MASTER

27
8-28-78
25% NTIS

FORMULATION OF MARKET STRATEGIES FOR
INTEGRATED COMMUNITY ENERGY SYSTEMS (ICES)

ARGONNE NATIONAL LABORATORY

ENERGY AND ENVIRONMENTAL SYSTEMS

DISTRIBUTION OF THIS DOCUMENT IS UNLIMITED

DISCLAIMER

This report was prepared as an account of work sponsored by an agency of the United States Government. Neither the United States Government nor any agency Thereof, nor any of their employees, makes any warranty, express or implied, or assumes any legal liability or responsibility for the accuracy, completeness, or usefulness of any information, apparatus, product, or process disclosed, or represents that its use would not infringe privately owned rights. Reference herein to any specific commercial product, process, or service by trade name, trademark, manufacturer, or otherwise does not necessarily constitute or imply its endorsement, recommendation, or favoring by the United States Government or any agency thereof. The views and opinions of authors expressed herein do not necessarily state or reflect those of the United States Government or any agency thereof.

DISCLAIMER

Portions of this document may be illegible in electronic image products. Images are produced from the best available original document.

The facilities of Argonne National Laboratory are owned by the United States Government. Under the terms of a contract (W-31-109-Eng-38) between the U. S. Department of Energy, Argonne Universities Association and The University of Chicago, the University employs the staff and operates the Laboratory in accordance with policies and programs formulated, approved and reviewed by the Association.

MEMBERS OF ARGONNE UNIVERSITIES ASSOCIATION

The University of Arizona	Kansas State University	The Ohio State University
Carnegie-Mellon University	The University of Kansas	Ohio University
Case Western Reserve University	Loyola University	The Pennsylvania State University
The University of Chicago	Marquette University	Purdue University
University of Cincinnati	Michigan State University	Saint Louis University
Illinois Institute of Technology	The University of Michigan	Southern Illinois University
University of Illinois	University of Minnesota	The University of Texas at Austin
Indiana University	University of Missouri	Washington University
Iowa State University	Northwestern University	Wayne State University
The University of Iowa	University of Notre Dame	The University of Wisconsin

NOTICE

This report was prepared as an account of work sponsored by the United States Government. Neither the United States nor the United States Department of Energy, nor any of their employees, nor any of their contractors, subcontractors, or their employees, makes any warranty, express or implied, or assumes any legal liability or responsibility for the accuracy, completeness or usefulness of any information, apparatus, product or process disclosed, or represents that its use would not infringe privately-owned rights. Mention of commercial products, their manufacturers, or their suppliers in this publication does not imply or connote approval or disapproval of the product by Argonne National Laboratory or the U. S. Department of Energy.

ARGONNE NATIONAL LABORATORY
9700 South Cass Avenue
Argonne, Illinois 60439

FORMULATION OF MARKET STRATEGIES FOR
INTEGRATED COMMUNITY ENERGY SYSTEMS (ICES)

Prepared by
Real Estate Research Corporation
for

Energy and Environmental Systems Division
Argonne National Laboratory

April 1978

NOTICE

This report was prepared as an account of work sponsored by the United States Government. Neither the United States nor the United States Department of Energy, nor any of their employees, nor any of their contractors, subcontractors, or their employees, makes any warranty, express or implied, or assumes any legal liability or responsibility for the accuracy, completeness or usefulness of any information, apparatus, product or process disclosed, or represents that its use would not infringe privately owned rights.

Work sponsored by
U.S. Department of Energy
Assistant Secretary for Conservation and Solar Applications
Buildings and Community Systems Division, Community Systems Branch

This report is available from
National Technical Information Service
U.S. Department of Commerce
5825 Port Royal Road
Springfield, Virginia 22616

TABLE OF CONTENTS

PART ONE: FRAMEWORK FOR MARKET STRATEGIES

1. Introduction.	3
2. Development Process	5
A. Introduction.	5
B. General Sequence.	5
C. Specific Processes.	10

PART TWO: PROJECT INFORMATION SYSTEM

3. Description of Information System	15
A. Introduction.	15
B. Statistical and Respondent Screening.	15
C. ICES Threshold Criteria	23
D. Stages of Development	24
E. Project Information File.	27
F. System Implementation	31
4. Application of Information System	33
A. Introduction.	33
B. Application of the Information System	33
C. General Conclusions	53

PART THREE: MARKET STRATEGIES

5. Market Characteristics.	57
A. Introduction.	57
B. Participant Concerns and Factors in Decision-Making	57
C. Points of Intervention.	59
D. Summary and Conclusions	61
6. Market Strategies	63
A. Introduction.	63
B. Generalized Marketing Strategies.	64
C. ICES Marketing Strategies	66
D. Special Case of Infrastructure Retrofit	67
7. Marketing Program	69
A. Overview of Marketing Program	69
B. Recommendations on Marketing Program.	69
C. Initial Steps to Implementation	73
D. Implications for ICES Program	74

TABLE OF CONTENTS (Contd.)

APPENDICES

A.	Selection of Statistical Indicators.	77
B.	Selection of Respondents	87
C.	Description of Candidate Sites	91

LIST OF TABLES

2.1	Participants in the Development Process.	8
3.1	Indicators and Sources of Information on Statistical Indicators of Growth	20
4.1	Indicators of Residential Development -- Regional Screen	35
4.2	Indicators of Residential Development -- Sub-Regional Screen	36
4.3	Indicators of Residential Development -- State Screen.	37
4.4	Indicators of Residential Development -- Florida SMSA's Screen	38
4.5	Indicators of Residential Development -- Ft. Lauderdale SMSA- Broward County	39
4.6	Indicators of Institutional Development -- Regional Screen	43
4.7	Indicators of Institutional Development -- Sub-Regional Screen	44
4.8	Indicators of Institutional Development -- State Screen.	45
4.9	Indicators of Institutional Development -- Florida Counties Screen	46
4.10	Indicators of Industrial Development -- Regional Screen.	48
4.11	Indicators of Industrial Development -- Sub-Regional Screen.	49
4.12	Indicators of Industrial Development -- State Screen	50
4.13	Indicators of Industrial Development -- California SMSA'S Screen	51

LIST OF FIGURES

2.1	Network Diagram of the Development Process.	6
2.2	Involvement of Participants in the Development Process by Stage	11
3.1	Sources of Data for ICES Information System	17
3.2	Schematic Representation of Level and Type of Information	18
3.3	General Screening Process	22
3.4	Schematic Representation of ICES Information System	26
3.5	Display of Project Information File	28
5.1	Participants and Their Concerns in the Development Process.	58
7.1	Schematic Representation of ICES Marketing Program.	70

PART ONE: FRAMEWORK FOR MARKET STRATEGIES

THIS PAGE
WAS THIS PAGE
WAS INTENTIONALLY
LEFT BLANK

1

INTRODUCTION

The Energy and Environmental Systems Division of Argonne National Laboratory (ANL), acting under the auspices of the Division of Building and Community Systems of the Department of Energy (DOE), has undertaken a number of studies of implementation mechanisms and commercialization prospects for "integrated community energy systems." (*). As part of that effort, Real Estate Research Corporation was commissioned to formulate marketing strategies appropriate to the implementation of integrated community energy systems (ICES) in the United States.

- (*) The definition of "community" as used in the phrase "integrated community energy systems" is: a complex of buildings (and open space) connected by infrastructure networks, devoted to residential, commercial, industrial, agricultural, recreational, or cultural purposes; the networks may be transportation routes or modes, pipelines, communication links, telephone or electrical transmission lines. Complex political, social, and economic systems and jurisdictions are superimposed on the physical landscape of the community, and determine the types and levels of the community's activities. Thus, a "community" may be as diverse as a municipal or suburban business district, a small rural community, or a multiply-zoned planned unit development, to name only a few. Furthermore, the ICES program is conceived for communities in various stages of development in both new and redeveloped areas.

The term "integrated" energy systems does not refer to a specific technology but rather to a variety of technologies that are intended to accomplish the same purpose. Integrated energy systems are designed to provide a number of services to a community on an integrated basis; space heating and cooling, electrical generation, solid and liquid waste processing, and water purification could all be components of an integrated energy system. Such systems are intended to combine public services in such a manner that energy savings or an end to reliance on scarce funds will result. Such systems have not been widely implemented, but because of their potential for reducing energy use, are being investigated.

Another feature of ICES systems is that clear implications for certain physical designs, densities, and spatial arrangements are also implied. In addition, certain institutional or organizational arrangements may be required to implement both the technological and physical changes anticipated with alternative ICES concepts.

In summary, integrated community energy systems refer to certain technical, physical, and institutional arrangements of community services and facilities intended to conserve energy. For further discussion and analysis of ICES, refer to a number of studies prepared under the ICES program at Argonne National Laboratory.

The purpose of this assignment was to meet the following objectives:

- To assist ICES program managers in formulating market strategies for the acceptance and widespread application of ICES systems.
- To provide sufficient background information on the process of development so that marketing strategies can be suitably tailored to particular concerns and characteristics of development projects.
- To establish an information system for identifying areas, sub-areas, sites, or projects with substantial growth and development activity, as potential candidates for the application of ICES.
- To test the information system to determine its potential usefulness for identifying candidate sites.
- To provide recommendations on the strategies and techniques that might be used in a comprehensive marketing program for application of ICES systems.

The report is divided into three parts. The following chapter presents information on the development process, which is used as a framework for other elements of the report. The project information system for identifying candidate projects for ICES applications, and the subject of the second part, is described in Chapter 3; that system is subjected to a limited test and evaluation in Chapter 4. The formulation of marketing strategies is the subject of the third part, with more description of the characteristics of development processes in Chapter 5, discussion of the formulation of marketing strategies in Chapter 6, and presentation of marketing techniques as part of an ICES marketing program in Chapter 7.

2 □ DEVELOPMENT PROCESS

A. Introduction

The successful formulation and implementation of a marketing strategy for an integrated community energy system is greatly dependent upon a general knowledge of the development process and its dynamics. The development process, by nature, consists of a series of interrelated activities, with the entry of various participants at different stages within the development process to make key decisions. The participants may vary from one development to another or from one land-use type to another; furthermore, some participants may make decisions throughout the development process, and others only at specific points, depending upon the nature of the project. It is important to note, however, that the participants in the development process will decide to act when they have a concern and/or the power to exert control at any stage of development.

This chapter is intended to discuss, in general, the development process -- with particular emphasis upon the elements of a development process; the chapter also provides a framework or context in which information in following chapters may be organized. This framework, consisting of a generic sequence of events, the participants, and their concerns, outlines when and where intervention into the development process is likely to occur, and subsequently, where important decisions are likely to be made. Each development project, regardless of type, is composed of these elements, but the relationships among the elements in the development process will vary from one type to another. The comparison between the development process of each land-use type -- residential, commercial, industrial, institutional, mixed land-use, and redevelopment -- will be discussed later in this chapter. The discussion by type provides two further dimensions needed for the formulation of an ICES marketing plan: (1) an awareness of the inherent differences in the development process by each type, and (2) a means of developing marketing strategies that are targeted to influencing decision-making in each type of development process.

B. General Sequence

1. Description of the Development Process. The development process is composed of a sequence of events that begins with the selection of a market location and continues through the management, operation, and maintenance of the completed development. The network diagram presented in Figure 2-1 is a graphic summary of the development process. The schematic representation shows the general development process in nine basic stages: (1) market location, (2) feasibility of development, (3) consideration of land purchase, (4) purchase of land, (5) planning and costing of proposed development, (6) site preparation and building layout, (7) construction of building and utilities, (8) final site

FIGURE 2-1.

NETWORK DIAGRAM OF THE DEVELOPMENT PROCESS

*Points of intervention

FIGURE 2-1. (CONT'D.)

NETWORK DIAGRAM OF THE DEVELOPMENT PROCESS

preparation, and (9) sales and occupancy. The generic process is generally applicable to all types of development -- residential, commercial, industrial, institutional, mixed land-use, and redevelopment. A project will usually move from one stage to another as decisions and approvals are made to continue through the process.

There are major points within each stage of development where major decisions regarding the concept, scale, and pace of the development process are made and where the participants or participant groups can most effectively be influenced. These major points of intervention have been designated in the diagram with an asterisk, and will be discussed later in this report; they are merely indicated at this point as key events in the generalized development process.

2. Participants in the Development Process. The general development process, whether it be for residential, commercial, industrial, or institutional uses, is based upon a host of private, public and institutional organizations concerned in the planning, design, implementation, and operation of the completed project. The identification of the participants -- and more importantly, the patterns of their interactions and involvements in the development process -- is a major determining factor in the favorable acceptance of a proposed project. If an ICES system is to be considered in the planning of a project, it is important to identify participants and to obtain organizational approval as early as possible in the development process to assure the successful implementation of the development plans.

The primary and secondary participants in the development process are listed in the following table (Table 2-1).

TABLE 2-1: PARTICIPANTS IN THE DEVELOPMENT PROCESS

Primary Actors

a. Development Team

- Developer
- Builders and Craftsmen
- Planner
- Architect - Engineer
- Lawyer
- Market Research Analyst
- Realtor - Broker

b. Local Government

- Planning Department and Advisory Bodies
- Community Development
- Building Department
- Zoning
- Public Works

TABLE 2-1: (Continued)

- Police and Fire Protection
 - Parks and Recreation
 - School Districts
- c. Utilities
- Water
 - Sanitary Sewer
 - Storm
 - Gas
 - Electricity
- d. Lenders
- Banks and Financial Institutions
 - Private Mortgage Insurance Companies
- e. Insurers
- Insurance Companies and Underwriters
 - Title Companies
- f. Realtors and Brokers

Secondary Actors

- a. Economic Development
- Local and State Chambers of Commerce
 - Commissions on Economic and Business Development
- b. Environmental Health and Safety
- Local Agencies
 - Federal and State Agencies
- c. Housing and Urban Development
- Local Housing Authorities
 - Federal and State Agencies

The primary participants are basically the developer and local institutions that dominate the general development process. They have major concerns and controls throughout the development process that enable them to either influence or to make decisions with regard to modification or the adoption of new aspects of the development. The primary participants' decisions often precede and elicit those decisions of the secondary participants. The secondary participants are basically the local, regional, and state agencies that are acting in an administrative

and/or advisory capacity. The continual decision-making inherent in the development process often depends upon the secondary participants for additional information and support.

Finally, the general public may influence or control some aspect of the decision-making process when a specific situation makes their intervention appropriate. Their voice is greatly and most appropriately heard through the public hearings and open meetings of the primary and secondary participants. Likewise, consumer preferences and decisions are the ultimate source of influence in the development process; if there is no market for a project, there should not be a project undertaken.

3. Involvements by Stage of Development. It is obvious that not all participants are involved in all stages of the development process. The development team is certainly involved throughout, but other participants -- such as utilities, lenders, insurers and others have fairly defined roles that are not carried on during the entire process. The relationships among the participants in the development process and the stages of development are depicted in Figure 2-2.

C. Specific Processes

The development process described in the previous section outlines a general framework common to all developments. Even though this framework is typical for each land-use type, there are certain unique aspects for various types of projects that must be defined -- as part of the background necessary for formulating marketing strategies specifically directed to intended audiences.

1. Residential. Residential development is unique in several ways. This type of process is characterized by a large number of rather small developers, with certain financial limitations and with numerous local markets. The products that are produced through the development process are diversified, and are tailored according to variations resulting from the preferences of single consumers to variations in regional tastes or styles. The provision of utilities to the site in many instances is taken for granted. If services are available, then it is assumed they will be provided in an expeditious manner. Because of the larger number of projects and developers, there is more experience with local government -- in that the work volume is greater for residential than for other types of development. The amount of speculative building is greater for residential, and less building with a committed purchaser occurs than in other types.

2. Commercial. In the commercial sector, there is wide variation -- in part due to the wide variety of building types that are constructed. There are perhaps a smaller number of developers, and because of the scale of many of the projects, the financing may require firmer commitments. Therefore, marketing of the space may begin earlier -- even before the project is underway, in many cases, since lease commitments may be used as collateral for construction loans. There are both speculative and committed projects, with different characteristics

FIGURE 2-2.
INVOLVEMENT OF PARTICIPANTS
IN THE DEVELOPMENT PROCESS BY STAGE

	Stage 0 Market Location	Stage I Feasibility of Development	Stage II Consideration of Land Purchase	Stage III Purchase of Land	Stage IV Planning and Costing of Proposed Development	Stage V Site Preparation and Building Layout	Stage VI Construction of Building and Utilities	Stage VII Final Site Preparation	Stage VIII Sales and Occupancy	Management, Operation and Maintenance
<u>Primary Participants</u>										
A. Development Team	●	●	●	●	●	●	●	●	●	Δ
B. Local Government	●	Δ	●	●	●	●	●	●	●	
C. Utilities	●	Δ	●			●	●			
D. Lenders		Δ	●	●	●	●	●		●	
E. Insurers			●			●			●	
F. Realtors and Brokers	Δ	Δ	●				●	●	●	●
<u>Secondary Participants</u>										
A. Economic Development Agencies	●	Δ			Δ					
B. Environmental, Health and Safety Agencies	Δ	Δ			Δ					
C. Housing and Urban Agencies	Δ	Δ			Δ					
D. Other Regional State and Local Agencies	Δ	Δ			Δ					
<u>Consumers</u>	Δ	Δ			Δ				●	

KEY: ● Direct Involvement
Δ Possible Involvement

for each. In either case, the provision of utilities will vary with project type. For large-scale projects, on-site systems may be used to either supplement or avoid use of services provided by utilities; for smaller projects, the same attitude as found in the residential sector may be likely.

