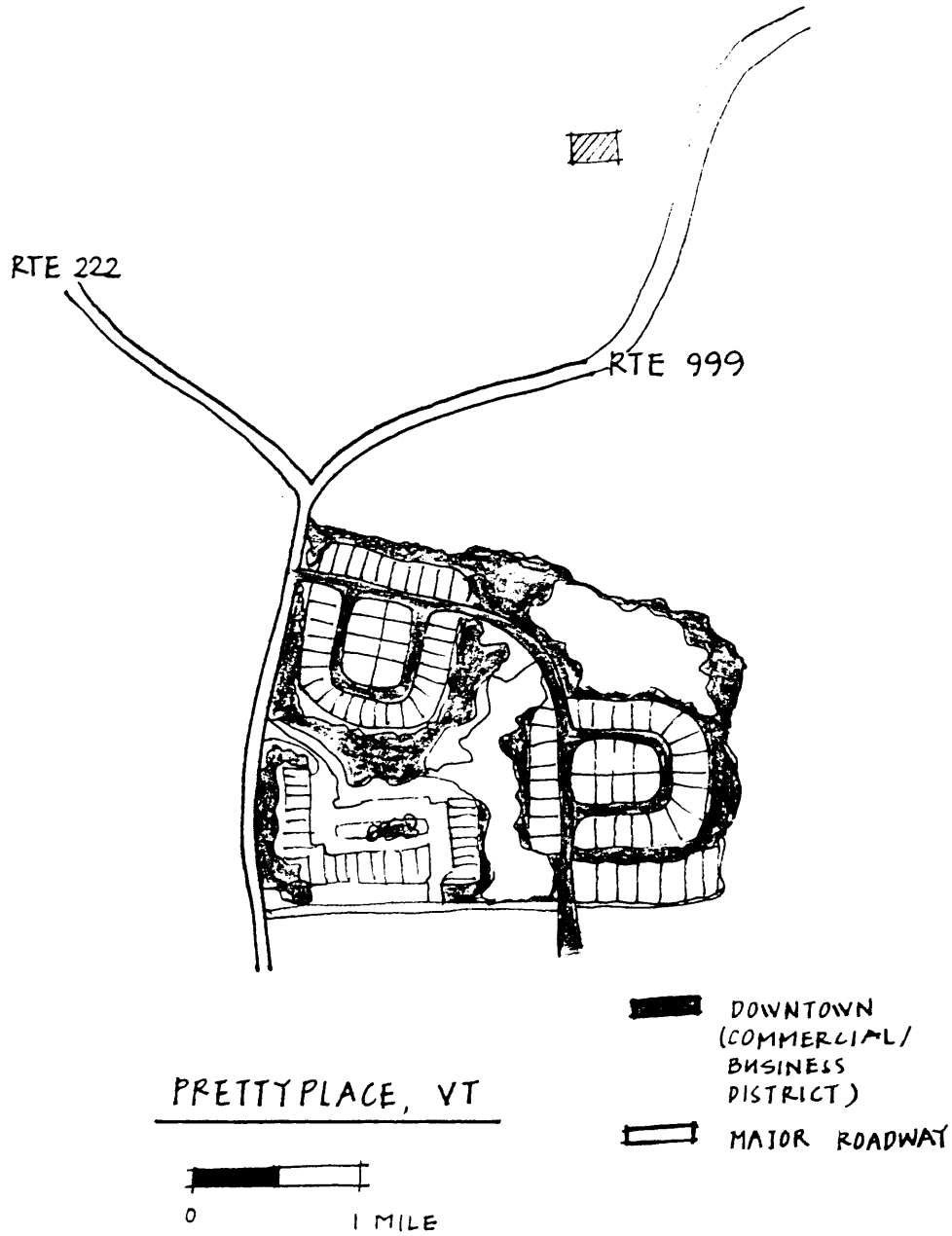
Appendix B

MightyMart: sample screens from the first and second versions



Samuel Stephens, Shopkeeper

Appendix B



Samuel Stephens, Shopkeeper

Appendix B

MightyMart: sample screens from the first and second versions

In 2 Towns, Main Street Fights Off Wal-Mart

The New York Times

A16

THURSDAY, OCTOBER 21, 1993

Special to The New York Times

BOSTON, Oct. 20 — It has been a tough autumn for Wal-Mart Stores. An Arkansas judge has found the giant retailer guilty of selling merchandise below cost in an effort to drive local competitors out of business. And now two Massachusetts towns have rebuffed Wal-Mart's efforts to open stores in their areas.