3. Institutional. The process of development in the case of institutional projects is substantially different. The usual practice is that there is a committed occupant, and in most cases, the owner and manager also is responsible for the construction of the project. There is little, if any, speculative building for institutional purposes. Funding depends on the budgets and other resources of the sponsoring agency, but differs from the bank or other financing used in other types of development. The provision of utilities will vary with the type of institution, and with whether there is a private or municipally-owned utility entailed. For significant energy-users (such as hospitals), the provision of public services is of considerable importance and therefore the role of the utility is usually very important -- both in delivery of services and in the design of the internal systems. In other public buildings (libraries, police stations, public administration buildings), services may be provided from the local utility and therefore the same attitude as with other users would be found. Marketing and sale of the developed space is of little concern, since users are typically committed to the space.

4. Industrial. Again, the process of development is very different from other types of projects, and also the characteristics will vary within the industrial sector. If a heavy industrial project is involved, there is usually a committed user, with special design requirements, and considerable effort at project planning, design, and implementation. In this case, since energy is a critical factor of production, utilities are involved heavily at the outset and probably during the entire process of development. Market analysis, marketing, and public agency review (except for zoning and environmental matters) have less to do with site design and development. In the case of light industry, where there is some speculative building -- typically in industrial parks -- the development process is somewhat different. There is less likelihood that all development will be for committed users, and therefore both the financing and marketing efforts will vary. This type of development is oriented to a specific market and therefore specialized marketing efforts have been developed.

5. Redevelopment. The process of redevelopment is characterized in large measure by the level of involvement by units of government. If the land is owned by a public agency, at minimum, the development project involves disposition of the land to developers and builders. In other cases, the public agency may take a more active role -- either in preparing the site for construction, in providing incentives (tax credits or deferrals, land cost write-downs, etc.), or in participating in the project -- to insure that the project is completed or is attractive to other participating developers. Although the types of projects vary too widely to generalize very much, in many cases, an institutional use may be used as an anchor for the project, and the public agency may continue as manager or operator of the development. The provision of public services, obviously, will vary with the type of project and with whether the municipality owns and operates the utility.

PART TWO: PROJECT INFORMATION SYSTEM

THIS PAGE
THIS PAGE
WAS THIS PAGE ALLY
WAS INTENTIONALLY
LEFT BLANK

3

DESCRIPTION OF INFORMATION SYSTEM

A. Introduction

An essential part of developing a marketing strategy for any good or service is to identify potential purchasers or consumers of the product. This is also true for the ICES program and for the adoption of ICES-type systems. However, since there is a set of rather particular requirements or specifications that must be met in any application of ICES, all development or redevelopment projects will not qualify. Because of the wide variety of development contexts across the country and the large number of potential candidate sites, as well as the somewhat fragmented set of participants with varying concerns in the development and development-related industry, it is difficult to isolate a portion of the potential development projects that might consider the application of an ICES system. The sheer numbers and variety among those numbers make such an effort prohibitive. What is required then is some means of screening from among the large number of potential development projects, in order to select those with a greater likelihood of considering the application of ICES and to make them the targets of opportunity for the ICES program. In this section of the report, an information system that may be used to systematically identify candidate projects for ICES is outlined. If this system is implemented, ICES program managers will have a tool useful for identifying projects with a high potential for adoption of some form of alternative infrastructure and energy system.

The essential elements of the information system are described in the following sections--statistical and respondent screening, ICES threshold criteria, and stages of development, as well as, how the system may be initiated and maintained. Suggestions for implementation are also presented as a guide to full use of the information system. The first three elements are viewed as successive steps in the isolation of candidate targets of opportunity or likely users of ICES systems. After the three sets of screens are applied, potential market audiences will have been identified; it is this group that will then be the focus of the development of marketing strategies in Part Three of this report.

B. Statistical and Respondent Screening

One possible way to identify candidate projects for the application of ICES systems would be to contact all persons aware of development activity in a vast number of communities. But clearly, the number of communities would be so large that such a task would be prohibitive. Therefore, a more fruitful approach would be to narrow the field according to certain factors--namely based on the assumption that large-scale development projects will generally occur in areas experiencing substantial growth.

For the most part, candidate sites can be identified by locating areas of growth as indicated by use of population, economic, and demographic data collected and published by Federal, state, and local governments or by private organizations; these data will be examined by successively smaller areas. When a particular area or locality has been identified as the recipient of substantial growth by the use of statistical indicators, it then becomes necessary to amplify and verify those indicators by discussions with local firms or individuals with specific knowledge of either general growth conditions or conditions relating to a particular project; this latter source of information is termed respondent interviews. This initial element of the information system relates to a variety of levels of government, which in turn corresponds to types of statistical or respondent data that might be utilized in identifying candidate projects. These levels of government (or scale of geography) are:

- National
- Regional (whether defined precisely as Census regions or divisions, or less precisely as geographical areas, such as the Midwest, the Sunbelt, or Pacific Coast).
- State
- County
- Municipality
- Sector (denoting a particular area or direction of growth within or adjacent to a municipality).
- Site or project (implying a specific location; as will be noted, a single site may contain a number of projects scheduled for development over a period of years).

As might be expected, there is varying reliance on statistical and respondent information according to the level of government or scale of geography. If the screening is initiated on the national level, more progress can be made by isolating with statistical indicators and by narrowing the focus before initiating respondent interviews. On the other hand, once the field is narrowed, more precise, timely, and descriptive information can be obtained from local sources by the interviews and discussions called for in respondent interviews. The relative dependencies on the two types of information are depicted in Figure 3-1. The essential point is that neither statistical indicators nor respondent interviews should be relied upon as an exclusive source for identifying candidate sites, but that some combination of sources would be desirable, and will in fact be required.

The overall relationships among the levels of information and the types of information are presented in Figure 3-2. As indicated in the left-hand column, there is a successive screening of statistical indicators, from the national level down to local information, with those areas in which there is substantial growth being carried forward with each stage. By these means, it will be possible to identify regions, states, and counties with large increases reasonably well, using readily available data. Beyond the county level, statistical data sources are less consistent, less current, and possibly less accurate. As is depicted in the right-hand column, it is necessary at this point to shift to data sources other than those relied upon for national, regional, or state trends. It is also necessary to verify those statistical indicators by use of local conversations and interviews. Once the areas of substantial growth have been identified, then direct telephone surveying becomes more feasible. The major thrust of this effort will be at the county or lower level, with calls to local officials (particularly planners or other knowledgeable individuals) to identify both growth areas and particular projects, and then calls to developers, financial institutions, utilities, and others to get information on particular projects.

There are, of course, a variety of wrinkles to this main method. As is also indicated in the figure (Figure 3-2), it may also be possible to initiate interviews with national organizations which will result in the identification of counties or municipalities with substantial growth, and in some cases, even identification of specific projects. If such interviews yield this information, then much of the statistical indicators analysis can be short-circuited and direct inquiry made into candidate projects. However, if this short-cut is used, it will not guarantee that systematic review of all areas and selective screening of the most likely candidates has occurred. Although the candidate sites or projects identified in this way will also be of considerable interest, this hit-or-miss approach should be used to supplement but not replace the use of the statistical indicators approach.

Another wrinkle to the main method would involve not being overly stringent in setting criteria for selection of areas of substantial growth. In this case, rather than narrowing the criteria for selection of only those areas with the most rapid growth, more modest criteria for substantial growth are used, which thereby increase the potential number of candidate sites. Since the criteria for substantial growth are rather arbitrary in the first place, relaxing those criteria can be equally arbitrary. The effect of using the information system in this way will be, of course, to widen the net and to increase the number of states, counties, and municipalities that will be analyzed for rates of growth. This will in turn permit consideration of those projects or sites that are located in less rapidly growing areas, and that would be potential market audiences for ICES systems, but that would have been screened out if the statistical indicators were used under more restrictive criteria. The trade-off in this matter is obvious. There will presumably be a larger pool of candidate sites, but the costs of selection will be higher. It would be suggested that the most rapidly growing areas be identified and assessed for ICES potential first, and then a wider group be sought if the first set proves deficient either in numbers of projects or in terms of applicability to the ICES program.

If the information system is used in the matter suggested, there is an obvious drawback in the procedure. By focusing on those areas--states and regions--in which the higher rates of growth are occurring, it is certain that a significant number of growth areas will be overlooked. This is because growth characteristics of a region are not uniformly distributed across the whole region, so that in spite of the fact that large multi-state regions or individual states may have low aggregate population growth and housing starts, for example, there are likely to be very rapidly growing areas within the region or state, such as suburban portions of some of the metropolitan areas. The two suggestions of the previous paragraphs--to use both national and local respondent information, and not to concentrate exclusively on the most rapidly growing areas--help in part to remedy this drawback, but do not entirely relieve it. A third suggestion, then, is to exhaust the suggested approaches, and then to start the statistical data search again, but focusing on rapidly growing counties or cities rather than on states or regions. Although this makes the search more exhaustive, time-consuming, and more costly, it will serve the purpose of picking up potential growing areas that may have been overlooked. In any case, follow-up with respondent interviews will supplement the statistical procedures, and should be used whether for rapidly growing communities in moderately growing regions and states or for all communities in rapidly growing regions and states.

The statistical indicators that are recommended for the initial screening in the information system are presented in Table 3-1. A full discussion of the criteria by which such indicators should be selected, and further information on the selected and other possible indicators are presented in Appendix A; reference to that information is suggested.

TABLE 3-1.

INDICATORS AND SOURCES OF INFORMATION
ON STATISTICAL INDICATORS OF GROWTH

<u>TYPE OF DEVELOPMENT</u>		<u>INDICATOR</u>	<u>SOURCE</u>
Residential	1.	Population Estimates	P-25, P-26 Census Reports
	2.	Residential Building Permits	C-40 Census Reports
	3.	Savings and Loan Lending Activity	Federal Home Loan Bank Board Statistics
Commercial		Same as Residential, plus	
	4.	Non-residential Building Permits	Construction Review, U.S. Dept. of Commerce
	5.	Employment Estimates	County Business Patterns, U.S. Bureau of Census
	6.	Retail and Wholesale Trade Volume	Census of Business
Institutional		Same as Residential and Commercial, plus	
	7.	Governmental Expenditures	Census of Governments
	8.	Grants of Community Development or Economic Development Funds	Housing and Development Reporter
Industrial		Same as Residential and Commercial, plus	
	9.	Manufacturing Employment and Value-Added	Census of Manufacturers; also U.S. Statistics Abstract
Mixed-Use		Same as above	Same as above
Redevelopment		Same as above, plus	
	10.	Community Development Grants	Housing and Development Reporter
	11.	Economic Development Grants	Other Federal Publications

As seen in Table 3-1, statistical data will be gathered from the publications of governments (largely from Federal sources), with additional evidence from trade associations, institutions, and commercial reporting services. As is also seen in the table, there are a variety of sources of information, depending on the type of development entailed. Some indicators give overall evidence of growth, while others relate to particular types of development projects. Likewise, the sources of statistical indicators are likely to change according to the level of government or scale of geography. This will correspond to the quality, accuracy, or timeliness of the available data, as well as the varying needs for statistical evidence from the data collectors and users. For example, the U.S. Census makes estimates of population size down to the county level annually, while estimates are made for municipalities only every two years.

(Even these are released as long as 2.5 years after the year for which the estimate is made.) Suppose that a search for appropriate development projects occurs approximately three years after the year of the most recent population estimate for a municipality; considerable error in estimation could occur. The most current, reliable population estimate for the county where the municipality is located would be the Census P-26 report of the Current Population Survey, but the more current estimate of the population for the municipality would be available from the municipal planning authorities rather than the Census.

The sources of respondent data will also vary with level of government or geographical scale. A full listing of national, state, and local organizations or types of contacts is presented in Appendix B. Many of the national organizations also maintain regional or local field staffs, and contact with those offices is suggested. At the metropolitan or municipal level, a number of groups or individuals should be contacted, and as suggested in previous paragraphs, initial respondent information can be obtained from a county or regional planner, with follow-up calls to local planners, builders, brokers, utilities, realtors, and economic development groups.

Each respondent can be asked for three types of information: first, for their own perspective or knowledge on the general growth in the area--as a way of verifying the statistical indicators that have been used; second, to identify further respondents that should be contacted; and third, to identify specific projects or sites that have potential for ICES application. As a side benefit of such conversations, knowledge about ICES and its possible application will be directly relayed to a number of potentially interested individuals or organizations.

The specific steps that are required for the assessment of statistical indicators and respondent interviews are outlined in Figure 3-3. As is indicated in the diagram, this logic may relate to any level of development, and is intended to display the general steps entailed in the isolation of candidate sites.

FIGURE 3-3. GENERAL SCREENING PROCESS

In actual practice it is not necessary that both statistical indicators and respondent data be used--unless this is at a county or municipal level. There is not a hard or fast rule on when the shift between statistical indicators and respondent interviews occurs, but for purposes of the illustration they are both presented.

As is indicated in the figure, a certain area (national, state, local, etc.) is selected for analysis; the statistical indicators of growth are examined and if they fall above the stated criteria (i.e. if growth is more substantial than the arbitrary threshold) the area is retained for further consideration. If the growth indicators fall below the criteria, the area is screened out and reserved for any further examination at a future analysis. Given that the area qualifies according to the statistical indicators of growth, it then is necessary to contact knowledgeable local officials to verify and amplify the level and pace of growth. Additional information is received by the respondent interview on both the overall area and particular projects or developments that might be anticipated or underway. If the respondent interview conforms to the statistical expectation of growth, then that area or project is designated for further investigation. If the area or project does not qualify, it would be set aside and would be picked up again in the event of another cycle of screening.

In summary, the initial element of the information system consists of the identification of candidate projects or targets of opportunity for the application of ICES; this identification is carried out on the basis of systematic examination of both statistical indicators and respondent interviews. A variety of approaches to this examination were suggested, with the main method clearly indicated. The result of this effort will be a set of candidate projects that have been screened on the basis of substantial growth. As indicated in the following sections, further screening is required before a final set of candidate sites or target of opportunity can be determined.

C. ICES Threshold Criteria

Once a set of candidate projects or potential targets of opportunity have been selected on the basis of substantial growth, there is a second type of screening that occurs.

Because of the particular engineering and design requirements -- which in turn reflect the underlying economic and technical feasibility of the integrated community energy systems -- not all projects will meet certain minimal requirements for the application of ICES. That is, there are certain design requirements that must be observed in a site or project even if substantial growth is possible. Since ICES does not refer to a specific design or set of technical applications, but is rather

a concept that would be adopted to a large number of development contexts, specific design criteria cannot be stated. (*) It is sufficient to state that some scale of development, some overall density, and some configuration would be determined which could then be used for evaluation in the ICES information system.

In terms of the ICES information system, the exact threshold criteria are of less concern at this point. The key factor is that a second screening according to those unstated and yet-to-be developed criteria must occur. Therefore, all of the candidate sites identified from the statistical and respondent approaches are further subjected to the minimal physical design and scale criteria. As a result of this screen, some sub-set of the original groups of candidate projects will be identified and carried forward to the third screening process.

D. Stages of Development

There is still one problem that remains in the identification of potential projects or targets of opportunity. Even if the requisite level of growth is found and that an appropriate design and configuration can be observed, it is still necessary to screen by the stage of development. If the projects or sites that are identified are only in the latter stages of development--in construction of buildings, final site preparation, or sales and occupancy--then it is probably too late to consider the application of an ICES system. On the other hand, if the project is identified early enough in the development process--before all the utility and infrastructure decisions have been finalized and implemented, then the prospect for the adoption of ICES exists.

The final screening therefore requires that all projects that display adequate levels of growth, and that are of the proper size, density, and configuration, should be arrayed along the development process, and those which fall early enough in the process are the final candidates for the application of ICES--and the most likely market audience for the marketing program.

There are two cases in which ICES would be possible that are not directly identified by this screening. In the case where the development process has not even begun--as with a developer, planner, municipality, or other

(*) Specific threshold criteria have not been developed, but will be developed for each project; overall guidelines have been developed by Argonne National Laboratory and others involved in the ICES program. The order of magnitudes that might be used, although these are very tentative and rough estimates, would be say 1000 dwelling units for residential or about 1 million square feet of leasable space for commercial.

participant that does not have a specific project or site in mind, but is generally expecting to develop at some point in the future--information about the ICES systems would be useful. However, this group may conceivably not show up in either the statistical indicators or respondent interviews. In either event, if development is contemplated, knowledge of ICES would be useful, even if not immediately put to use.

The second case relates to those projects or sites that are developed in phases, with development and construction activity continuing in discrete intervals over a longer period of time. An example of this would relate to a large planned unit development, where "villages" or "clusters" are developed at a measured pace. In this case, it is possible that the screening system could overlook these projects, focusing on the completed portions which were developed with conventional infrastructure systems and would neglect the possibility that anticipated and unbuilt phases could be considered for ICES. In order to remedy this possibility, it will be necessary as part of the information system to determine if in fact a candidate project is being developed in phases, and if so, what the current status of those phases might be.

Once this third screening has been completed, the result is a set of projects or sites that qualify as targets of opportunity or candidates for application of ICES systems. As stated previously, this is also the market audience for specific information on the ICES program and the group toward which all marketing effects should be given primary focus. In order to summarize the elements of the information system, Figure 3-4 is presented, which gives a schematic representation of the system. In the following sections of this chapter, further attention will be given to the particular form in which the information should be prepared, and guidelines or suggestions on how the information system should be implemented.

E. Project Information File

1. Description. The development and application of the information system will depend upon an organized information file, in which pertinent information on each candidate site can be recorded in a consistent manner. There are a number of reasons for the development of a project information file, as follows: the scope of the ICES program is broad, and the number of projects that are reviewed could become considerable; there are a number of sources of information for each project that must be merged and assessed; it will be necessary to monitor a specific project over time in order to determine its stage of development and to maintain its current status; and it is therefore necessary to devise a standard form for recording and up-dating information.

The recommended format that would be used to record the initial description of the potential sites and that will be used to up-date to current information is presented in Figure 3-5. It is suggested that such a format be completed for each candidate project in the inventory when initial identification is made, and that the format be corrected or up-dated at subsequent intervals. The four basic types of information that would be recorded on each project are project identification, project description, contacts and organizations, and status and follow-up.

As indicated in the figure, each project is assigned a unique identification code (which can be defined for certain classifications of the projects -- say by geographical area and project type). The project should be classified as to land use type and to whether it relates to new development or redevelopment. Both the unique coding and the classifications will permit access to the inventory in a variety of ways, and will be useful in sorting out particular projects or types of projects. In the first section of the file, the project itself is identified, as well as the cognizant developer that is the primary contact.

The project description portion of the format contains four essential types of information. The basic physical description of the site is necessary, and includes items such as the total number of acres, the land budget (acres by land use type), the overall density or density by land use type, the housing and tenant mix, the types of utilities and infrastructure that would normally serve the site, and other factors. The second item of required information is whether the project is multi-phased or not. If the project is being developed all at one time, this is not a concern. On the other hand, if the project is anticipated to be developed over a number of years in a number of phases, it will be necessary to provide information not only on the total project, but also on each component of the project -- both in terms of physical description and timing or schedule for development. In this latter case, an amendment to the form will provide a detailed description of the phases.

IDENTIFICATION CODE: _____

LAND USE TYPE:

Residential _____
 Commercial _____
 Institutional _____
 Industrial _____
 Mixed _____

New Development _____
 Redevelopment _____

PROJECT
IDENTIFICATION

NAME OF PROJECT: _____

LOCATION: _____

DEVELOPER: (Name, Address, Phone) _____

PROJECT DESCRIPTION

PHYSICAL DESCRIPTION:

1. Number of Acres _____
2. Land Budget _____
3. Density _____
4. Dwelling/Unit Mix _____
5. Tenant Mix _____
6. List Utilities _____
7. Other _____
8. Multi-Phase: Yes _____ No _____
 (If yes, complete physical description for each phase)

Ices Threshold Criteria

Yes _____ No _____

Stage of Development

	Phase 1	Phase 2	Phase 3
1			
2			
3			
4			
5			
6			
7			
8			
9			
10			

CONTACTS-
ORGANIZATIONS

RELEVANT CONTACTS (List Name, Address, Phone):

Check: _____ Local Government _____
 _____ County Government _____
 _____ Utility _____
 _____ Fin. Institution _____

STATUS AND
FOLLOW-UP

STATUS:

1. Initial File Date _____
2. Updates _____
3. Date Project Begun _____
4. Date Project Complete _____

ACTION: (By Phase, if necessary)

1. Ineligible _____
2. Eligible-Hold _____
3. Eligible-Active _____
4. Eligible-Priority _____

FIGURE 3-5. DISPLAY OF PROJECT INFORMATION FILE

The third portion of the physical description requires some rating as to whether the project (or specific phases) meet the ICES threshold criteria. It is expected that there will be fairly generous definitions of such criteria, and that this classification on the format will not be used in such a way as to exclude considerable numbers of projects. This information, then, is used more to screen out those projects in which ICES is virtually impossible to consider, but it will include most of the projects that might be in the inventory. By the mere process of data collection, only potential candidates are likely to be included in the inventory in the first place.

The final portion of the project description requires an assessment of the stage of development. The ten categories that were presented in Chapter 2 are used for purposes of classification. If the project is being developed in a single phase, it must be characterized at one of the stages of development each time that data collection occurs. That is, if the initial call results in classification at an early stage, later calls must reflect the fact that the project has proceeded to further stages. The recommended procedure for recording this information is to note the date of the call in the appropriate stage of development. As may be imagined, there will be something of different procedure if the project is multi-phased. In that case, each phase must be classified by stage of development. The format makes allowance for three phases; if there are more than that, duplicate formats can be entered into the inventory. This classification by stage of development will aid in determining which projects or phases within projects are likely candidates for ICES, as well as track how various projects are proceeding. Presumably, when all phases are complete, the project would be removed from the inventory.

The relevant contacts for the project are noted in the third section. This section is self-explanatory, and merely requires the listing of contact persons and organizations that would be concerned with an application of ICES. Keeping an accurate record of these knowledgeable persons and the nature of the discussion with them will simplify the call-back process and allow the analyst to maintain an accurate, complete, and up-to-date project information file.

The final section relates to the current status and maintenance of the project record. Dates of initial and subsequent contacts are noted, as well as relevant times for the project itself. A check-list of actions required and prospects for ICES application is provided, so that the file may be sorted by priority projects. This important piece of information will enable ICES program managers to effectively market the ICES system to those candidate sites which have the most potential for successful application.

2. Maintenance and Up-Dating. The information that is obtained for the project information file will, of necessity, be dated. It might be accurate as of the time of collection of statistical indicators -- depending on the nature of the indicators, but it will certainly be accurate according to the follow-up respondent interviews where direct knowledge of the project is obtained. In either event, however, that information will lose accuracy as times goes by. Therefore, it is necessary to also provide a means of maintaining the information file, as well as obtaining the information initially.

The way in which such information on specific projects can be maintained is by periodic call-backs to knowledgeable local participants. Such calls can be done in either of two ways. A regular cycle -- with the amount of time varying for the type of development, and with six months seeming to be an average length of time for all projects -- of follow-up calls and file maintenance is one approach. In this approach, all projects in the inventory would be contacted on a periodic basis, with all changes in the inventory (such as stage of development, project characteristics, contacts and interested organizations, or initiation of phases of development) noted. The project information file would be up-dated, and those projects where the likelihood of application of ICES has changed would be determined on a current basis.

Another approach would be to arrange the file in such a way that key dates are anticipated and recorded with each project, and then those dates would be pulled out into a re-call list which would be undertaken each day or week. In this second approach, it requires that the local respondent estimate dates at which changes would occur in the project, and that the recorder note those dates in the inventory. There may be some difficulty in predicting when various changes will occur, and therefore the ability of the local respondent to define, with sufficient accuracy, points at which follow-up calls should occur may not allow this approach to up-dating. On the other hand, if it can be done, it will allow the management of the follow-up efforts to be more concentrated on those areas or projects that are likely to have a change in status or some change in the likelihood of application of ICES.

If a large number of projects are entered in the project file, it might be worthwhile to consider maintaining the file by computer. In some regards this would not be particularly useful, especially in describing the project characteristics; such physical descriptions will vary considerably and would not warrant detailed coding and classification efforts; too much information would be lost or constricted by the classification effort. On the other hand, the ability to sort by a number of the dimensions that have been developed in the inventory would be desirable. One compromise solution to this is to enter all elements of the classification scheme (e.g., stage of development, land use type, priority of ICES application, etc.) for data processing, but not attempt to classify the project characteristics. This will permit the sorting and tabulating capability that

is desired, and if the unique reference number is used, it also allows access to the project descriptions -- which are not likely to change substantially if properly entered in the first place.

F. System Implementation

The information system for the identification of candidate sites or targets of opportunity for the application of ICES has been described in previous sections. What remains is to outline the means by which the system should be implemented, and to describe some of the factors that should be taken into account in making the system operational. An outline of a work program or series of steps that might be considered to carry the implementation of the information system to full development is presented in the following paragraphs.

It is recommended that an initial test of the system be performed to determine the feasibility of the concept of the information system. A trial run of the information system will test the overall logic of the system and determine if the methods of obtaining information described earlier would reasonably provide the kind of information that will be needed to market ICES. Such a test has been conducted on a limited basis -- more elaborate application of the system is certainly possible, but not feasible, for this assignment -- and the results of that test are reported in Chapter 4.

A second level of activity would be undertaken in which many of the basic statistics or indicators would be identified and used for preliminary screening. Efforts would be concentrated fairly narrowly, on the most rapidly growing areas and perhaps on certain types of projects with high likelihoods for ICES application. At this stage, it is suggested that all data collection and analysis be undertaken by manual procedures; the inventory would be developed and maintained by hand. At the same time, however, an effort would be made to define the type of data processing system that would be required to maintain the inventory, monitor key indicators, and to provide listings of high-priority candidate projects. This design of an automated system will yield information on how such a file would operate, but more importantly, it will allow estimates of costs, time, and potential benefits from using computer assistance for the information system. The result of this second phase will be a partial inventory of candidate sites, an initial effort at contacting interested participants and thereby influencing decisions with regard to ICES, and a feasibility assessment for more elaborate efforts at information gathering, storage, and processing.

If the previous two stages prove successful, then it is suggested that full implementation of the information system be undertaken. Again, this can be done in two ways -- either in expansion of the inventory by more manual efforts at data collection and analysis, or in expansion of the inventory by

data processing means. In either case, it means searching more widely for candidate projects of all types and in all parts of the country.

Regardless of technique that is used to implement the information system, the cost involved could be substantial. Both the statistical and respondent data will require constant up-dating as changes are made, as well as considerable effort to obtain the data in the first place. On the other hand, since there is a direct benefit from the numerous contacts that are necessary -- in terms of increased knowledge or exposure by potential users to the ICES program, the cost may be fully warranted.

There are certain short-cuts that may also be available. Much of the initial screening for statistical indicators can be accomplished by access to large data bases that may be available to the Federal government, either from its own agencies or from commercial suppliers. For example, if the Census records that are available for data processing are used, or if standard economic data bases that are regularly maintained can be tapped, many of the statistical indicators can be produced from existing files. Similarly, many organizations may maintain lists of development projects or developers -- as suggested in Section B above and as listed in Appendix B; these lists will provide a means of identifying projects by something other than the full procedure described, and as a first-cut effort, could save expense.

4 APPLICATION OF INFORMATION SYSTEM

A. Introduction

This chapter provides a limited test, as proposed in the previous chapter, of the information system for each land use type. This test was intended to determine the feasibility of developing the information system and will provide a basis upon which general conclusions with regard to implementation of the system can be drawn. Each limited test represents an application of the information system described in Chapter 3. A combination of both statistical and respondent data was relied upon to identify the candidate sites; there was no case in which only one information source could be relied upon to the exclusion of the other. It should be noted that the presentation of the potential candidate sites by land-use type does not fully conform to the proposed format as suggested in the Project Information File, Figure 3-5, but rather, site descriptions are presented in narrative form. The proposed format was developed as a result of the test, and since full implementation was not intended, only partial information on each project was gathered. The findings by land-use type of the limited application of the information system are presented in the following sections.

B. Application of the Information System

1. Residential Development. As a result of the examination of the statistical data base, the Fort Lauderdale (Florida) SMSA was selected as one of the fastest growing metropolitan areas for residential growth. Respondent data at the national and regional levels verified the statistical information and provided additional information about the selected growth area. Through the respondent data, the general characteristics of the projects in the Fort Lauderdale area were revealed.

a. Statistical Screening

The statistical indicators that were utilized to select the Fort Lauderdale SMSA were of three types. Analysis of residential growth relied heavily on Census population characteristics (both in numbers and percent changes) for the years 1970 to 1975, as well as for the shorter period of 1974 to 1975. Such population statistics were examined at the regional, sub-regional, state, and SMSA or county levels. The absolute amount of population growth in an area became a more important indicator in the final determination of the residential growth than did the percentage increase in a given area.

Additional indicators used to augment the population statistics included the number of building permits issued in a geographical region and the amount of mortgage loans and contracts in the area.

Data for these indicators were obtained for each geographical level for the years 1974 to 1976 and for the comparative years 1974-1975 and 1975-1976. The results of examination of these indicators are presented in Table 4-1. The South was selected as a primary growth area, based mainly on the amount and percentage of growth in the population indicator.

Further screens by use of statistical indicators are presented in Tables 4-2 (Sub-Regional), 4-3 (State), 4-4 (SMSA), and 4-5 (County and City). Examination of the sub-regional, state, and SMSA indicators leads from the South Atlantic region, to Florida, to the Fort Lauderdale-Broward County SMSA-- on the basis of both population changes, rate of change, and changes in building permits. It should be noted that in some instances, data are not available for all indicators at all levels; for example, financial lending activity was not available at the SMSA level.

b. Respondent Screening

Respondent data were collected at several levels: national, regional, state, and local. At the national level, contacts were made with the National Association of Home Builders, Urban Land Institute, the U.S. League of Savings and Loan, and four national builders (Centex Homes Corporation; Ryan Homes, Inc; Kauffman and Broad, Inc; and Weyerhaeuser Real Estate Co.). Both NAHB and the national builders agreed that residential growth has occurred mainly in the western and southern regions of the United States, particularly in the states of Texas, California, and Florida. Major SMSAs experiencing consistent residential growth within these states include: Houston, Dallas/Ft. Worth, Anaheim (Orange County), Los Angeles County, San Diego County, Tampa/St. Petersburg, Ft. Lauderdale, and Jacksonville. A respondent from one of the national building companies explained that his company generally "shows little interest in areas considered 'hot' for residential development because of the increased competition with other builders, for land, materials, and subcontractors." The company is more interested in areas where they can stay indefinitely if the market permits (i.e., Washington, D.C. and Atlanta, Georgia). Another builder stated that the availability of land and mortgage monies are two determining factors upon a major builder's decision to build in a particular region, not necessarily rapid growth.

The respondent from the U.S. League of Savings and Loan confirmed the two major growth regions in the United States as the West and the South from a financial standpoint. SMSAs experiencing residential growth include Orlando, Tampa - St. Petersburg, Fort Lauderdale, Miami, Houston, Dallas/Fort Worth, San Antonio, Austin, Denver, Phoenix, Tucson, Seattle, Portland, and the southern portion of California.

Based on the statistical screening, contacts were made with state respondents. The Florida State Home Builders Association respondent stated that the southwestern and southern-most portions of the state are presently the primary growth areas. SMSAs experiencing major residential growth include: Naples, Ft. Myers, Miami, Ft. Lauderdale, West Palm Beach, Tampa - St. Petersburg and

TABLE 4-1. INDICATORS OF RESIDENTIAL DEVELOPMENT --
REGIONAL SCREEN

a. Population Estimates by Metropolitan and Non-Metropolitan Population Figures

Regions:	<u>Change 1970-75</u>		<u>Change 1974-75</u>	
	<u>Number</u>	<u>Percent</u>	<u>Number</u>	<u>Percent</u>
Northeast	594,400	6.8	44,900	1.06
North Central	1,071,700	4.7	110,500	.52
South	5,289,100	16.2	960,400	2.78
West	2,992,400	20.5	591,300	3.84

Source: U.S. Department of Commerce, Bureau of the Census, Population Estimates and Projections, Estimates of the Population of Counties and Metropolitan Areas: July 1, 1974 and 1975.

b. Building Permit Issuing Places

Regions:	Total				
	<u>Numbers</u>			<u>Percent Change</u>	
	<u>1974</u>	<u>1975</u>	<u>1976</u>	<u>1974-75</u>	<u>1975-76</u>
South	397,278	298,377	405,714	-24.8	35.9
West	281,307	277,914	418,351	- 1.2	50.5

Source: Construction Reports, Housing Authorized by Building Permits and Public Contracts, 1974, 1975, 1976.

c. Mortgage Loans and Contracts

Regions:	Total				
	<u>Dollars</u>			<u>Percent Change</u>	
	<u>1974</u>	<u>1975</u>	<u>1976</u>	<u>1974-75</u>	<u>1975-76</u>
South	66,371,232	75,132,107	88,158,390	13.1	17.3
st	61,210,722	69,063,639	82,019,935	12.8	18.7

Source: Savings and Home Financing Source Book, 1974, 1975, 1976.

TABLE 4-2. INDICATORS OF RESIDENTIAL DEVELOPMENT --
SUB-REGIONAL SCREEN

a. Population in Metropolitan and Non-Metropolitan Areas

	<u>Change 1970-75</u>		<u>Change 1974-75</u>	
	<u>Number</u>	<u>Percent</u>	<u>Number</u>	<u>Percent</u>
Sub-Regions:				
South Atlantic	3,024,100	19.5	503,400	3.04
East South Central	735,100	11.5	131,200	1.94
West South Central	1,529,800	14.1	326,000	2.89

Source: U.S. Department of Commerce, Bureau of the Census, Population Estimates and Projections, Estimates of the Population of Counties and Metropolitan Areas: July 1, 1974 and 1975.

b. Building Permits Issued

	<u>Numbers</u>			<u>Percent Change</u>	
	<u>1974</u>	<u>1975</u>	<u>1976</u>	<u>1974-75</u>	<u>1975-76</u>
Sub-Regions:					
South Atlantic	246,241	163,678	209,958	-33.6	28.0
West South Central	100,644	91,523	139,041	-9.0	51.9

Source: Construction Reports, Housing Authorized by Building Permits and Public Contracts, 1974, 1975, 1976.

c. Mortgage Loans and Contracts

	<u>Dollars</u>			<u>Percent Change</u>	
	<u>1974</u>	<u>1975</u>	<u>1976</u>	<u>1974-75</u>	<u>1975-76</u>
Sub-Regions:					
South Atlantic	40,956,735	45,946,468	53,325,442	12.1	16.0
West South Central	18,491,147	21,275,950	25,459,602	15.0	19.6

Source: Savings and Home Financing Source Book, 1974, 1975, 1976.