A Stop Wal-Mart Committee in Westford, a town of 17,000 people about 20 miles northwest of Boston, persuaded the company last month to drop its plans to build a new store there. And a group called We're Against the Wal in Greenfield, a Connecticut River town 90 miles west of Boston with a population of about 19,000, succeeded in having a referendum held on Tuesday to decide whether Wal-Mart should be allowed to build a 121,267-square-foot store on the outskirts of town.

The plan for a new store lost by 9 votes, 2,854 to 2,845. Maureen Winseck, the Town Clerk, said 60 percent of Greenfield's registered voters turned out for the referendum, double the turnout for most local elections.

Samuel Stephens, Shopkeeper

"The size of the store was disproportionate," said David L. Bete, a local factory owner who worked to keep Wal-Mart out of Greenfield. "It would equal the entire downtown retail district in size."

Expansion to Continue


Nonetheless, a spokeswoman for Wal-Mart said today that the company was undeterred. "In Westford we decided not to build because there was a very vocal minority that was in opposition," said Jane Arend, the spokeswoman.

She added that Wal-Mart would look elsewhere in western Massachusetts. "That was the only site we were interested in in Greenfield," Ms. Arend said. "There are thousands of other communities in the Northeast where we can continue our expansion."

The Greenfield Town Council had approved the plan for a Wal-Mart in July, but Mr. Bete's group petitioned for and won the right to hold the public referendum on the issue.

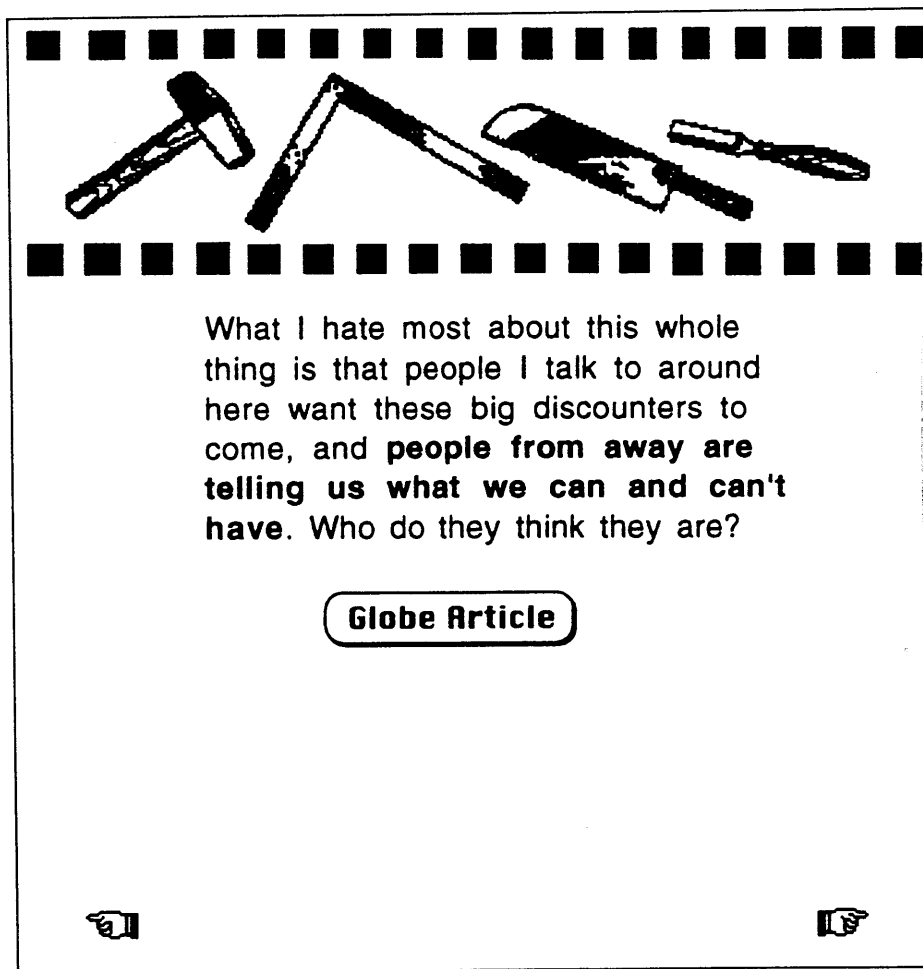
Dr. Russ Thomas, a family doctor from Greenfield who writes songs in