TABLE 4-3. INDICATORS OF RESIDENTIAL DEVELOPMENT --
STATE SCREEN

a. Population

States:	<u>Change 1970-75</u>		<u>Change 1974-75</u>	
	<u>Number</u>	<u>Percent</u>	<u>Number</u>	<u>Percent</u>
Delaware	31,000	14.4	2,800	1.69
Maryland	174,300	10.5	8,800	.91
District of Columbia	-40,500	-5.4	-4,600	-.63
Virginia	314,700	14.1	57,100	2.48
West Virginia	58,700	5.4	18,500	2.02
North Carolina	346,800	14.6	75,700	2.76
South Carolina	227,300	17.8	43,200	3.12
Georgia	337,700	14.5	49,200	1.90
Florida	1,554,200	48.5	254,000	6.92

Source: U.S. Department of Commerce, Bureau of the Census, Population Estimates and Projections, Estimates of the Population of Counties and Metropolitan Areas: July 1, 1974 and 1975.

b. Mortgage Loans and Contracts

State:	<u>Dollars</u>			<u>Percent Change</u>	
	<u>1974</u>	<u>1975</u>	<u>1976</u>	<u>1974-75</u>	<u>1975-76</u>
Florida	17,511,317	19,613,367	22,852,054	12.0	16.5

Source: Savings and Home Financing Source Book, 1974, 1975, 1976.

TABLE 4-4. INDICATORS OF RESIDENTIAL DEVELOPMENT --
FLORIDA SMSA'S SCREEN

a. Population

SMSAs:	<u>Change 1970-75</u>		<u>Change 1974-75</u>	
	<u>Number</u>	<u>Percent</u>	<u>Number</u>	<u>Percent</u>
Ft. Myers	50,200	47.7	8,500	5.8
Ft. Lauderdale	242,400	39.1	53,800	6.6
Sarasota	42,200	35.0	5,200	3.3
West Palm Beach - Boca Raton	111,100	31.8	16,900	3.8
Orlando	131,900	29.1	8,400	1.5
Tallahassee	29,300	26.8	3,000	2.2
Tampa - St. Petersburg	276,800	25.4	26,800	1.9
Daytona Beach	40,300	23.8	7,200	3.5
Gainesville	24,800	23.7	4,700	3.7

Source: U.S. Department of Commerce, Bureau of the Census, Population Estimates and Projections, Estimates of the Population of Counties and Metropolitan Areas: July 1, 1974 and 1975.

b. Building Permits Issued

SMSAs:	<u>Numbers</u>			<u>Percent Change</u>	
	<u>1974</u>	<u>1975</u>	<u>1976</u>	<u>1974-75</u>	<u>1975-76</u>
Ft. Lauderdale	18,870	5,452	8,266	-71.1	51.6
Tampa - St. Petersburg	13,294	5,891	8,309	-55.6	41.0

Source: Construction Reports, Housing Authorized by Building Permits and Public Contracts, 1974, 1975, 1976.

c. Mortgage Loans and Contracts

SMSAs:	<u>Dollars</u>			<u>Percent Change</u>	
	<u>1974</u>	<u>1975</u>	<u>1976</u>	<u>1974-75</u>	<u>1975-76</u>
Ft. Lauderdale	2,499,683	2,799,693	3,240,795	12.0	15.7
Tampa - St. Petersburg	3,327,283	3,713,663	4,278,727	11.6	15.2

Source: Savings and Home Financing Source Book, 1974, 1975, 1976.

TABLE 4-5. INDICATORS OF RESIDENTIAL DEVELOPMENT --
FT. LAUDERDALE SMSA - BROWARD COUNTY

a. Population

	<u>Change 1970-75</u>		<u>Change 1974-75</u>	
Broward County	242,400	39.1	43,800	5.34

Source: U.S. Department of Commerce, Bureau of the Census, Population Estimates and Projections, Estimates of the Population of Counties and Metropolitan Areas: July 1, 1974 and 1975.

b. Building Permits Issued

	<u>1975</u>	<u>1976</u>
Broward County	5,452	8,266
Metropolitan Areas:		
Deerfield Beach	149	1,140
Margate Town	167	470
Plantation	333	733

Source: Construction Reports, Housing Authorized by Building Permits and Public Contracts, 1974, 1975, 1976.

Orlando. Single-family residential growth is becoming stronger and multi-family residential will be stronger in the state for 1977, according to the present number of residential construction starts.

It was also learned in the course of the respondent interviews that there are SMSAs within the southern region where housing construction has been cyclical in nature; three of the Florida markets (Orlando, Fort Lauderdale, and Tampa - St. Petersburg) have exhibited very high instability over recent years. This instability can be attributed to the rapid growth experienced by those SMSAs in the early 1970s, which resulted in high residential construction activity from 1971 to 1973. During 1974 and 1975, many of the Florida markets witnessed high vacancy rates, a significant decline in residential construction activity, and a slow recovery in 1976 from the over-building of residential inventories.

Local respondents--city officials and representatives of the local home builders association--in the Ft. Lauderdale area, have stated that the residential construction activity in the metropolitan area is now stabilizing. Recovery from the recession has been slow, but the area's residential construction activity is growing. Single family homes are becoming more popular in Ft. Lauderdale and the large multifamily inventory, that resulted from the 1974 recession, is presently being absorbed. The point here is that in spite of the findings of the statistical indicators, it is still necessary to amplify and verify those indicators with local respondent interviews. In this case, some underlying dynamics of the residential housing market would be overlooked without the local conversations, and might lead to the selection of candidate sites without reasonable prospects of growth and development.

At the Fort Lauderdale SMSA and County level, local builders (Development Corporation of America, Holland Builders, Inc., Snead Construction, and Tam O'Shanter Development Corporation), local planning officials (city and county), and the local utility company (Florida Power and Light Company), are in agreement with the local home builders association in Deerfield Beach that the western portion of the Ft. Lauderdale SMSA and Broward County is where the major portion of residential growth is occurring. A number of small towns (Coral Springs, Plantation, Lauder Hill, Lauder Lakes, and Sunrise) are experiencing rapid growth.

Planning officials expressed that a new county land-use plan was presented for adoption in November, 1977. The plan attempts to control growth toward the east of Ft. Lauderdale and away from the west where urban sprawl is presently concentrating. The plan further increases industrial use, but tries to limit residential density.

c. Candidate Sites

As the result of the statistical screening and respondent interviews, growth areas in Fort Lauderdale were identified. The selected project was Coral Springs New Town, located approximately fifteen miles northwest of Fort Lauderdale. A partial project description is provided in Appendix C.

2. Commercial Development. Historically, it has been common that both residential and commercial development occur almost simultaneously. This phenomena developed because of the new population's need for commercial services (i.e., personal, professional, retail, etc.). It is reasonable to assume that rapidly growing residential areas would also experience a significant amount of commercial development. Therefore, it was decided to gather general information on commercial projects under construction in the Ft. Lauderdale SMSA area.

a. Statistical Screening

Commercial development relies heavily upon market demand and population density for success. It is because of the close relationship between commercial and residential development that the same data sources were used to determine commercial growth areas as those used to determine residential growth areas. Additional statistical indicators which pertain solely to commercial growth were also used. The statistical indicators that were used include: population characteristics, growth of commercial construction in the SMSA and local areas, area and sub-area employment and payroll data, and local financial data.

b. Respondent Screening

The same sources of information that were used for identifying residential growth areas were relied upon for commercial development. There was less reliance upon national organizations, and more emphasis on local respondents. This is partially due to the close correspondence of residential and commercial development, and to the lack of different sources between the two on the national level. It was generally found that commercial development in the Fort Lauderdale area has followed the course of residential development, with both the instability of previous years and the current rapid pace of development as well.

c. Candidate Sites

The candidate site that was identified by the information system was the Gulfstream Plan, located in Plantation, Florida. This commercial development is part of a large mixed-use complex; the commercial portion itself is anticipated as a regional shopping center serving the growing market area to the west of Fort Lauderdale. More details of this project are presented in Appendix C.

3. Institutional Development. The data sources used to identify residential and commercial areas are not the same data sources used to identify institutional growth areas. Statistical indicators -- employment growth, construction growth, and flow of mortgage funds -- gathered at the national, state, and local levels provided the basis of selection. Respondent data were obtained to verify the institutional growth of the area and to identify new institutional developments or projects. The screening process pointed to Dade County, Florida (Miami SMSA) as a major sub-area in the country experiencing substantial institutional growth.

a. Statistical Screening

At the national level, the combination of government employment and volume of construction of institutional buildings indicates a substantial volume of growth in the Southern region (Table 4-6). Upon further examination at the sub-regional (Table 4-7) and state levels (Table 4-8), Florida is identified as an area of substantial growth--based primarily on comparison of government employment statistics, but affirmed by construction volume indicators. Dade County emerges as the leading area for institutional development, based on the sheer dominance over other counties in terms of total public employment (Table 4-9). These indicators are presented on following tables.

b. Respondent Screening

Information obtained from local respondents at the city planning department and the county planning commission verified the amount of institutional growth occurring within the county. Those interviews also resulted in identifying the characteristics of one of the major institutional projects presently under construction in Miami.

c. Candidate Sites

The project that was identified in the institutional sector was the proposed Government Center in Miami, including city, county, and state offices, as well as cultural centers and administrative offices for the anticipated public transit system. A more detailed description of the project is presented in Appendix C.

4. Industrial Development. As the result of the application of statistical and respondent screening, a major industrial growth area was identified; projects in Orange County, California were isolated as candidate sites. The sources of information used for industrial development screening were different than those used for residential and commercial development, and were somewhat different from the institutional indicators.

a. Statistical Screening

Statistical indicators used to identify concentrated industrial growth included: employment data, construction growth, and the flow of mortgage funds. The data were collected, when appropriate, at the various geographical divisions - national, regional, state, county/city. Information that proved to be most useful in the identification of a rapid growth industrial area was the state and local statistical indicators of employment and construction growth.

TABLE 4-6: INDICATORS OF INSTITUTIONAL DEVELOPMENT --
REGIONAL SCREEN

a. Government Employment (in thousands)

	<u>1972</u>	<u>1975</u>	<u>Percent Change</u> <u>1972-1975</u>
Regions:			
Northeast	2,994	3,243	8.3
North Central	3,446	3,687	7.0
South	4,708	4,820	2.4
West	2,554	3,028	18.6

Source: Statistical Abstract of the United States

b. Construction Value of Religious, Educational, Hospitals
and Other Institutional Buildings (in million dollars)

	<u>1974</u>	<u>1975</u>	<u>1976</u>	<u>Percent Change</u> <u>1974-1976</u>
Regions:				
Northeast	440	402	555	26.1
North Central	761	746	707	-7.1
South	944	934	974	3.2
West	456	558	454	-0.4

Source: Construction Review - U.S. Department of Commerce

TABLE 4-7: INDICATORS OF INSTITUTIONAL DEVELOPMENT --
SUB-REGIONAL SCREEN

a. Government Employment (in thousands)

	<u>1970</u>	<u>1972</u>	<u>1975</u>	<u>Percent Change</u> <u>1970-1975</u>
Sub-Regions:				
South Atlantic	2,155	2,292	2,555	18.6
East South Central	741	822	878	18.5
West South Central	1,166	1,239	1,387	19.0

Source: Statistical Abstract of the United States

TABLE 4-8: INDICATORS OF INSTITUTIONAL DEVELOPMENT --
STATE SCREEN

a. Government Employment (in thousands)

	<u>1970</u>	<u>1972</u>	<u>1975</u>	<u>Percent Change</u> <u>1970-1975</u>
States:				
Delaware	33	34	38	15.2
Dist. of Columbia	364	372	270	-25.8
Florida	399	441	548	-37.3
Georgia	298	321	353	18.5
Maryland	249	265	302	21.3
N. Carolina	267	271	314	17.6
S. Carolina	149	165	200	34.2
Virginia	300	325	422	40.7
W. Virginia	96	98	108	12.5

Source: Statistical Abstract of the United States

b. Capital Outlays by State and Local Governments
(in million dollars)

1971-1972

States:

Delaware	141
Dist. of Columbia	312
Florida	1,178
Georgia	675
Maryland	787
N. Carolina	640
S. Carolina	325
Virginia	687
W. Virginia	362

Source: U.S. Census of Governments

TABLE 4-9: INDICATORS OF INSTITUTIONAL DEVELOPMENT -- FLORIDA COUNTIES' SCREEN

Employment in the Public Sector (Federal,
State and Local) in the State of Florida
September, 1975

County	Average number of re- porting units	Number of em- ployees mid-Sep- tember 1975 ¹	Quarterly payroll July- September 1975 (\$1,000)	County	Average number of re- porting units	Number of em- ployees mid-Sep- tember 1975 ¹	Quarterly payroll July- September 1975 (\$1,000)
FLORIDA	2,943	407,458	836,090	Lake	50	3,535	4,965
Alachua	73	7,406	15,869	Lee	63	6,699	10,079
Baker	18	1,429	2,153	Leon	153	16,858	44,339
Bay	57	5,726	11,853	Levy	32	909	1,149
Bradford	26	765	996	Liberty	16	198	244
Brevard	67	14,571	34,094	Madison	20	642	705
Broward	97	28,494	58,049	Manatee	50	4,219	6,075
Calhoun	23	481	711	Marion	47	5,111	6,477
Charlotte	28	671	1,443	Martin	28	1,516	2,458
Citrus	25	1,134	1,564	Monroe	41	3,411	6,390
Clay	29	1,873	2,340	Nassau	27	1,655	1,771
Collier	33	2,711	4,725	Okaloosa	49	8,567	21,541
Columbia	34	1,851	3,110	Okeechobee	21	995	1,516
Dade	139	63,965	150,268	Orange	109	13,161	34,295
De Soto	24	1,679	2,917	Osceola	21	1,702	2,893
Dixie	18	370	500	Palm Beach	125	19,209	37,281
Duval	93	31,243	59,227	Pasco	40	1,805	2,801
Escambia	73	16,121	40,849	Pinellas	96	26,709	42,585
Flagler	19	383	502	Polk	77	14,239	21,680
Franklin	23	409	566	Putnam	32	1,947	2,712
Gadsden	29	4,407	8,428	St. Johns	38	2,140	3,390
Gilchrist	21	467	725	St. Lucie	48	2,975	5,036
Glades	12	288	372	Santa Rosa	34	2,167	2,938
Gulf	20	515	744	Sarasota	52	5,505	10,452
Hamilton	22	535	794	Seminole	39	4,461	7,113
Hardee	24	727	906	Sumter	27	505	618
Hendry	21	832	1,181	Suwannee	27	1,059	1,446
Hernando	23	1,193	1,913	Taylor	23	906	1,170
Highlands	32	1,626	2,457	Union	17	262	328
Hillsborough	102	35,308	74,268	Volusia	4	94	317
Holmes	19	537	609	Wakulla	17	183	301
Indian River	32	1,902	3,189	Walton	22	970	1,171
Jackson	47	2,899	4,290	Washington	26	1,306	1,916
Jefferson	17	536	646				
Lafayette	14	174	202	Statewide ²	53	9,377	37,509

Source: State of Florida, Department of Commerce, Division of Employment Security, Office of Research and Statistics (unpublished data).

¹Employment for the week including the 12th.

²Reporting units without a fixed location within the state or of unknown county location.

Note: Detail may not add to totals because of omission of counties where data would disclose information about individual firms. The data for these counties are included in the Florida total. 1972 SIC code for federal, state, and local governments is 91-97.

The application of this statistical screening led to the identification of the Orange County (Anaheim-Santa Ana-Garden Grove) SMSA as one of the most rapidly growing sub-areas of industrial development in the country. The indicator used for identifying Orange County was the amount of growth that the area had experienced in employment and new equipment since 1967. Heavy emphasis was not placed upon the percentage increase of growth experienced in the area. The following tables (Tables 4-10 to 4-13) display the statistical screening process used to identify California and thence the Orange County sub-area as an area of significant industrial growth. As may be observed, the basic indicators that were used were manufacturing employment and capital expenditures for new equipment.

b. Respondent Screening

Respondent data collected from the national to the local levels were used to verify Orange County as an area experiencing significant industrial growth, and to identify major industrial developments or projects presently under construction. Respondents included: the American Industrial Development Council, Inc. (national level); the South Industrial Development Corporation (regional level); and city and county planning agencies (local level).

At the national level, according to the respondent at the American Industrial Development Council (Kansas City, Missouri), industrial development is moving south - to the Southeast and Southwest regions where labor is cheaper and unions less entrenched. The availability of utility hook-ups and the abundance of energy reserves have a great impact upon an industry's decision to locate in a particular area. The states of Texas and Oklahoma have significant amounts of energy reserves, which will be an important element in attracting industry to these areas in the future.

The regional respondent from the South Industrial Development Corporation agreed with the national respondent that the Southeast and Southwest regions of the country are showing a tremendous growth in industrial development. The major states experiencing a significant amount of industrial growth are North Carolina, Georgia, Tennessee, Virginia, Texas, Oklahoma, and California. Orange County in Southern California ranks in the top ten counties nationwide in terms of new manufacturing jobs.

Local respondents from the Orange County Planning Commission and the Anaheim City Planning Department verified the rapid industrial growth experienced in the sub-areas.

A lot of the industrial development in the county has been in the form of industrial parks -- allowing only light research and development, small manufacturing - plants and wholesale. The major portion of the new industrial growth is located in the jurisdictions of Anaheim and Irvine.

TABLE 4-10: INDICATORS OF INDUSTRIAL DEVELOPMENT --
REGIONAL SCREEN

a. Manufacturing Employment (in thousands)

	<u>1970</u>	<u>1972</u>	<u>1975</u>	<u>Percent Change</u>	
				<u>1970-1975</u>	<u>1972-1975</u>
United States	19,393	18,933	18,347	-05.70	-03.19
Regions:					
Northeast	5,611	5,285	4,791	-17.1	-10.30
North Central	6,265	6,134	5,830	-07.46	-05.21
South	5,126	5,227	5,166	0	-01.18
West	2,377	2,370	2,458	03.40	03.70

Source: Statistical Abstract of the United States, U.S. Department of Commerce and Bureau of the Census

b. Valuation of Industrial Building Construction
(millions of dollars)

	<u>1974</u>	<u>1975</u>	<u>1976</u>	<u>Percent Change</u>	
				<u>1974-1975</u>	<u>1975-1976</u>
United States	3,538	2,217	2,501	-37.3	12.8
Regions:					
Northeast	606	351	319	-42.0	-9.10
North Central	1,047	598	730	-42.8	22.00
South	962	618	623	-35.7	0
West	923	650	828	-29.5	27.30

Source: Construction Review; U.S. Department of Commerce

TABLE 4-11: INDICATORS OF INDUSTRIAL DEVELOPMENT --
SUB-REGIONAL SCREEN

a. Manufacturing Employment (in thousands)

	<u>1970</u>	<u>1972</u>	<u>1975</u>	<u>Percent Change</u>	
				<u>1970-1975</u>	<u>1972-1975</u>
West Region	2,377	2,370	2,458	03.40	03.71
Sub-Regions:					
Mountain	363	269*	416*	-25.80	54.6
Pacific	2,014	1,970	2,042	-02.18	03.65

Source: Statistical Abstract of the United States; U.S. Department of Commerce and Bureau of the Census

*Colorado information not available

b. Capital Expenditures for New Equipment
(millions of dollars)

				<u>Percent Change</u>	
	<u>1967</u>	<u>1972</u>	<u>1973</u>	<u>1967-1972</u>	<u>1972-1973</u>
Sub-Regions:					
Mountain	428	723	830	68.90	14.70
Pacific	2,268	2,338	2,776	03.00	18.70

Source: Census of Manufacturers, U.S. Bureau of the Census, and Statistical Abstract of the United States.

TABLE 4-12: INDICATORS OF INDUSTRIAL DEVELOPMENT --
STATE SCREEN

a. Manufacturing Employment (in thousands)

	<u>1970</u>	<u>1972</u>	<u>1975</u>	<u>Percent Change</u>	
				<u>1970-1975</u>	<u>1972-1975</u>
States:					
Washington	241	223	242	0.4	8.5
Oregon	172	183	182	5.8	-0.5
California	1,568	1,531	1,585	1.1	3.5
Alaska	8	8	9	12.5	12.5
Hawaii	25	25	24	-4.0	-4.0

Source: Statistical Abstract of the United States; U.S. Bureau of the Census and U.S. Department of Commerce

b. Capital Expenditures for New Equipment
(millions of dollars)

	<u>1967</u>	<u>1972</u>	<u>1973</u>	<u>Percent Change</u>	
				<u>1967-1972</u>	<u>1972-1973</u>
States:					
Washington	465	354	446	-2.36	25.9
Oregon	234	267	333	14.10	24.7
California	1,529	1,649	1,917	7.84	16.2
Alaska	15	22	43	46.66	95.4
Hawaii	26	47	37	80.76	-21.2

Source: U.S. Census of Manufacturers; U.S. Bureau of the Census and Statistical Abstract of the United States.

TABLE 4-13: INDICATORS OF INDUSTRIAL DEVELOPMENT --
CALIFORNIA SMSA'S SCREEN

a. Manufacturing Employment (in thousands)

	<u>1967</u>	<u>1972</u>	<u>1977</u> (August)	<u>Percent Change</u>	
				<u>1967-1972</u>	<u>1972-1977</u>
SMSAs:					
Los Angeles -	864	779	820	-09.83	05.26
Long Beach					
San Francisco -	201	185	188	-07.96	01.62
Oakland					
Anaheim; Santa Ana -	131	131	168	-0-	28.24
Garden Grove					
San Diego	74	65	75	-12.16	01.53
Riverside - San	54	56	55	03.70	-1.78
Bernadino - Ontario					
San Jose	125	135	173	08.00	28.14

Source: U.S. Census of Manufacturers, U.S. Bureau of Census, and State of California, Department of Employment.

b. Capital Expenditures for New Equipment
(in million dollars)

	<u>1969</u>	<u>1971</u>	<u>1972</u>	<u>Percent Change</u>	
				<u>1969-1971</u>	<u>1971-1972</u>
SMSAs:					
Los Angeles -	845	731	692	-13.49	-05.33
Long Beach					
San Francisco -					
Oakland	228	234	217	02.63	-07.26
Anaheim-Santa Ana	117	111	144	-05.12	29.72
Garden Grove					
San Diego	74	67	54	-09.45	-19.40
Riverside - San	70	61	63	-12.85	03.27
Bernadino - Ontario					
San Jose	148	135	165	-22.29	22.22

Source: U.S. Census of Manufacturers; U.S. Bureau of the Census.

c. Candidate Sites

The use of statistical and respondent screening resulted in the identification of a major industrial development in the Irvine area -- as part of the Irvine new community development. This industrial area, as noted, is largely of the light research or manufacturing variety. Details on the project are presented in Appendix C.

5. Mixed-Use Development. As was indicated in a previous section, the data sources for mixed-use development are not different from the data sources that have been used in the other land use sectors. Therefore, the statistical and respondent data that were used for other sectors are also useful for identifying large-scale, mixed-use projects. Furthermore, since mixed-use projects would virtually never exclude residential and commercial uses, the indicators for those land use types provide a fairly good means of identifying mixed-use projects as well.

For purposes of this application or initial test, Fort Lauderdale was again used as the area where potential sites would be identified. This was based on the statistical indicators cited previously, and on the respondent interviews that were conducted. It was found through such interviews that current land use policy in the Fort Lauderdale area favored industrial development, featured controlled residential development, and more rational development than the sprawl that had been experienced in recent years. This policy therefore favored mixed-use development, where industrial uses might be combined with other uses, and overall land use planning would be more preferable.

There were two mixed-use projects that were identified in the Fort Lauderdale area, Gulfstream Plan and 84-South. They are both located west of Fort Lauderdale in Broward County, where rapid growth has been experienced. Full details on these projects are presented in Appendix C.

6. Redevelopment. The data sources that were mainly relied upon to locate redevelopment projects under construction in metropolitan areas nationwide were respondents from national agencies (National Association of Housing and Redevelopment Officials, Department of Housing and Urban Development), and local agencies (county planning commission and city planning department). Statistical indicators -- construction growth indicators from state and local agencies, and the flow of redevelopment monies from public or private agencies -- were not as heavily relied upon in determining the location of redevelopment projects throughout the nation.

An official of NAHRO indicated that a great number of the redevelopment projects presently being financed as public and/or public efforts are located primarily in the Eastern section of the country in older SMSAs, where there is a greater need for an overall rehabilitation or rejuvenation in portions of the central city. Presently, many of the redevelopment projects financially assisted by Community Development Block Grant funds have taken the form of mixed land-use

concepts, integrating physical, economic, and social development strategies and techniques. Three major redevelopment projects presently funded by CD in the nation are: the Bunker Hill project (downtown rehabilitation) in Los Angeles, California, run by the Community Redevelopment Agency; the New Development Plan for job creation in Boston, Massachusetts, run by the Boston Redevelopment Authority; and the Waterfront Redevelopment project in Norfolk, Virginia; run by the Norfolk Redevelopment and Housing Authority.

As part of discussions with local officials in Miami, Florida on other development projects it was possible to identify what is anticipated as a major mixed-use redevelopment project downtown. The final plans for the redevelopment project have not been decided upon by those interests negotiating its financing and development techniques. However, city officials are looking toward the utilization of Community Development funds to finance a major portion of the redevelopment costs. The candidate project was the proposed Miami-Dade Junior College; more details on the project are presented in Appendix C.

C. General Conclusions

The test of the information system proved it to be a feasible and reliable method of obtaining statistical and respondent data for identifying potential candidate projects. The statistical data, in particular, were quite useful, although dated in many cases, for isolating to rapidly growing areas. In most cases, the local participants were able to verify the selected "growth areas" of the various land-use developments based upon an indication from the statistical analysis. It was the respondent data, however, that was the predominant and most efficient source of information in the selection of institutional and mixed land-use development projects. It was somewhat difficult from the hard data to determine where institutional and mixed land-use growth was prevalent. On the other hand, hard data clearly defined significant growth in the residential, commercial, and industrial sectors.

Respondent data, in some cases, were not collected from knowledgeable persons at every geographical level -- national, regional, state and local. It was found that regional and state respondent data were much harder to obtain than national and local respondent data. In some instances, contact was made at the national level; and subsequently, information was collected from a local respondent. Only for residential development was it possible to contact references at each geographical level. The initial test of the screening process leads to the conclusion that residential data, both statistical and respondent, are much easier to obtain than data for the remaining land-use types.

It was mentioned earlier in Chapter 3 that neither the statistical and respondent data should be relied upon exclusively, without reference to the other source. This holds true because of the varying reliance on both sources of information according to the level of government or scale of geography. It should be noted that there are limitations in the data, particularly the statistical indicators, for each development type in the information system. Many of the hard data are the most current available, but 1975 (and 1976 in some cases,) is the most up-to-date information. In spite of the fact that the statistical indicators are slightly outdated, they are useful as reliable indicators of change.

In terms of implementation, the use of readily available data bases could speed up the project identification process. In addition, if the necessary demographic and economic data needed to perform the statistical screening process could be compiled for analysis by computer, the manual compilation of numbers could be eliminated. Thus more time and effort could be directed toward the location of new potential developments and/or the search for respondent data.

In summary, the information system appears to be feasible, workable, and manageable and could be implemented for efficient maintenance and updating of current information on candidate sites.

PART THREE: MARKET STRATEGIES

THIS PAGE
WAS INTENTIONALLY
LEFT BLANK

5. MARKET CHARACTERISTICS

A. Introduction

One of the basic principles underlying the development of a marketing strategy is that one must fully understand the intended audience--the concerns, the attitudes, the factors in decision-making. Given that understanding, it is then possible to formulate marketing strategies capable of influencing the behavior of the intended audience for a specific purpose. In the case of the ICES program, the understanding of the process of development is essential to the formulation of marketing strategies. The better the knowledge and consideration of the particular factors involved in community development, the more likely that ICES marketing strategies based on that knowledge will be implemented.

A general description of the development process, its participants, the sequence of events, and the involvements of participants by stage of development was presented in Chapter 2. As stated in that chapter, the intention of the description was to provide a framework for the project information system described in Chapter 3. The intention was also to provide some of the information required for the understanding of the development process needed to formulate marketing strategies. This chapter is intended to expand upon that information, with more detailed discussion of the participants in the development process (who are, as has been pointed out, the primary audience for the ICES marketing program), their concerns, and factors in the decisions that are made with regard to development.

B. Participant Concerns and Factors in Decision-Making

There are a large number of factors that influence the continual process of decision-making and analysis that is implicit in community development. There are a large number of participants involved, with complex interrelationships and diverse motivations. Because of the diversity, complexity, and number, it is difficult to generalize as to the concerns and factors in decision-making. However, a limited attempt can be made--which will be adequate to point out the direction in which analysis and conceptualization must proceed in order to formulate marketing strategies tailored for specific audiences.

In the following figure (Figure 5-1), the participants in the development process--as listed in Chapter 2--are arrayed against a set of development concerns that might be commonly shared among those participants, and that are commonly found in the development process. Such factors as economic feasibility, site characteristics, attributes of the development market, and the context of government regulation and community attitudes are found in all types of development processes. As may be seen, not all participants share all of the same concerns. The development team (consisting of developers, market analysts, architects, engineers, and others) have a large number of concerns, but are primarily interested in financial

**FIGURE 5-1.
PARTICIPANTS AND THEIR CONCERNS
IN THE DEVELOPMENT PROCESS**

Development Concerns	Participants							Regional State and Local Agencies			
	Development Team	Local Government	Utilities	Builders	Lenders	Insurers	Realtors and Brokers	Economic Development	Environmental & Health	Housing & Urban Development	General Audience (Public-at-Large)
Financial/Economic											
Capital costs	●	●	●	●	●			●	●		
Operating, maintenance and replacement costs	●	●	●		●	●		●	●		●
Financing availability and costs	●				●			●		●	●
Insurance	●					●					
Taxes		●						●			●
Physical Attributes											
Site characteristics	●	●	●						●	●	●
Building design and layout	●	●	●		●				●	●	●
Land use planning	●	●							●	●	●
Location/accessibility	●	●	●		●		●	●	●	●	●
Institutional											
Land use controls	●	●			●						●
Zoning	●	●						●	●	●	●
Other local controls		●								●	●
Public facility policy	●	●							●	●	●
Environmental Factors	●	●				●			●	●	●
Supply Constraints											
Building industry capabilities	●			●				●			
Utility availability	●	●	●					●	●	●	●
Physical site limitations	●	●	●						●		
Market											
Market area potential	●	●	●	●	●		●	●			●
Competition	●	●	●	●	●		●	●		●	●

● Area of substantial concern

feasibility, marketability, and impacts of government oversight on the development. Local government officials, on the other hand, have concerns over the provision of public services and ultimately for the fiscal impacts.

Utilities typically are concerned with the physical layout and design of the development, as well as with availability of supplies or capacity to service the development; there is likewise a concern for capital expenditures since they directly translate into the rate of return on the utility operations. If the developer is not the builder, but contractors are used to undertake construction, the concerns from the builder's perspective are limited but important; the builder is largely concerned with initial costs, with the availability of labor and materials, and with the potential market demand to absorb the finished building. Lenders have an overall concern for the project, but with a particular perspective; they are interested, first, in the quality of the project and in the prospects for its successful marketing, and second, in the ability of the builder or developer to perform the required activities to complete the development. Insurers and realtors have somewhat narrow interests, but in those areas, well-developed concerns; in the case of insurers, the concerns are largely financial, while in the case of realtors, the concerns relate to the overall marketability of the development project.

C. Points of Intervention

The fact that various participants have a variety of concerns in the development process is not enough to fully account for the behaviors observed. Those concerns are expressed at different points in time, relative to the stages of development. In Chapter 2, the point was made that participants are active in the development process at various points in time, and that fact was demonstrated in Figure 2-2. By the same token, the concerns and decision-making factors expressed by various participants will not be distributed uniformly across the process, but will emerge as the process of development shifts from stage to stage. Such shifts in concerns and in decision-making are part of the interrelationships that are found in the continual set of activities and events in the development of a project.

The context for decisions that might be expected at each point in the development process is summarized in the following paragraphs:

- o Stage 0: Market Location. There are a large number of factors that influence the location of a development and the selection of a market area. Several factors have been suggested previously, including: transportation/access, economic conditions, growth potential, land costs, local government and taxes, utility availability, and environmental considerations; although other factors may apply, these are the major determinants of market location.
- o Stage I: Feasibility of Development. At this stage, the primary concern is over the level of demand for the project that can be expected, and the period over which absorption will occur. Tentative decisions are made on particular sites, with more detailed information obtained than was used as the basis of decisions for market location in the previous stage.

- o Stage II: Consideration of Land Purchase. At this point in the development process, preliminary checks are made on a number of important factors--on potential financing, on estimates of costs of site development and improvements, on the availability of public services to the site, on questions of zoning and subdivision regulations, and on utility capacity. This information is necessary to making final decisions on a particular site, a particular market, and a preliminary concept for development.
- o Stage III: Purchase of Land. Important physical and financial analyses are made prior to the actual purchase of land; commitments for financing are finalized, and preliminary approval of the site plan is sought by the developer; commitments for utility service are also sought.
- o Stage IV: Planning and Costing of Proposed Development. All final plans for both financial arrangements and physical design are completed and submitted to the appropriate authorities for review and approval; building permits are obtained.
- o Stage V: Site Preparation and Building Layout. The development process proceeds one step further, with the arrangement of construction financing, insurance, utilities, and local inspection. Site improvements (streets, sewers, water, storm drainage, etc.) are provided.
- o Stage VI: Construction of Building and Utilities. Once the project is actually under construction, utility hook-ups are made, shell construction begins, and code inspections are carried out. In many cases, marketing activity is initiated, if it has not been previously started.
- o Stage VII: Final Site Preparation. All interior and exterior aspects of the project are completed, including the dedication of streets and/or utilities to the local government; all construction is completed, and marketing efforts intensify.
- o Stage VIII: Sales and Occupancy. Sales or rental of the completed project occurs; as the project is occupied, financial institutions are paid back, and government officials make final inspections.

This description of the process of development has implied the variety of participants involved in each stage, and the interrelated decisions that are made at each point in the process. As was indicated in Figure 2-1, the depiction of the generalized development process, there are certain points of intervention in the process where key decisions are made and where leverage could be exerted for the application of ICES systems.