scrolling



Appendix B

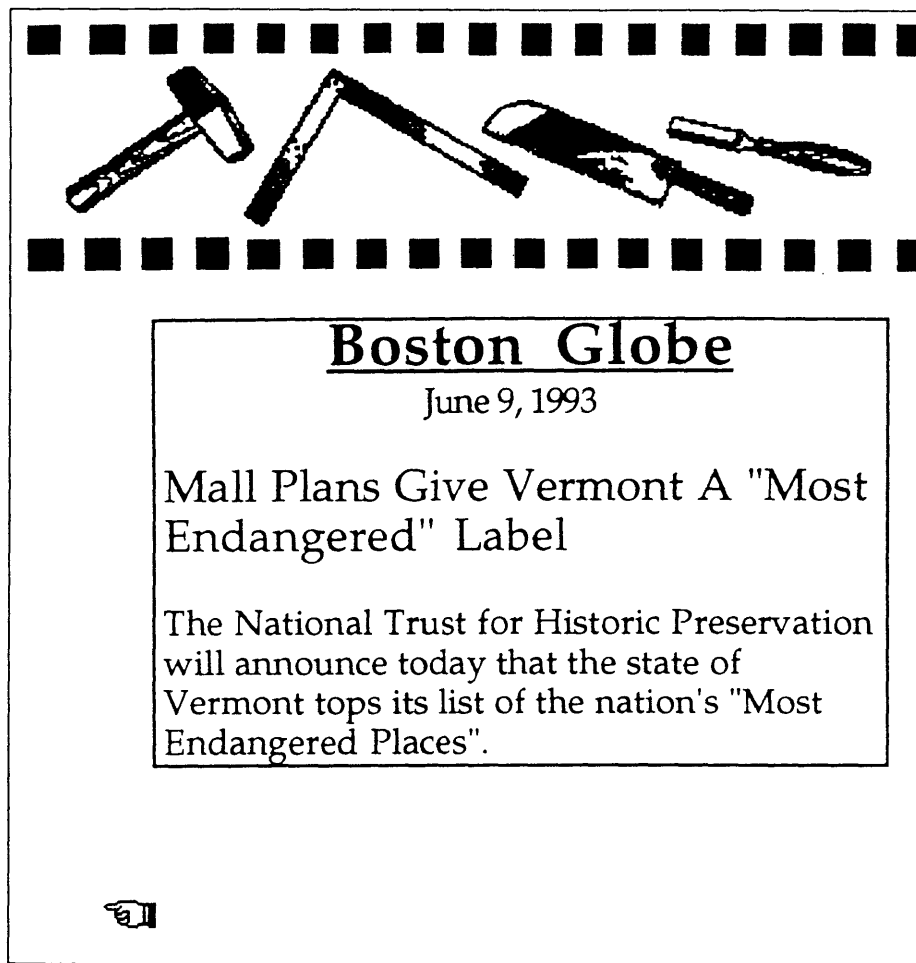
MightyMart: sample screens from the first and second versions



Franklin Furness, Unemployed Construction Worker


Appendix B

MightyMart: sample screens from the first and second versions



Franklin Furness, Unemployed Construction Worker

Appendix B



**Mayor
Maru
Magnani**


On these napkins I've jotted down
the issues as you mentioned them.

Charlie's issues

Anna's issues

Sam's issues

Franklin's issues



**Mayor
Maru
Magnani**

So you see we have some agreement about
what the issues may be. The next question
for me, as mayor, and for all of us, is how
do we deal with these issues?



Are there different strategies we can use?
Let's go over each of your ideas. Mel, more
coffee, please. This may take a while.

Anna's strategies

Charlie's strategies

Sam's strategies

Franklin's strategies



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