The points of intervention may be typically found in Stages II, III, IV and V, or relatively early in the planning and design of the project. As pointed out, if an ICES system concept is not introduced early enough in the stages of development, the decisions on utilities and site design will have been made, and the opportunity for an application of ICES will no longer be possible. During those critical stages, some of the types of concerns that would be raised over the application of an ICE system concept can be stated.

During consideration of land purchase (Stage II), the developer would be concerned with the added financial burden in planning, the potential change in site preparation and building construction costs, and the uncertainty of the advantages or disadvantages of an ICES application. The local government officials would have to determine how to relate ICES development to the traditional processes of zoning and subdivision review, with only limited precedents by which to guide that review. Utilities might present formidable opposition if fully aware of the potential impact of ICES, and would certainly contribute to delays in approvals or commitments until the concept could be more thoroughly evaluated.

In the steps leading to the purchase of land (Stage III), a different set of concerns will emerge. At that point, the developer may be concerned with the impact of ICES on obtaining insurance, on the ability to secure financing, on the cost of land acquisition, and perhaps more importantly, on the impact on marketability. There may be some concern with retaining suitable expertise to design and plan the detailed planning and engineering studies required to implement an ICES system. Local government officials would be concerned with the relationship between the ICES system and relevant aspects of the comprehensive plan, the tax base and revenue potentials, and aesthetic qualities of the system. In addition, the concerns expressed in Stage II would also be carried forward and continue to be expressed in Stage III.

As plans for the development are completed, it becomes increasingly difficult to introduce ICES system concepts into the traditional process of development. At the point where planning and costing of the proposed development takes place (Stage IV), local approval by public authorities for the type and location of services must be obtained. In the case of an ICES application, the concerns over the cost, reliability, the allocation of the cost between developer and others, and the responsibility for operation and maintenance of the ICES system become important. Lending institutions suffer the same dilemma that local officials encountered earlier--namely the need to review and make decisions on a system that is relatively little known and where no clear precedent or record of performance has been established.

During site preparation and building layout (Stage V), a number of related concerns arise--including those that have been raised in previous stages. The relationship with the utility will have to be determined, adequately trained contractors or sub-contractors will be sought, and questions from code inspectors can be anticipated. A set of concerns over environmental impacts may be raised.

Finally, once this stage is completed and construction of buildings has begun, there is little potential for application of ICES systems. Either the ICES system has been successfully integrated into the overall development, or conventional energy sources and traditional means of providing services to the community have been utilized.

D. Summary and Conclusions

In summary, this brief elaboration of the development process--focusing on not only concerns and factors in decision-making, but also concentrating on how those concerns might be arrayed over the process of development and among participants--was intended to provide more understanding of the context in which marketing strategies must be placed, and to aid in the formulation of an ICES marketing program.

Although the discussion was abbreviated, it should prove sufficient to indicate that implementation of ICES systems requires careful attention to the concerns of key participants in the development process, to the factors that influence decision-making, and to the points at which intervention with ICES system concepts can be most readily incorporated.

6

MARKET STRATEGIES

A. Introduction

A very simplified but useful way of viewing the decision to purchase or utilize some good or service is to view that decision as a consequence of five factors: the price of the product, the price of competing but substitutable products, the income level or ability to pay among potential consumers, consumer preferences, and knowledge of the particular product. If these factors are related to the marketing of ICES systems, certain emphases become clear. In the case of the first three factors, it is possible that there may or may not be a connection or relationship, but it will be assumed for purposes of this report that technical and economic feasibility has been demonstrated by other activities in the ICES program. Therefore, it may be further assumed that there is some set of technical options and community designs that can be implemented, that are technically sound, that are at least competitive with alternative and traditional infrastructure systems, and that the potential consumers can afford to apply some type of ICES system.

With these simplifying assumptions, the focus then is on the last two factors--consumer preferences and knowledge of the systems. The problem then is not so much demonstrating that the system works or is a good idea, but rather in getting sufficient information about the possible applications of alternative systems into wider currency. The presumption is that if more consumers (viewed as any participant in the development process) knew of ICES systems, there would be some level of demand that would automatically result.

If this is all true, it supports the need for an ICES marketing program. The problem is not technical or economic so much as it is technological transfer and acceptance by potential users (*). In achieving technological transfer or market acceptance of ICES system concepts, there are two major objectives that underlie all aspects of market activity. These two objectives are:

- To Develop a General Awareness of ICES:

The first objective entails development of greater knowledge or awareness of ICES among the various participant groups in the development process. The purpose here is to provide exposure to the concept of ICES--just knowing that such an alternative technical system exists, is feasible, and can result in significant energy savings, as well as other advantages.

(*) Even if it cannot be assumed that ICES systems are competitive, cost-effective, and implementable, there are merits to the marketing program as a means of testing the concept, of providing a basis for comparative analysis with traditional systems, and as a way of addressing what other alternatives might exist that might accomplish the same conservation objectives.

● To Encourage the Application and Actual Implementation of ICES:

The second objective requires not just knowledge, but direct action in the design, construction and operation of ICES systems. A different set of marketing techniques is required for this activity, but the result will be completed and working systems.

In summary, then, the purpose of an ICES marketing program and the objective of the formulation of ICES marketing strategies may be simply stated. It is intended to develop a means of providing information to potential consumers (participants), who will be influenced by that information to alter their decision-making in ways that will result in either (1) some greater awareness of ICES systems, which will be translated into acceptance of ICES concepts at some point in future development activities, and at least consideration of such concepts at present, and (2) current acceptance and application of ICES concepts in present development activities.

In this chapter, a generalized framework for developing marketing strategies is presented, followed by specific attention to developing marketing strategies for the ICES program. The specific steps that are recommended as part of the marketing program, as well as an overall summary, are presented in Chapter 7 following.

B. Generalized Marketing Strategies

The procedure by which marketing strategies are developed consists of a series of steps, which are outlined in the following paragraphs. The result of such procedures will be a well-conceived program for providing information and influencing decision-making on any particular good or service.

1. Define Objectives. The overall purpose for the marketing program and the focus of the strategies needs to be articulated, since it will guide all other marketing activities and will serve as a measure of the results of those activities.
2. Define the Market Area. It is necessary to define the geographical or other area in which information will be supplied and where influence will be brought to bear. This requires some attention to how the items being marketed might be used and where it applies most readily.
3. Define the Product. In case there is uncertainty or fragmented identity of what is being marketed, some attention to the packaging and characteristics of the product must be given.
4. Define the Audience(s). The potential consumers or users of the product must be isolated; this will partially be addressed in defining the market area, but needs explicit consideration--who is to be reached, and what are their characteristics are the issues.
5. Array the Dimensions to the Audience(s). In most cases there is not a single market--either in market area or potential audiences. Therefore, it is essential to segment the market audience, and to recognize what logical stratifications exist among the total group.

6. Define Strategies by Dimensions to the Audience(s). With the segmentation to address particular sub-groups within the market, it is then possible to define marketing strategies oriented to those specific audiences; this allows development of a marketing program targeted to allow more carefully defined results.
7. Define Techniques to Complete the Strategies. The strategies that have been developed for the segmented markets are carried out by a variety of techniques, with particular techniques geared to each segment.
8. Estimate Cost Impacts of Market Strategies. Given the range of strategies and techniques that has been developed for marketing, it is then necessary to estimate both the direct and indirect costs of carrying out all of the options that have been created.
9. Estimate Potential Benefits of Market Strategies. As a counterpart for the estimation of costs, there should also be an estimation of the level of penetration or number of potential users and consumers that will result from each application of strategies and techniques.
10. Cumulate the Cost and Benefit Impacts. If the market strategies, defined for particular audiences and by each segment, are cumulated, then total costs and total levels of penetration can also be estimated.
11. Define the Marketing Program. Based on the costs and potential benefits expected from the strategies, it is possible to combine a number of strategies or to isolate on a single strategy which will give the desired result. The mix of strategies and techniques define the marketing program that will be implemented.
12. Implement the Marketing Program. This simply means that the techniques that have been developed will be applied, and that certain activities are therefore put into effect.
13. Monitor the Results of the Marketing Program. It is important to determine how effective the marketing program is in terms of meeting the general or specific objectives that have been developed. Therefore, follow-up surveys or accumulation of changes in decision-making or patterns of use are a necessary part of the overall marketing program.
14. Refine the Marketing Program. Based on the monitoring and evaluation, the program that was defined may be revised or given a different direction. The previous parts of the program give a strong basis upon which to make such alterations, if they prove necessary.
15. Expand the Marketing Program. Since there was systematic selection from among the strategies and techniques, there were presumably some lower priority activities that were not selected. As the program is implemented, it may be desirable to expand the program into areas that were not emphasized in the initial application.

C. ICES Marketing Strategies

The generalized process of developing marketing strategies and combining them into a comprehensive marketing program has certain implications for the creation of an ICES marketing program. The following observations may be made with regard to formulating an ICES marketing strategy; the observation numbers correspond to the step numbers in the generalized process.

1. The general objectives of the marketing program have been stated: to increase awareness of ICES systems, and to encourage ICES applications.
2. The market area as defined by the program appears to be nationwide; the emphasis in this report is on new or redeveloping projects, but as will be seen in a later section, there is also emphasis on infrastructure retrofit applications.
3. The definition of ICES systems as a specific product is problematic. ICES systems are conceptual in nature, and relate to a variety of systems, technical options, designs, and types of applications. In many senses, ICES systems are custom-designed for each particular area or technical context, and therefore cannot be standardized to a significant extent. One way of dealing with this is to treat ICES as a concept, and to provide information on the idea itself. Another way of dealing with the issue is to define "packages" of technical options, and then to provide information specific to each of those options. (This, in effect, appears to be the approach taken by ICES program managers in the work on technical, economic and institutional feasibility that has been completed to date.) A third possibility is to create greater awareness of the overall ICES concept, but to develop specific information of particular "packages", where definition in more concrete terms is possible.
4. The audiences for the ICES marketing program have been defined, and are primarily developers/builders, local government officials, and those involved in planning and design of communities (planners, architects, engineers). Utilities are also very important, particularly if the municipality owns and operates the utility.
5. The dimensions along which the audiences would be arrayed are as follows:
 - Type of participant, which has been defined as the same as the audiences
 - Scale of geography, principally national and local respondents or participants
 - Type of development, with specific attention to participants in the residential, commercial, institutional, industrial, mixed-use, and redevelopment areas

6. Given the dimensions that have been created, it is possible to develop strategies for each segment. For example, if the objective is to create awareness and the audience is determined to be residential developers active on a national level, this implies certain strategies and techniques for presenting and distributing the necessary information.
7. Certain techniques can be defined for each strategy. To continue the example, some of the techniques for reaching the selected audience for the particular objective of increasing awareness would include speeches on ICES before national associations, seminars, and mailings of brochures to interested developers. A number of techniques are presented in the following chapter, as part of the recommended marketing program.
- 8, 9, 10, 11. No attempt was made to estimate costs and potential benefits in defining the marketing strategies, at least not in any explicit manner. Given the preliminary nature of this assignment, it was not possible to carry out the full procedure for defining marketing strategies and formulation of the marketing program. Suggestions on high priority and initial steps are presented in Chapter 7, however.
- 12, 13, 14, 15. Implementation of the recommended program, or another that may result from more analysis and further refinement, will depend on the support and needs of the ICES program. Monitoring, refinement and expansions of the ICES marketing effort can be suggested if the program is implemented, but cannot be discussed with much authority until the commitment and level of support for marketing are known.

D. Special Case of Infrastructure Retrofit

Before the recommended marketing program is presented, there is one further issue that must be addressed as part of marketing strategies. It was stated that the primary emphasis in this report, and for the marketing program itself, has been on development or redevelopment projects. Little attention has been devoted to another set of potential ICES applications that may also have good prospects for construction and operation. Where it is necessary to refit infrastructure networks--replacing and even expanding existing networks or facilities that have become obsolete, over-utilized, or out-moded-- there is the possibility to consider use of ICES systems at the time that such systems are retrofitted.

The prospects for such applications seem considerable, by virtue of the aging and need for replacement of utility systems in many communities. However, although the applications may be different than with new construction or in community redevelopment, it is not certain that the marketing efforts would be very different. That is, given that the intent of the marketing program is either to increase awareness or to encourage application of ICES systems, there is the same problem of transferring information for retrofit applications as there is with new development or redevelopment applications. What may be altered, therefore, are the priorities given to marketing strategies, with greater emphasis given to retrofit applications if they should prove more likely to result in construction and operation of ICES systems. Should this be the case, obviously a different set of techniques and a different audience (primarily local governments, utilities, and others confronted with and responsible for aging and out-moded infrastructures) would be developed. In conclusion, the manner in which the marketing strategies are developed and combined into a marketing program will take care of the issue of retrofit applications.

THIS PAGE
WAS INTENTIONALLY
LEFT BLANK

7

MARKETING PROGRAM

A. Overview of Marketing Program

A number of different elements of an ICES marketing program have been presented and discussed in this report. Two chapters presented general and more specific information on the characteristics and other necessary background material on the development process; a project information system useful for identifying candidate sites was developed; and attention was given to what would be required for formulation of ICES marketing strategies. Some of the elements that build into the ICES marketing program are presented in schematic fashion in Figure 7-1. As may be observed, the same process of development is implied as in the project information system (Figure 3-4), and is intended to represent the participants and events that constitute that process. The figure also implies that understanding of the market characteristics is necessary, and that market strategies should be developed to account for and to influence the process of development through those market characteristics. The figure summarizes the fact that if market strategies are properly developed and implemented, it will exert influences on decisions in the process of development which will in turn result in the application of ICES systems in a number of development contexts.

The purpose of this chapter is to complete the marketing program and to follow up on the discussion of marketing strategies by presenting specific recommendations on what techniques might be used as part of an ICES marketing program. Initial steps in the implementation of that program are also suggested, as well as implications of the marketing strategies on the ICES program itself.

B. Recommendations on Marketing Program

There are three major areas in which the marketing program should be focused: in the implementation and further development of the project information system, in the strategies oriented to increasing market awareness, and in strategies designed to encourage applications and market acceptance of ICES systems.

1. Implementation of the Project Information System. Suggestions on implementation of the project information system were presented at the conclusion of Chapter 3, and therefore are only repeated here as a means of getting those efforts onto the same agenda for further action as other recommendations. It was recommended that the information system be implemented on a limited basis, with further exploration of the costs and benefits of using privately available data sources, of undertaking the respondent interviewing in only a portion of the country -- where there is high likelihood for growth and development, and of further investigation of what follow-up might be required for the contacts made through the implementation of the information system.

2. Techniques to Increase Market Awareness. In addition to the candidate sites identified and/or contacts made during the implementation of the project information system, a number of other activities are recommended. As a basic premise, it would appear that ICES program managers would prefer to identify opportunities for the exploration and testing of ICES concepts in the short run, with minimal levels of program involvement and cost, and without significant economic, technical, or institutional restructuring for ICES acceptance. In other words, the premise is that if ICES is a sound concept and if lack of information about ICES systems is the problem, then applications of ICES should be widespread if greater awareness of the concept were made available. The assumption is that if marketing efforts create some greater knowledge of ICES systems, participants in the development process will adopt ICES on its own merits.

Some of the techniques that might be considered to gain this greater awareness of the potential for application of ICES systems would include the following:

- a. Mail campaigns for brochures, with the use of mailing lists obtained from professional or trade associations.
- b. Documentation and distribution of findings, conclusions and analysis of case studies undertaken as part of the ICES program; much of this material has not been widely distributed or prepared in summary form suitable for dissemination.
- c. Prototypical analysis of project feasibility, in which the prospective ICES user is asked to supply limited information into a pre-designed checklist, which will then give a rough estimate of energy savings and other advantages of ICES applications; this could be prepared as a special brochure for mailing.
- d. Detailed site-specific analysis of project feasibility, with technical assistance and evaluation provided to the prospective user.
- e. Speeches before development-related audiences.
- f. Articles in development-related magazines or journals.
- g. Contacts and follow-up from the project information system; as discussed previously, one side-benefit from seeking candidate projects will be that a number of potential ICES users will be contacted and will require further information on ICES systems.
- h. Contacts and follow-up through the D.O.E. Energy Extension Offices.

- i. Contacts and follow-up through state energy offices -- and local community energy coordinators, where they exist.
- j. Contacts and follow-up from Federal (basically D.O.E.) RFP procurements where community planning or technology assessments are entailed; potential ICES users can be found among organizations that receive contract awards and those that do not receive awards but file proposals.
- k. Seminars for the design, engineering, site planning, and developer/builder audiences.
- l. Stipulations that consideration of alternative energy systems be given as part of government review and approval procedures. For example, consideration of ICES-type systems might be made part of the guidelines on environmental impact statements, 701 comprehensive planning, 208 water quality planning, air quality assessments, and coastal zone management programs. This would require coordination with other Federal programs, but the effect would be that potential ICES users would at minimum be alerted to the fact that alternative energy systems are possible and that explicit consideration of those alternatives must be addressed as part of the review and approval process.

3. Techniques to Encourage Market Acceptance. A second set of techniques is recommended for marketing ICES concepts; these techniques are directed to obtaining applications -- actual construction and operation -- of ICES systems in a number of locations. The use of these techniques will require more resources and more direct efforts at marketing, but the results of these efforts will be clearly measurable and more guaranteed to produce implemented systems.

The types of techniques that might be considered to encourage market acceptance would include the following:

- a. Direct grants for design and construction of ICES systems.
- b. Loan guarantees (or other financial mechanisms) for design and construction of ICES systems
- c. Organizational support where ICES program managers act as "brokers" or "intermediaries" to arrange for various participants to join in designing and constructing ICES systems.
- d. Direct participation in development teams (or encouraging other units of governments to undertake such participation).
- e. Sponsorship of demonstration programs.

- f. Insertions of appropriate design criteria in manuals used by the design, engineering, site planning, and developer/builder audiences.
- g. Insertions of material appropriate for the application of ICES systems in land use, zoning, or code administration guidelines.
- h. Provision of direct economic incentives, or design of model legislation or ordinances for such incentives useful to local jurisdictions for the application of ICES systems; such techniques as capital investment adjustments, deferral of property taxes, or other mechanisms would be considered.
- i. Integrate ICES concepts or applications into government programs or projects; Federally-constructed projects (such as military bases) could be direct tests, while Federally-funded projects could be indirectly influenced to accept ICES systems. In this latter case, public works funds through EDA, community development block grants through HUD, or coastal energy impact funds through the Office of Coastal Zone Management, for example, are likely candidates.

C. Initial Steps to Implementation

The immediate steps that are recommended in carrying the development of marketing strategies further, and in implementing the marketing program include the following:

- Implement the project information system, as suggested, on a test case basis and with clear priorities for the more rapidly developing areas.
- Develop overall market strategies, with immediate attention to those segments of the market with greater likelihood of ICES systems' acceptance -- namely redevelopment projects, municipal utilities, and perhaps infrastructure retrofit applications.
- Develop materials and information for both special audiences and for general audiences; this will give the capability to present information to meet both the objectives of increasing awareness and encouraging applications.
- Survey Federal, state, and local initiatives and programs to determine where ICES marketing efforts can be enhanced by building on present government efforts.
- Develop a schedule and agenda for speeches, articles, and other forms of publication, through which information on ICES programs can be presented.

D. Implications for ICES Program

Many of the suggested marketing activities have strong implications for planning, management and administration, funding and support, and scheduling of ICES program activities. As suggested, many of the marketing techniques will require a minimal response or level of effort; these techniques are more in the area of market awareness, where information is developed and distributed widely. However, even in this case, it was recommended that ICES program managers formulate a means (1) to follow-up on contacts, (2) to systematically inventory inquiries and responses to the marketing effort, and (3) to have a means of tabulating and analyzing the types of responses in order to gain valuable feedback on the effectiveness of the marketing program and on the acceptance of ICES concepts and applied systems themselves.

There is another invaluable role for ICES program managers to play in the marketing effort. The need for technical assistance and analysis will be considerable, since there is relatively little information available on ICES applications. Coordination of such assistance, as well as documentation, packaging, and dissemination of lessons from completed projects, will be extremely useful to potential users of ICES systems. Considerable efforts to draw upon the work completed in the program and re-using it -- both for general interest, but more importantly, to aid in the planning and development of specific projects -- is suggested.

In the efforts to encourage actual construction and operation of ICES systems, the opportunity for extensive program involvement is great. Demonstration programs, funding assistance, and systems monitoring and evaluation require commitments on the part of the program that are difficult to estimate. It seems clear that such efforts may be required to successfully market ICES systems, but which techniques to use and how those fit in with overall program objectives and activities are difficult to judge. It also seems clear that opportunities for involvement by the program in marketing efforts are greater than the resources that might be available, and therefore careful choices must be made in the longer-term implementation of an ICES marketing program.

APPENDICES

THIS PAGE
WAS INTENTIONALLY
LEFT BLANK

A □ SELECTION OF STATISTICAL INDICATORS

A. Introduction

The statistical indicators and sources of information that are recommended for use in screening in the project information system have been presented in Chapter 3 (Table 3-1). As a means of documenting how those indicators were selected, as well as to present additional information on sources of data with regard to levels of construction activity and identification of areas of growth, further background material is summarized in this appendix.

Before listing the sources of information, however, it is necessary to state the criteria that were used in the selection and final determination of the particular indicators that were recommended as part of the project information system. In seeking a set of statistical indicators, the following criteria were considered:

1. Absolute Growth Versus Rate of Growth

An important distinction must be made between the absolute level of growth in numerical terms, and the percentage rate of change of growth. In most instances, it will be necessary to take account of both measures, for each in itself may prove deceiving as an indicator. The reason is obvious: there may be instances in which a high rate of growth is observed, but the change in actual numbers is low, since the base was low; therefore, little increase occurred in numbers, and the rate was deceptively high. On the other hand, where a large base level exists, there may be a low rate of increase even if there were substantial actual increases in growth. Some consideration of both factors must be given, and thus, sources of statistical indicators must allow that consideration.

2. Consistency of Areas Covered

Since the screening process requires consideration of data from national to local levels, it would be desirable that sources of information be available at as many of those levels as possible. It has been acknowledged that all data sources cannot be utilized at all levels, but certain sources are more consistent across scales of geography than others.

3. Timeliness of Data Sources

An obvious concern in the selection of statistical indicators is how current the data are. In many cases, there is a trade-off between comprehensiveness on one hand, and timeliness on the other. As best as possible, sources

should be selected which permit use of current data -- without sacrificing accuracy, consistency, or comprehensiveness.

4. Relationship to Levels of Growth and Development

As will be seen among the selected indicators, there are certain measures that are clearly related to levels of growth; other measures, while important, have less clear relationships (such as changes in per capita incomes, changes in earnings, and others). In the cases where there is no direct connection with levels of growth, but where development activity can only be inferred and is only indirectly connected, those indicators should not be selected.

5. Availability of Data

A final criteria for selection relates to the effort, time and cost entailed in the use of data. There will be more emphasis on sources readily available from public sources and at minimal costs, rather than privately available sources. Further, the data should be useable without further manipulation or analysis, in order to reduce the level of effort required to collect and utilize statistical indicators.

In the following sections, information of the selected statistics for residential and non-residential indicators of growth and development activity is presented, with a final section on other data sources that were considered but not selected for use in the project information system.

B. Indicators of Residential Growth

1. Population Growth

Selected Indicator: Estimates of the Population of Counties and Metropolitan Areas, Series P-25 and P-26, published by the U.S. Bureau of Census.

The Bureau of Census presents population estimates for all counties and county equivalents in the United States by state. The latest P-25 series, issued in September, 1977, contains provisional estimates for 1975 and estimated rates of change for the five-year period 1970-1975. Included in the estimates are:

- Population and percentage changes by regions, geographic divisions and states
- Population and percentage change by SMSA and constituent counties
- Summaries of fastest growing SMSAs
- Summaries of fastest growing counties by size classification

The latest P-26 series contains provisional estimates of population for counties within each state. These current population reports are the best available source of statistical data for identifying growth areas at a regional, state, SMSA and county level. Although most of these estimates cover only the five-year period 1970-1975, it is felt that the period is long enough to reveal a secular trend. In identifying smaller growth areas, population estimates made by local governments will have to be used. Some of this information is also used by the Census Bureau in updating their own estimates, so the two types of sources will not be entirely inconsistent.

2. Residential Construction

Selected Indicator: Construction Reports: Housing Authorized by Building Permits and Public Contracts, Series C40 published by the U.S. Bureau of Census.

The Bureau of Census annually publishes statistics on the number of new housing units authorized by building permits and public contracts in approximately 14,000 places in the U.S. (About 81 percent of all new private housing in 1976 was constructed within permit-issuing places.) These housing permit data are given by region, geographical division, state, SMSA and county. Since the building permit information is not cumulative, comparisons must be made on a year-to-year basis. The latest report by the Bureau compares 1975 and 1976 data for individual places. Similar comparisons for regions, states and SMSA's can be made using both the 1975 and 1976 reports.

The number of housing units authorized by permits and public contracts, of course, overestimates the number of units constructed because units authorized are not always constructed. In practice, data can be enhanced if during successive screenings, regional and local data on housing starts and housing completions are considered.

3. Savings and Loan Lending Activity

Selected Indicator: Savings and Home Financing Source Book published by Federal Home Loan Bank Board.

Because of the great significance in providing mortgage funds primarily for residential construction and purchase, savings and loan activity will be a valid indicator of residential growth and development in most areas examined in the initial screening process.

Mortgage loans held by savings and loan institutions as well as loan activity and mortgage loans closed are annually reported by the Federal Home Loan Bank Board (FHLBB). Totals are given by district (of which there are twelve), by regions, by state and by SMSA. State, district, county and city data are also published on a selective basis by the Federal Home Loan Bank for each of the twelve FHLB districts. Although consolidated data on mortgage loans

made are not easily available beyond 1975 (printouts for 1976 can be purchased), it is felt that for the initial stage screen these data are relevant.

C. Indicators of Non-Residential Growth

The data sources for statistical indicators for non-residential growth are presented in the following sections.

1. Commercial and Mixed Use

A number of previous studies of retail and other forms of commercial development have led to the conclusion that retail and mixed-use development is ultimately determined by the growth in residential population. Accordingly, areas that are likely candidates for retail and mixed-use development can be identified by examining indicators in addition to those already discussed as relating to residential growth.

a. Construction and Development Growth

Selected Indicator: Construction Review, Total Private Non-Residential Construction by Building Permits, published by the U.S. Department of Commerce.

This publication, which is issued monthly, shows the value of authorized industrial and non-industrial construction by region, state and selected SMSAs. Percentage changes are shown year-by-year for the period 1970 through 1976.

b. Employment

Selected Indicator: County Business Patterns, published by the U.S. Bureau of Census.

This annual publication shows state and county information on employment, payrolls and number of establishments, by detailed industry. The latest information year is 1974. Commercial growth can be traced by comparing annual statistics.

c. Retail and Wholesale Trade

Selected Indicator: Census of Business, published by the U.S. Department of Commerce.

The Census of Business displays information on retail and wholesale trade and detached services for 1967 and 1972. Statistics are available on regional, state, county and city levels. Commercial growth between 1967 and 1972 can be examined by comparing data on employment, payroll and number of establishments by kinds of business.

2. Institutional

Indicators to measure institutional growth will also be drawn from the residential and commercial sources. In addition, the following sources are applicable.

a. Employment and Capital Expenditures

Selected Indicator: Census of Governments, published by U.S. Department of Commerce.

The Census of Governments, last published in 1967 and 1972, shows direct capital outlay expenditures and employment by local governments in states, SMSAs and counties.

b. Federal Grants and Funding

Selected Indicator: Housing and Development Reporter, published by the Bureau of National Affairs.

This biweekly publication reports current developments covering all types of activities related to housing and urban development including recipients of HUD Community Development block grants, action grants, and the Commerce EDA Funding.

3. Industrial

The variables associated with industrial development include: total employment, manufacturing employment, trends in unemployment rates, payrolls, and capital expenditures on new equipment. In addition to the other sources of construction and financing information previously mentioned for residential and commercial development, the following source provides information to measure industrial growth.

Selected Indicator: Census of Manufactures, published by the U.S. Department of Commerce.

This publication, whose last published dates were 1967 and 1972, gives data on manufacturing employment and capital expenditures for new equipment from the regional down to the SMSA level.

4. Redevelopment

The selection of statistical indicators to identify redevelopment activities is problematic because population or employment growth trends, construction activity or funds available from conventional sources are not necessarily indicative of redevelopment activities. In many cases, growth is a negative indicator of redevelopment activity. Principally, an examination of Federal,

state, and local published sources describing actual and anticipated budgeting for redevelopment activities, in addition to applications for public and private funding and other sources of financing or credits, would be the most likely way of identifying areas undergoing significant redevelopment.

D. Other Sources of Information

There are additional statistical indicators that may be useful in determining growth in selected areas. These sources of information were not relied upon in the screening process because they did not fully conform to the criteria for selection of statistical indicators. These information sources may be used to supplement the recommended data sources. A number of supplementary sources published by the U.S. Department of Commerce are outlined as follows:

- County and City Data Book, published every five years, records a variety of statistical information which may assist in the identification of areas of growth. Social and economic indicators include population and employment figures by geographical region among others. The most recent publication is 1972.
- C-20, Construction Reports - Housing Starts, published monthly, presents data on housing starts by region and SMSA. This source may be subject to inaccuracy since the calculated number of public and private housing starts is based upon building permit data obtained from local building officials; 1977 data are available.
- C-22, Construction Reports of Housing Completions, published monthly, reports the total number of public and private completed residential structures by region and SMSA; 1977 data are available.
- Construction Review, published monthly, records a variety of statistical data pertinent to the construction industry (i.e., construction starts, construction permits, costs, prices, materials, employment, etc.) Data are recorded for residential and non-residential construction by region, state, and SMSA; 1977 data are available.
- Employment and Earnings: States and Areas, published monthly, reports labor statistics and unemployment data. The most recent year of publication is 1977.

Other Federal sources include:

- County Business Patterns can be referred to for trends in employment and payrolls at the county level.

- Federal Deposits and Loan Administration, publishes annual statistical reports which pertain to the financial and lending activity of the commercial banking institutions. Data are gathered by region, state and SMSA; 1976 data are available.

One of the more comprehensive private sources for the commercial sector results from the compilation of data on commercial structures by the F.W. Dodge Division of the McGraw-Hill Information Systems Company. The Dodge data are collected by approximately four hundred reporters who periodically send in the details of all construction projects valued at more than \$25,000. Participating reporters get their information largely from architects, construction firms, and owners. Building types covered include both new structures and additions to old structures.

Some aggregation of the information collected is printed in the Dodge Reports. These reports are sent to subscribers every day according to their interests. The interests are defined in terms of groupings of construction project types, nine levels of construction costs, 3,100 county locations, ten stages of project progress, eight classifications of buyers and specifiers, and 15 major and minor trade groups. Dodge Bulletins contain non-selective compilations of Dodge Reports on projects in major market areas for use by subscribers who have less need for selective information on design and bidding activities.

Dodge also publishes four daily regional newspapers which contain information on construction projects in the major market areas they serve. The papers are Dodge Construction News in Los Angeles, Daily Pacific Builder in San Francisco, The Daily Journal in Denver and the Dodge Construction News in Chicago. The papers provide advance information on bidding and selling opportunities in new construction, and have general news of interest to members of the construction industry.

Dodge Construction Potentials is a major source of statistical information on residential and non-residential construction. It provides monthly data on dollar valuation and square footage of new construction, major additions and major alterations for any one or combination of 267 types of structures in each county of every state in the U.S. Bulletins also contain information for the U.S. as a whole and for nine regional areas.

The regularly prepared reports and bulletins contain information on projects which have already advanced to the bidding stage. Projects in the pre-planning stage are not analyzed though F.W. Dodge can provide summaries of that data as a custom-designed service.

The F.W. Dodge Construction Outlook is a forecast of U.S. construction activity published each fall for the coming year. Supplements are issued to reflect changing market conditions.

Another private source of information relates largely to industrial projects. New Construction Reports, published by Clark Associates, provide subscribers with one page reports on construction projects currently in the planning stage. A description of the job with cost estimates, SIC code and names of owner, consulting engineer and contractor are included in the write-up. Projects in all 50 states, Puerto Rico, Canada and Mexico are reported, and subscribers may opt to receive full geographic coverage or any portion (3 state or province minimum) if they want less extensive coverage.

The information for the reports is derived from several sources. Trade magazines and newspapers are searched carefully. Several financial and business intelligence services such as Moody's and Standard and Poor's, and quarterly and annual reports are used. In addition, personal contacts and national construction reporting and clipping services provide details for the reports. When a new project is identified, Clark Associates telephones owners or consulting engineers to obtain additional information.

An international edition of New Construction, providing similar information on foreign projects getting underway, is also available.

Other private sources include:

- National Real Estate Investor is a monthly publication containing limited information on new large-scale construction and development projects. Separate articles on office buildings, multi-use complexes, industrial and apartment buildings are featured.
- Urban Land Institute Project Reference File, published quarterly, contains reports on completed development projects. A general description of the project, site, planning, financing arrangements and experience gained is included as well as specific data on land use and project economics.
- Chicagoland Development is published monthly by the Chicago Association of Commerce and Industry. Included is information on industrial and commercial developments by area, industry type and stage of progress. A section on community developments includes housing, public works and land use projects. Projects in planning, as well as those under construction, are listed and described briefly. A monthly statistical review and business analysis contains data on current real estate activity. Other metropolitan areas have similar publications.
- Industrial Development, published bi-monthly, contains listings of new industrial facilities and expansions worth \$1 million or more announced during the previous two months. Information is

arranged by state (or province for Canada) and by locality within each state for each project.

- American Industrial Properties Report, published six times a year, contains a limited number of briefs on office and industrial park projects.
- Buildings, published monthly, contains a section with news briefs on selected development projects.
- Real Estate Forum, published monthly, contains briefs on selected construction/modernization projects.

These publications are a sampling of the sources of information for identifying development projects.

THIS PAGE
WAS THIS PAGE ALLY
WAS INTENTIONALLY
LEFT BLANK

B. SELECTION OF RESPONDENTS

A. Introduction

One of the primary sources of information needed to identify candidate projects for the applications of ICES systems is through respondent interviews. As described in Chapter 3, Description of Information System, such interviews are conducted in person or by telephone with appropriate organizations or contacts for two purposes. First, the respondent interviews are intended to verify and amplify the areas of rapid growth that have been identified through the statistical screening process. Second, the interviews are also intended to identify particular projects, with direct contact to determine the potential of these projects for ICES application. As a by-product of the respondent interviews, information about the application of ICES systems and about the ICES program can be directed to potential users.

The identification of candidate sites by use of respondent interviews may occur at all levels of government or scales of geography. Some information from national-level respondents will be useful for identifying projects, but certainly will be useful for making the knowledge about ICES systems more widespread. Local respondents will be useful for identifying particular projects, and for assessing the potential applicability of ICES systems.

A partial listing of the types of national state and local organizations that might be contacted is presented in this appendix. Much of the respondent information in the screening process will come from national associations, while state, regional, and local respondent contacts supplied by the national organizations will be used to obtain more reliable, detailed and up-to-date information on area growth and potential candidate sites.

B. National Contacts and Organizations

The national organizations are categorized by area of interest. Contact should be made with as many of the organizations as possible to identify regions, states, and counties experiencing a substantial amount of growth, as well as to find contacts for specific projects.

1. Construction

- National Association of Home Builders
- American Building Contractors Association
- Associated General Contractors of America
- Associated Builders and Contractors, Inc.
- National Frame Builders Association
- Builders with a National Market (National Homes, Levitt, Ryan, etc.)

2. Real Estate

- American Land Development Association
- International Council of Shopping Centers, Inc.
- Mortgage Bankers Association of America
- Mortgage Brokers Association of America
- National Association of Housing and Redevelopment Officials
- National Association of Real Estate Brokers, Inc.
- National Association of Realtors
- League of New Community Developers

3. Financial

- U.S. League of Savings and Loan Associations
- National Savings and Loan League
- American Savings and Loan League
- Mortgage Bankers Association of America

4. Utility

- Electric Power Research Institute
- Edison Electric Institute
- American Gas Association

5. Planning

- American Industrial Development Council, Inc.
- American Institute of Planners
- American Society of Consulting Planners
- American Society of Planning Officials
- National Association of County Planning Directors
- National Association of State Development Agencies
- National Council for Urban Economic Development
- National Planning Association
- Urban Land Institute

C. State and Regional Contacts and Organizations

The state and regional organizations that might be contacted will vary with respect to each state or region of the country. A specific listing of all state and regional agencies will not be given, but a list of the types of organizations to be contacted is presented. It should be noted that many of the national organizations have state and regional offices which can provide additional information of the local areas which they represent.

1. Construction

- Association of Home Builders
- Regional Builders

2. Financial

- State Housing Finance Agencies

3. Utility

- Public Service Commissions

4. Planning

- State Capital Development Boards
- State Industrial Development Commissions
- State Municipal Leagues
- State Planning Agencies
- State Economic Development Agencies
- Regional Planning Agencies or Council of Governments

D. Local Contacts and Organizations

More detailed information at the local area, including an enumeration of potential sites and their characteristics, can be attained from the public and private organizations within the city, county, or metropolitan area. As in the instance of state and regional organizations, the local organizations are too numerous to delineate; however, several general groups should be contacted. These groups and organizations are categorized as follows:

1. Construction

- Association of Home Builders
- Developers
- Builders

2. Real Estate

- Real Estate Brokers

3. Financial

- Commercial Banks
- Savings and Loans
- Other Financial Institutions

4. Utility

- Public and Private Utility Companies

5. Planning

- City Planning Department
- County Planning Commission
- Metropolitan Planning Agencies
- Economic or Redevelopment Corporations

THIS PAGE
WAS THIS PAGE
WAS INTENTIONALLY
LEFT BLANK

DESCRIPTION OF CANDIDATE SITES

The detailed results of limited application of the information system, as described in Chapter 4, are presented in this appendix. More information on the candidate projects identified in that test is provided, to document more fully the types of findings from the application of the information system. It should be noted that the presentation of the candidate sites does not conform to the proposed format as suggested in the Project Information File. Rather, candidate sites are presented in an abbreviated narrative form. Since full implementation of the information system was not intended, only partial information on each project was gathered. The findings by land-use sector are presented in the following sections.

A. Residential: Coral Springs New Town; Coral Springs, Florida

1. Characteristics

Coral Springs is a New Town Project developed by Coral Ridge Properties and built by Westinghouse. Located approximately fifteen miles northwest of Ft. Lauderdale, the incorporated portion of the city encompasses an area thirteen square miles. The total planning area of Coral Springs is approximately 25 square miles (16,000 acres), of which twelve square miles are unincorporated. Annexation of this unincorporated area is anticipated for the future.

The New Town is phased in a total of thirteen village planning units. The construction of each village in Coral Springs is based upon the land development and sales within the individual planning unit. Analysis and planning of each village begins approximately five years prior to village development.

Coral Springs has a population of 25,000. Growth has been at a rate of 4,000 persons a year since its inception in 1965. The town anticipates an increase in population to 40,000 persons by 1983. The city estimates a population figure of 155,000 to 160,000 persons by the year 2034 in a town encompassing 25 square miles.

2. Land-Use Plan

Coral Springs includes residential, industrial, and commercial development. Presently, the city encompasses 8,300 acres, of which fifteen to twenty percent is developed. The city has allocated approximately 11,400 acres

for residential use, and forty percent of the residential acreage has been developed to date. Net residential density is presently six to seven units per acre. Of the occupied residential lands, approximately ninety percent is single-family. Single-family units comprise a density of three to four units per acre.

There are 1,000 acres set aside for commercial development in the city. Ten to fifteen percent of this acreage has been developed for commercial use. Approximately 540 acres are set aside for industrial development. Industrial usage will include research, development, and light manufacturing. Fifteen percent of the industrial lands allocated have been developed.

The development amenities include 50 acres of park lands conveyed to the city, an undetermined amount of land reserved for one or two school sites, and churches.

3. Stage in the Development Process

Seven of the thirteen planning villages have been completed to date. Village 8, located southwest of Coral Springs' city proper, is now under construction and is expected to be annexed in the near future. The engineering analysis and primary roads have been completed in the Village; ground development (drainage systems and local roads) is presently occurring. Village 8, expected to have a total population of 74,000, just recently received county plat and zoning approval (in October 1977) from the county planning commission. Construction of the first home is expected to begin in approximately one year.

A mixture of residential and commercial land-uses, Village 8's total acreage is approximately 637. Gross density for the village is 3.73 per acre; the net density for residential development is 6.00. The phased growth schedule for the village is reflected in an expected population of 480 by the year 1979, and 7,554 by the year 1996.

There are five villages remaining in the planned area of Coral Springs. An incremental planning stage of one or two years will be required for each remaining village prior to physical development. Most of the villages will have characteristics similar to Village 8. The characteristics of the future villages may change as trends and market demand changes.

B. Commercial: Gulfstream Plan; Plantation, Florida

Gulfstream Plan is a mixed-use concept which includes the construction of a regional shopping mall and an office parkland. The commercial component of Gulfstream Plan is anticipated to serve the growing market area west of Ft. Lauderdale. A full description of this project is located in Section E, Mixed Land-Use, in this appendix.

C. Institutional: Government Center; Miami, Florida

1. Characteristics

The Government Center presently being constructed in the City of Miami is located on 30 acres of land (a fifteen square block area) on the western periphery of the city's central business district. The project began in 1971; the anticipated completion date is 1995. The majority of the land for the Center has been acquired. The project is not formally phased; however, the construction of each building will take place as the monies become available to undertake the project.

2. Land-Use Plan

The Government Center will include: city, county, and state administrative office buildings; the county library and museum; the administrative office for the future rapid transit system; and parks and plazas.

The City Administration building is approximately 200,000 square feet. The first phase of construction includes 68,000 square feet. The Dade County Administration building will be over 167,000 square feet. (A date for the start of construction has not been set). The Florida State Office Building will be over 1,000,000 square feet. Approximately 300,000 square feet of office space will be constructed in Phase 1 of the project. The Police Station is approximately 140,000 square feet.

Dade County's library and museum will occupy approximately 345,000 square feet of space. The library will be approximately 200,000 square feet; the museum approximately 145,000 square feet.

Garage parking will accommodate approximately 3,000 to 5,000 cars. Parks, open space areas and passive recreation areas will be interspersed throughout the complex.

3. Stages in Development Process

Government officials are presently attempting to secure monies to begin construction on several of the proposed buildings in the Government Center. The Police Station is the only building that is completed and occupied in the Government Center to date. Phase 1 of the City Administration building is in the initial stage of construction. A date for starting construction has not been set for the remaining land-use elements of the plan.

D. Industrial: Irvine Industrial Complex; Orange County, California

1. Characteristics

Irvine Industrial Complex, located in Orange County, California, is a phased industrial park owned by the Irvine Industrial Complex Corporation, a subsidiary of the Irvine Company. The industrial park development began

in 1964; its anticipated completion date is scheduled for 1984. The complex, contained within the towns of Irvine, Newport Beach, Tustin, Santa Ana, Garden Grove and Costa Mesa, encompasses a total of 6,000 acres. A major portion of the park (2,500 acres) is located in the town of Irvine. The remaining towns individually have between 200 and 300 acres reserved for the complex's development.

2. Land-Use Plan

The Irvine Industrial Park is made up of two major development planning areas: Irvine Industrial Complex West, and Irvine Industrial Complex East. There are two smaller development components in addition to West and East--Irvine Industrial Complex-Tustin and Irvine Industrial Complex-Garden Grove. The following section outlines the land use plan of each development component.

a. Irvine Industrial Complex West

Irvine Industrial Complex West is presently sixty to seventy percent developed. As of March 1977, the western portion of the Irvine Industrial Complex employed over 40,000 persons, consisted of more than 600 industries, and contained approximately 20,000,000 square feet of industrial and commercial space. Industrial uses include: light to medium industry, some heavy industrial (such as smelting plants, and cement manufacturing), warehousing, and electronics.

Land has also been set aside for commercial development in Irvine Industrial Complex West. Commercial uses include: office space, service industries, and some retail. Of the approximate 222 acres allocated for commercial and office space, 122 acres are reserved exclusively for office space.

b. Irvine Industrial Complex East

Irvine Industrial Complex East is located entirely in the City of Irvine. This portion of the Industrial Park will have similar land-use characteristics to its counterpart, Irvine Industrial Complex West. Total acreage for Irvine Industrial Complex East is approximately 2,500.

c. Irvine Industrial Complex-Tustin

The land-use plan has not been finalized for this portion of the Industrial Park. Land-use plans are presently being negotiated. Components of the land-use plan will rely heavily upon the present level of market demand in the area.

d. Irvine Industrial Complex-Garden Grove

Final decisions regarding the Garden Grove component of the Industrial Park are presently being discussed. The present market demand will also determine this section's land-use characteristics.

3. Stage in Development Process

Each component of the Irvine Industrial Complex (West, East, Tustin, and Garden Grove) is individually developed and constructed in phases. A five year plan has been established for the phased development of each component. The stage of development for each component is outlined as follows.

a. Irvine Industrial Complex West

Development is continuing in this section, which is seventy percent completed. Presently, land-use figures (square footage of the total building space, total acreage of this section, etc.) are being re-calculated. The anticipated completion date is in two years or 1979.

b. Irvine Industrial Complex East

Land grading will begin on 12,000 acres in February, 1978. This portion of the component's total acreage has been subdivided, but no construction has begun. The streets have been laid, and plans of the developer and builders are being reviewed. Anticipated completion for Irvine Industrial Complex East is five years or 1982.

c. Irvine Industrial Complex-Tustin

Off-site improvements (streets, site improvements, utilities, etc.) began early in 1978. Anticipated completion is two to three years or 1980.

d. Irvine Industrial Complex-Garden Grove

The off-site improvements have begun. Anticipated completion is two years or 1979.

E. Mixed Land-Use: Gulfstream Plan; Plantation, Florida and 84-South; Plantation, Florida

1. Gulfstream Plan

a. Characteristics

The Gulfstream Plan, located in Plantation, Florida, a small town west of Ft. Lauderdale, is being developed by the Gulfstream Land Development Corporation as a mixed land-use concept. The plan, not zoned for a PUD development, has the characteristics of a PUD. The project is anticipated to include the following types of land-uses: residential, commercial, parks and recreation, and schools.

Gulfstream Plan began in 1968; its anticipated completion date is 1995. A present population of 10,000 occupies a gross acreage of 5,400. Thirty percent of Gulfstream Plan is completed, and ten percent is presently under construction. Gulfstream, presently considered a "bedroom community" of the Ft. Lauderdale SMSA, is in a stage of transition--changing from a "bedroom community" to a thriving city.

b. Land-Use Plan

The plan includes residential, commercial/light industrial, parks and open space, and schools. There are 32,000 residential units planned with a future overall density of four or five units per acre. The housing stock of Gulfstream Plan will be a combination of single family, townhouses, condominiums, and garden apartments. Land-use concepts such as cluster development and zero lot line will provide the basis for orienting residential units on their individual lots. Presently, 4,000 residential units have been occupied; the average number of persons per household is 2.5.

The commercial component of the Gulfstream Plan is the largest section of the mixed-use development presently under construction. There are 400-500 acres allocated to both commercial and industrial uses. The commercial component, anticipated to be an office park, includes approximately 100 acres earmarked for the construction of a regional shopping mall. The mall, presently under construction, will serve a rapidly growing market west of Ft. Lauderdale.

There has been a commitment of 150 acres for the development of parks. Approximately 300 acres have been committed for development of golf courses and open space. Three schools--elementary, middle and high school -- are planned for construction on approximately 100 acres of land.

c. Stage in Development Process

Construction of the residential and commercial components of Gulfstream Plan is presently underway. Two hundred residential lots are being platted, and approximately 200-300 homes are presently under construction. The infrastructure of the mall is completed.

2. 84-South PUD

a. Characteristics

The 84-South PUD development, under the management of Wind and Wind Development Corporation of New York, is located west of Ft. Lauderdale near the towns of Plantation and Davie. Total acreage for the development is 800. Approximately 120 acres have been condemned for Interstate I-75. The highway will bisect the property into two planning units, East and West. PUD approval was recently made by the county commissioners for the development of each planning unit. Anticipated completion for the project is 1987.

b. Land-Use Plan

The land-use plan for the 84-South development includes: residential, commercial, industrial, institutional and recreational elements. The development's plan includes approximately 2,000 residential units of various types. Housing types will vary from single family detached to villas, townhouses, and garden apartments. Residential units will be constructed on 270 acres of land allocated for residential development;

this acreage is divided between the East and West planning units. The eastern portion of 84-South includes 120 acres for residential development, the western portion includes 150 acres for residential development.

Residential development will be completed in four phases. Each phase will differ according to housing type and density. Brief characteristics of each residential phase follow:

- Phase I includes the preparation for ground breaking in the western portion of 84-South, and the construction of 250-300 single-family homes. Residential density will be three to four units to the acre.
- Phase II includes 273 townhouse units and 146 villas. The density will be 7.5 units to the acre for the townhouses and four units to the acre for the villas.
- Phase III includes 783 garden apartments with a density of 15 units to the acre.
- Phase IV involves the development of the eastern portion of 84-South. Approximately 600 residential units of various housing types will be constructed.

A total of twenty acres of land has been allocated for commercial use in 84-South. Ten acres within each planning area are earmarked for commercial and retail development. It is anticipated that commercial and retail development will occupy approximately 175,000 square feet of building space. A total of 27 acres are reserved for business development, which will include 300,000 square feet of space.

Future industrial development is planned to be along the I-75 expressway, once the interstate is completed. A total of 70 acres has been reserved for industrial development. Heavy manufacturing will occupy approximately 200 million square feet of space. It should be noted that commercial and industrial planning and development is contingent upon the market demand when the residential sections of 84-South are completed. It is expected that commercial and industrial development will begin upon the completion of I-75 in 1982.

The proposed motel site will encompass nine total acres and occupy approximately 170,000 square feet of space. The school sites will occupy approximately 20 acres. In addition, a 75 acre lake area is available to eligible users.

c. Stage in Development Process

The 84-South PUD development will be developed in phases tailored to the response of market demand. Presently, land development costs and interior developing is occurring on the western portion of 84-South in preparation for groundbreaking. It will be, however, 12 to 15 months before actual groundbreaking begins for the residential units in Phase I.

F. Redevelopment: Miami - Dade Jr. College; Miami, Florida

1. Characteristics

Miami - Dade Jr. College is located in downtown Miami. An increase in student demand has encouraged school and government officials to analyze the feasibility of expanding the college's physical space. The institution is surrounded by an area that is presently blighted with low grade commercial, deteriorated roominghouses and hotels. The area is transient in nature and characterized by abandoned, vacant lots. School officials and city administrators are interested in purchasing the blighted lands surrounding the college to allow for the physical expansion. The total redevelopment effort is anticipated to be 150,000 square feet of space.

The City hopes to obtain Community Development Block Grant (CD) monies to assist in financing the expansion of the college. However, the funds will not be available until July, 1978.

2. Land-Use Plan

The land-use plan for the redevelopment plan is under discussion. At least 100,000 square feet of space have been allocated for the community college. No other information was available regarding the land-use characteristics of the project at the time of this research effort.

3. Stage in Development Process

Analysis is being conducted to determine the feasibility of including mixed land-uses in the redevelopment project. Numerous consulting firms are presently determining the feasibility of including commercial and retail space, subsidized elderly housing, and the Florida International College in the redevelopment concept. The plan, as stated earlier, is under discussion and must be approved by area citizens before the CD funds are allocated. In addition, land acquisition and additional planning is necessary. It is anticipated that initial construction of the expansion area will be no earlier than July, 1979.